Introduction

The DefMed Bulletin service offers a selection of new literature that has been discovered during the period on the cover of this Bulletin. It includes any literature in the English language that might be of interest, as well as some foreign language articles, and covers topics that might be of interest to anyone working in the field of military clinical practice.

Articles are gathered together in broad subject groupings and are currently organised alphabetically by grouping.

Each entry is marked with a unique accession number (e.g. 2019 - 121 0001) for ease of retrieval and this number should be used when requesting material from the Burnett Library.

Please see the articles listed below from the special edition of Journal of the Royal Army Medical Corps on the contribution of psychology to mental health in the UK Armed Forces: (2019 122 0006, 0115, 0135, 0163, 0188, 0193, 0194, 0197, 0198, 0200, 0201, 0205, 0206, 0207, 0208, 0210, 0211, 0212, 0213, 0214, 0215, 0216, 0217, 0235, 0247). Full text copies of these and other JRMC articles are available with an Athens account, if you require an account please contact the Burnett Library.

If any articles are required, readers are asked to complete an article request form and e-mail this to the Burnett Library at the e-mail address below.

I would particularly like to thank Paul Dowling (Burnett Library), for his contribution to this edition.

Jenny Lewis
Secondary Care Librarian

jenny.lewis186@mod.gov.uk

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Cigarette smoking rates among veterans: Association with rurality and psychiatric disorders

Source
Addictive Behaviors 2019 90 ( ) 119-123

Author(s)

Abstract
Aims: Compared to the general U.S. population, military veterans and those living in rural areas disproportionately smoke cigarettes at higher rates, leading to increased health consequences. In the current study, prevalence and severity of cigarette smoking in Iraq and Afghanistan era veterans was assessed across rural and urban areas and comorbid mental health disorders.; Method: Iraq/Afghanistan era veterans who participated in the Post-Deployment Mental Health study from 2005 to 2017 (N = 3229) were cross-sectionally assessed for the probability of being a current cigarette smoker based on locality status and psychiatric comorbidity. Multivariate logistic and linear regressions, adjusted for demographic characteristics, were used to model the odds of being a current smoker and the severity of nicotine dependence, respectively.; Results: Veterans residing in rural regions, veterans with psychiatric comorbidities, and the interaction of locality and psychiatric disorders were significantly associated with smoking rates. Those veterans living in extremely rural areas and, independently, those living with psychiatric comorbidities were also more severely dependent on nicotine compared to urban veterans and veterans without psychiatric conditions.; Conclusions: Rural veterans and veterans with psychiatric comorbidities are at increased risk of smoking and are more severely dependent on nicotine than urban veterans. These findings underscore the need to reduce barriers for treatment both for smoking cessation and mental healthcare for veterans residing in the most rural areas.

Clinical characteristics of veterans with gambling disorders seeking pain treatment

Source
Addictive Behaviors 2019 95 ( ) 160-165

Author(s)
Ronzitti,S., Kraus,S.W., et al.

Abstract
Objectives: To examine the relationships between gambling disorder, pain, and suicide attempts among US military veterans using Veterans Health Administration (VHA) pain-related services.; Methods: Retrospective cohort analysis of 221,817 veterans using pain services was included in the analysis. First, differences in sociodemographic and clinical characteristics (i.e., psychiatric comorbidities and pain-related variables) were analyzed according to gambling disorder. Second, we performed logistic regression analyses to assess the association between gambling disorder and suicide attempts.; Results: Female sex, depressive, alcohol, drug and
tobacco use disorders are positively associated with gambling disorders, while severe pain score is negatively associated with gambling disorders. Logistic regression analysis showed that gambling disorder diagnosis was associated suicide attempt in veterans who received a visit for pain in VHA in the past year.; Conclusions: Our findings suggest that gambling disorder in female veterans and suicide attempts in veterans with gambling disorder should not be underestimated and warrants further consideration. Moreover, the result that veterans with severe pain may be less likely to have a diagnosis of gambling disorder needs to be confirmed.

2019-122 0003

Combat Readiness, Harm Aversion, and Promotion Eligibility: A Qualitative Study of U.S. Service members Views on Tobacco Use and Control in the Military.

Source
Military Medicine 2019 184 (3-4) e175-e182

Author(s)
Singaraju,R.C., and Myers,J.N.,.

Abstract
Introduction More than half a century after the first Surgeon General’s Report on Smoking and Tobacco Use, tobacco use remains the leading cause of preventable disease for the U.S. military. Military tobacco use impairs troop readiness, decreases productivity, reduces servicemember physical performance, and leads to chronic illness in veterans. The Department of Defense (DoD) spends considerable effort to maintain a combat ready force, and tobacco use is contradictory to these efforts. U.S. servicemember tobacco use is estimated to cost the federal government more than $6.5 billion annually. The uniqueness of military culture allows for innovative means of tobacco regulation and prevention. Our study examines the U.S. Navy cultural and servicemember perceptions to inform future tobacco control research and policies.

Materials and Methods We developed a behavioral model of tobacco use from existing literature. Using this model as a theoretical framework, our study qualitatively examine tobacco use in the active duty Navy population stationed in Okinawa, Japan. Thirty one-on-one interviews were conducted with active duty servicemembers. Sessions were recorded, transcribed, and analyzed in MAXQDA12.

Results Multiple military-specific themes were identified. Themes: (1) tobacco use is a "right," (2) the military may limit active duty servicemembers’ rights, (3) tobacco restrictions are justified if they prevent harm to others, (4) tobacco restrictions are not widely enforced, (5) smoke breaks are viewed as a legitimate reason to rest at work, and (6) the benefit of tobacco is as a stimulant. Novel tobacco cessation techniques suggested by our study include: (1) expand the buddy system to create an artificial support network for tobacco cessation and (2) tie promotion eligibility to tobacco use.

Conclusions This qualitative study identifies military-specific themes from the tobacco user perspective that help to guide research and policy in reducing tobacco use among military servicemembers. Possible interventions suggested by our findings may include replacing tobacco breaks with fitness breaks to relieve workplace stress and support the culture of fitness, expanding the use of pharmacologic stimulants to replace tobacco when used to maintain alertness, and gathering social support for tobacco cessation from non-healthcare unit members. Further study is needed to elucidate the effectiveness of proposed interventions suggested by our findings, with the ultimate aim of policy changes within the military to optimize health and military readiness, while decreasing long-term health effects and costs of tobacco use.
Concurrent treatment of substance use disorders and PTSD using prolonged exposure: A randomized clinical trial in military veterans

Source
Addictive Behaviors 2019 90 ( ) 369-377

Author(s)
Back,S.E., Killeen,T., et al.

Abstract
Objective: A substantial amount of individuals with substance use disorders (SUD) also meet criteria for posttraumatic stress disorder (PTSD). Prolonged Exposure (PE) is an effective, evidence-based treatment for PTSD, but there is limited data on its use among individuals with current alcohol or drug use disorders. This study evaluated the efficacy of an integrated treatment that incorporates PE (Concurrent Treatment of PTSD and Substance Use Disorders Using Prolonged Exposure or COPE) among veterans. Method: Military veterans (N = 81, 90.1% male) with current SUD and PTSD were randomized to 12 sessions of COPE or Relapse Prevention (RP). Primary outcomes included the Clinician Administered PTSD Scale (CAPS), PTSD Checklist-Military version (PCL-M), and the Timeline Follow-back (TLFB). Results: On average, participants attended 8 out of 12 sessions and there were no group differences in retention. Intent-to-treat analyses revealed that COPE, in comparison to RP, resulted in significantly greater reductions in CAPS (d = 1.4, p < .001) and PCL-M scores (d = 1.3, p = .01), as well as higher rates of PTSD diagnostic remission (OR = 5.3, p < .01). Both groups evidenced significant and comparable reductions in SUD severity during treatment. At 6-months follow-up, participants in COPE evidenced significantly fewer drinks per drinking day than participants in RP (p = .05). Conclusions: This study is the first to report on the use of an integrated, exposure-based treatment for co-occurring SUD and PTSD in a veteran sample. The findings demonstrate that integrated, exposure-based treatments are feasible and effective for military veterans with SUD and PTSD. Implications for clinical practice are discussed.

Deployment and Smokeless Tobacco Use Among Active Duty Service Members in the U.S. Military.

Source
Military Medicine 2019 184 (3-4) e183-e190

Author(s)
Lin,J., and Zhu,K.,

Abstract
Introduction The prevalence of smokeless tobacco use among U.S. active duty service members has been much higher than in the U.S. general population. The association between deployment and smokeless tobacco use has not been well studied. We investigated the association between deployment and smokeless tobacco use among U.S. active duty service members. We also evaluated the modification effects from other factors related to smokeless tobacco use on the deployment-smokeless tobacco use association. Materials and Methods Eligible
active duty service members stationed at two military installations (Fort Bragg, NC, USA and Lackland Air Force Base, TX, USA) were recruited from July 2015 to May 2016. Each participant completed a self-administered questionnaire. Multivariable logistic regression was used to assess the association between deployment and smokeless tobacco use and estimated odds ratio (OR) and 95% confidence interval (CI). Stratified analysis was performed to evaluate modification effects from other commonly known factors related to smokeless tobacco use in military, specifically, cigarette smoking status, use among family members (family history of use), perception of harm, and use among military peers. Results Out of 2,465 study participants who completed the questionnaire, 548 were smokeless tobacco users. Service members who had been deployed to a combat zone had 1.39 fold (95% CI = 1.03–1.87) increased odds of using smokeless tobacco than those who never deployed to a combat zone. The odds of smokeless tobacco use among those who had been deployed once, twice, three times and four or more times to a combat zone were 1.27 (95% CI = 0.91–1.78), 1.30 (95% CI = 0.85–1.99), 2.49 (95% CI = 1.45–4.28), and 2.88 (95% CI = 1.71–4.86), respectively, with a significant dose–response trend (p for trend <0.0001). Further, subjects who served in combat units during deployment exhibited more than two-fold increased odds of use as compared with those who had never been deployed (OR = 2.03, 95% CI = 1.41–2.93). In stratified analysis, the association between deployment and smokeless tobacco use was only present among subjects who never smoked cigarettes, those without family history of smokeless tobacco use, and those who had low perception of harm of use. Conclusions Military deployment was associated with smokeless tobacco use among active service members. However, the influence of military deployment on smokeless tobacco use was not equally strong on all service members. Subjects who never smoked cigarettes, who had no family history of use and who had low perception of harm were the most susceptible subgroups to deployment-related smokeless tobacco use. This study has implications to identify high-risk subgroups to reduce smokeless tobacco use in the U.S. military.

2019-122 0006  ✔ Editor's Choice

Development of alcohol treatment for UK military personnel.

Source
Journal of the Royal Army Medical Corps 2019 165 (2) 98-101

Author(s)
Rushton, R., and Lynch, K.,

Abstract
The consumption of alcohol in the UK Armed Forces (AF) as ‘an agent to assist cohesion and informal operational debriefing’ is a social and psychological conceptualisation that has some empirical support. Indisputable data exist to suggest that high levels of alcohol misuse and related problems are prevalent among UK AF. Recent research indicates that the overall level of hazardous alcohol consumption remains high in the UK military, with little evidence of reduced consumption over time. Meanwhile, risky drinking in the general population appears to be decreasing. This paper describes work to develop a key aspect of an integrated care pathway for UK military personnel at all levels of alcohol risk. The project focuses on the development of an evidence-based treatment response across primary care and mental health services that will link with preventative initiatives. Specialist (ie, substance misuse) input from the Defence Clinical Psychology Service across and within Departments of Community Mental Health lends an overarching perspective to a major healthcare and organisational concern for the UK AF. Work towards a
consistent treatment pathway for alcohol misuse is also benefiting from collaboration between the Ministry of Defence and Public Health England.

2019-122 0007

Exploring the association between changes in partner behaviors, perceived service member drinking, and relationship quality: Secondary analysis of a web-based intervention for military partners

Source
Journal of Substance Abuse Treatment 2019 98 ( ) 66-72

Author(s)

Abstract
Problematic drinking is a serious and persistent problem among U.S. military service members and veterans, who face barriers to seeking help and are less likely to seek help than the civilian population. One way to reach this population is through spouses or partners who are concerned about the service members’ drinking (concerned partners CPs). CPs of military service members were recruited for a web-based intervention, Partners Connect, that aimed to improve patterns of communication about the service members’ drinking. Participants were 234 CPs (95% female; 71% White; 89% married; average age 32 years) who completed a baseline survey, were randomized to a four-session web-based intervention or a waitlist control group, and completed a follow-up assessment 5 months later. Three measures reported by CPs assessed perceived partner drinking (drinks per week, highest number of drinks across a typical week, and frequency of drinking in the past month) and CP behaviors were assessed using the Significant-other Behavior Questionnaire (SBQ) and the State-Trait Anger Expression Inventory (STAXI-2). Results demonstrated that the intervention did not have a main effect on CP behaviors relative to control. However, changes in CP punishment of partner drinking and behaviors supporting sobriety were significantly associated with decreased perceived partner drinking and improved relationship quality over time. Furthermore, compared to the control group, to the extent that CPs in the treatment group reduced their negative behaviors, perceived partner drinking declined and relationship quality improved. The results reinforce the importance of considering CP behaviors when designing interventions to reduce drinking.
Predicting cigarette initiation and reinitiation among active duty United States Air Force recruits

Source
Substance Abuse 2019 ( ) 1-4

Author(s)

Abstract
Background: The first year of military service in the United States Air Force (USAF) is a high-risk time for tobacco use. Previous studies have demonstrated the effectiveness of a tobacco ban during Basic Military Training (BMT). However, no studies have examined the effect of increasing the protracted ban for an additional 4 weeks. Understanding the patterns of initiation and reinitiation following the protracted ban will inform future intervention and policy efforts.; Methods: The current study examines patterns of cigarette smoking among a sample of 2188 USAF personnel at baseline and after their first year of service.; Results: One year after BMT, we observed that 65.0% of USAF enlistees remained never smokers, 9.6% remained abstinence from cigarettes, 9.3% initiated cigarette smoking, and 16.1% reinitiated cigarette smoking. Despite the extended tobacco ban in BMT and Technical Training, 12.6% of individual who never smoked initiated cigarette smoking and 62.6% of individuals who formerly smoked reinitiated. Over half (54.2%) of Airmen who reported smoking cigarettes at follow-up reported initiating or reinitiating during Technical Training.; Conclusions: Our findings indicate that although the increased ban prevents additional individuals who smoked cigarettes prior to joining the Air Force from reinitiating, it has no effect on initiation among individuals who report never using prior to military service. Additional research is needed to understand what may be leading to these high rates of initiation and reinitiation in Technical Training following the ban.

Prevalence and covariates of problematic gambling among a US military cohort

Source
Addictive Behaviors 2019 95 ( ) 166-171

Author(s)
Gallaway,M.S., Fink,D.S., et al.

Abstract
The availability of and participation in gambling has increased substantially the past several decades, however studies of military members' gambling behaviors are limited. The present study aimed to investigate potential problematic gambling and its association with demographics and behavioral characteristics in a US military cohort. We analyzed cohort data from a telephone survey during 2015-2016 of 1553 Ohio Army National Guard members. We assessed potential problematic gambling by using the 3-item National Opinion Research Center Diagnostic Screen-Loss of Control, Lying, and Preoccupation Screen (NODS-CLiP). Potential correlates examined were demographics, depression, suicidal ideation, smoking status, alcohol use, legal and financial problems, perceived general health status, pain, and impulsivity. Results indicated past-year frequent gambling (at least once per week) and lifetime potential problematic gambling was reported by 13% and 8% of respondents, respectively. Problematic gambling and past-year gambling behaviors were associated in a dose-response relationship from 18% among soldiers gambling.
once per week to 44% among those gambling 4 or more times per week. Correlates of screening positive for potential problematic gambling included the following: being male, currently unmarried, having left the Guard or retired, minor depression, alcohol dependence, legal problems, and increased pain. Given the higher prevalence of frequent gambling in this military cohort (8%), nearly twice the US prevalence (5%), and the association with negative psychological and behavioral outcomes, routine screening of gambling frequency and problem gambling may be needed to ensure military and veteran populations live the healthiest lives possible.

2019-122 0010

A Qualitative Examination of Stay Quit Coach, a Mobile Application for Veteran Smokers with Posttraumatic Stress Disorder


Author(s) Herbst,E., McCaslin,S.E., et al.

Abstract
Introduction: Smoking is a lethal public health problem that is common in United States military veterans, particularly those with posttraumatic stress disorder (PTSD). Mobile applications (apps) to promote smoking cessation are a scalable and low-cost approach that may facilitate treatment engagement.; Methods: This qualitative study examined the acceptability, user experience, and perceptions of a smoking cessation app, Stay Quit Coach (SQC), when incorporated into evidence-based smoking cessation treatment. U.S. military veterans with PTSD who smoked ≥5 cigarettes daily and stated an interest in cessation were eligible to participate. Participants' baseline comfort levels with mobile technology was measured using the Perceptions of Mobile Phone Interventions Questionnaire-Patient version (PMPIQ-P). At treatment end, semi-structured qualitative interviews were conducted.; Results: Twenty participants were enrolled and 17 (85.0%) participated in the qualitative interview at treatment end. PMPIQ-P scores at baseline ranged from 4.97-5.25 (SDs=0.73-1.04), reflecting moderately high comfort with mobile technology among participants. Qualitative analyses indicated that most participants: 1) endorsed mobile technology as an appealing format for smoking cessation treatment, due to convenience and instantaneous access; and 2) expressed highest perceived helpfulness for interactive app features. Recommendations to improve SQC clustered into four thematic areas: 1) increasing personalization; 2) including more self-tracking features; 3) increasing visual cues; and 4) sharing progress with peers.; Conclusions: SQC was perceived as an acceptable and useful tool to support smoking cessation in a sample of veteran smokers with PTSD. Qualitative data provided valuable insights that can inform the continued development of SQC and other apps for smoking cessation.; Implications: Given the high lethality associated with cigarette smoking, it is crucial to identify scalable, low-risk strategies to promote smoking cessation, particularly in high-risk populations. Mobile technology is a promising approach that can be used to augment evidence-based smoking cessation treatment. Results of this qualitative study support the use of the SQC mobile app when incorporated into evidence-based smoking cessation treatment for veterans with PTSD and provide future directions for refinement of the SQC app. These findings also highlight the importance of using a patient-centered approach in designing apps intended for a clinical population.; Published by Oxford University
The relationship between self-efficacy, readiness to change, and audit risk levels in a sample of active duty emergency department patients

Source
Military Psychology 2019
Author(s)
Reed, M.B., Woodruff, S.I., et al.

Abstract
The purpose of this study was to test the relationship between self-efficacy, readiness to change, and Alcohol Use Disorders Identification Test (AUDIT) risk levels in a sample of active duty drinkers who were seeking care in a military emergency department. Civilian health educators screened participants for alcohol use with the AUDIT and collected sociodemographic, service, and drinking-related cognitions data from active duty patients admitted to an emergency department. A total of 787 active duty military personnel participated in the study. Almost half (48%) drank at least once a week and 32% reported consuming five or more alcoholic drinks during a typical drinking episode. One in five participants reported heavy episodic drinking weekly to almost daily. Results of a multinomial logistic regression model showed that active duty service members with a self-reported diagnosis of posttraumatic stress disorder since joining the military were more likely to be an at-risk or high/severe risk drinker relative to a low risk drinker. Higher controlled drinking self-efficacy was associated with a decrease in the odds of being either an at-risk or high/severe risk drinker. Increased readiness to reduce drinking was associated with an increase in the odds of being either an at risk or high/severe risk drinker. The results of this research suggest self-efficacy to control one’s heavy drinking as well as readiness to change may be important factors to consider when designing alcohol education programs within the military.

Service access and self-reporting: Tailoring sbir to active duty military in civilian health care settings

Source
Journal of Social Work Practice in the Addictions 2019 ( )
Author(s)
Harris, B.R. and Yu, J.

Abstract
Active duty military personnel exhibit higher rates of problem alcohol use than their civilian counterparts. This project explored the efficacy of Screening, Brief Intervention, and Referral to Treatment (SBIRT) as an avenue for serving this hard-to-reach population. SBIRT was implemented in 7 civilian medical settings in New York near Fort Drum between February 2012 and January 2015 to assess service access, utilization, and rates of alcohol and drug use. Approximately 15% of patients were active duty military, with 7.7% screening positive for alcohol or drug misuse and
almost 200 receiving project services. Findings highlight specific strategies for improving the model.

See also


Dynamic changes in marines' reports of PTSD symptoms and problem alcohol use across the deployment cycle. Under PTSD.


Sex differences in mental health symptoms and substance use and their association with moral injury in veterans. Under Psychology.
Battlefield Analgesia: Adherence to Tactical Combat Casualty Care Guidelines.

Source
Journal of Special Operations Medicine: A Peer Reviewed Journal for SOF Medical Professionals 2019 19 (1) 70-74

Author(s)

Abstract
BACKGROUND: Low rates of prehospital analgesia, as recommended by Tactical Combat Casualty Care (TCCC) guidelines, have been demonstrated in the Joint Theaters combat setting. The reasons for this remain unclear. This study expands on previous reports by evaluating a larger prehospital dataset for determinants of analgesia administration.

Capsule Commentary on Katzman et al., Army and Navy ECHO Pain Telementoring Improves Clinician Opioid Prescribing for Military Patients: An Observational Cohort Study

Source
JGIM: Journal of General Internal Medicine 2019 34 (3) 445-445

Author(s)
Lin, B.

Abstract
The article comments on a study which examines the effects of the ECHO Pain Telementoring program for clinicians in opioid prescribing in the U.S. The results include the decline in opioid prescriptions, a comparison of the change in prescribing patterns among providers attending pain management and opioid use sessions and the benefit of regimented pain management education which supports the decrease of opioid prescriptions.

Source
Prehospital Emergency Care: Official Journal of the National Association of EMS Physicians and the National Association of State EMS Directors 2019 23 (2) 271-276

Author(s)

Abstract
Background: Tactical Combat Casualty Care (TCCC) guidelines regarding prehospital analgesia agents have evolved. The guidelines stopped recommending intramuscular (IM) morphine in 1996, recommending only intravenous (IV) routes. In 2006, the guidelines recommended oral transmucosal fentanyl citrate (OTFC), and in 2012 it added ketamine via all routes. It remains unclear to what extent prehospital analgesia administered on the battlefield adheres to these guidelines. We seek to describe trends in analgesia administration patterns on the battlefield during 2007-2016.; Methods: This is a secondary analysis of a Department of Defense Trauma Registry data set from January 2007 to August 2016. Within that group, we searched for subjects who received IM morphine, IV morphine, OTFC, parenteral fentanyl, or ketamine (all routes).; Results: Our predefined ED search codes captured 28,222 subjects during the study period. Of these, 594 (2.1%) received IM morphine; 3,765 (13.3%) received IV morphine; 589 (2.1%) received OTFC; and 1,510 (5.4%) subjects received ketamine. Annual rates of administration of IM morphine were relatively stable during the study period, while those for OTFC and ketamine generally trended upward starting in 2012. In particular, the proportion of subjects receiving ketamine rose from 3.9% (n = 995/25,618) during the study period preceding its addition to the TCCC guidelines (2007 to 2012) to 19.8% thereafter (2013-2016, n = 515/2,604, p < 0.001).; Conclusions: During the study period, rates of prehospital administration of IM morphine remained relatively stable while those for OTFC and ketamine both rose. These findings suggest that TCCC guidelines recommending the use of these agents had a material impact on prehospital analgesia patterns.
Army and Navy ECHO Pain Telementoring Improves Clinician Opioid Prescribing for Military Patients: an Observational Cohort Study

Source
Journal of General Internal Medicine 2019 34 (3) 387-395

Author(s)

Abstract
Background: Opioid overdose deaths occur in civilian and military populations and are the leading cause of accidental death in the USA.; Objective: To determine whether ECHO Pain telementoring regarding best practices in pain management and safe opioid prescribing yielded significant declines in opioid prescribing.; Design: A 4-year observational cohort study at military medical treatment facilities worldwide.; Participants: Patients included 54.6% females and 46.4% males whose primary care clinicians (PCCs) opted to participate in ECHO Pain; the comparison group included 39.9% females and 60.1% males whose PCCs opted not to participate in ECHO Pain.; Intervention: PCCs attended 2-h weekly Chronic Pain and Opioid Management TeleECHO Clinic (ECHO Pain), which included pain and addiction didactics, case-based learning, and evidence-based recommendations. ECHO Pain sessions were offered 46 weeks per year. Attendance ranged from 1 to 3 sessions (47.7%), 4-19 (32.1%, or > 20 (20.2%); Main Measures: This study assessed whether clinician participation in Army and Navy Chronic Pain and Opioid Management TeleECHO Clinic (ECHO Pain) resulted in decreased prescription rates of opioid analgesics and co-prescribing of opioids and benzodiazepines. Measures included opioid prescriptions, morphine milligram equivalents (MME), and days of opioid and benzodiazepine co-prescribing per patient per year.; Key Results: PCCs participating in ECHO Pain had greater percent declines than the comparison group in (a) annual opioid prescriptions per patient (~23% vs. ~9%, P < 0.001), (b) average MME prescribed per patient/year (~28% vs. ~7%, p < .02), (c) days of co-prescribed opioid and benzodiazepine per opioid user per year (~53% vs. ~1%, p < .001), and (d) the number of opioid users (~20.2% vs. ~8%, p < .001). Propensity scoring transformation-adjusted results were consistent with the opioid prescribing and MME results.; Conclusions: Patients treated by PCCs who opted to participate in ECHO Pain had greater declines in opioid-related prescriptions than patients whose PCCs opted not to participate.
Percutaneous Peripheral Nerve Stimulation for Pain Reduction and Improvements in Functional Outcomes in Chronic Low Back Pain

Source
Military Medicine 2019 184 ( ) 537-541
Author(s)

Abstract
Chronic low back pain represents one of the most common sources of disability and a significant healthcare burden for the U.S. military. Present treatments for chronic back pain are often ineffective, poorly tolerated, invasive, destructive, and/or associated with complications and lead to the progression to invasive surgical procedures. There have been multiple calls for the development of a minimally invasive system that is effective without the risks or complications of existing surgical therapies, which could prevent the need for surgery and the recurrence of pain. The goal of this study was to evaluate a novel, minimally invasive approach using a percutaneous peripheral nerve stimulation (PNS) system designed to provide pain relief without surgery, to reduce complications, and provide a less-invasive treatment option. In nine subjects, percutaneous PNS improved participants' function, as evidenced by clinically and statistically significant reductions in pain, disability, and pain interference. Subjects also experienced reductions in opioid and non-opioid analgesic medication usage and reported improvements in quality of life with treatment. There were no serious or unanticipated adverse events. These results demonstrate the potential of percutaneous PNS as a non-surgical therapy to treat chronic back pain without opioids.

Percutaneous Peripheral Nerve Stimulation to Control Postoperative Pain, Decrease Opioid Use, and Accelerate Functional Recovery Following Orthopedic Trauma

Source
Military Medicine 2019 184 ( ) 557-564
Author(s)
Ilfeld,B.M., Ball,S.T., et al.

Abstract
Orthopedic trauma is a significant military problem, causing several of the most disabling conditions with high rates of separation from duty and erosion of military readiness. The objective of this report is to summarize the findings of case series of a non-opioid therapy-percutaneous peripheral nerve stimulation (PNS) - and describe its potential for postoperative analgesia, early opioid cessation, and improved function following orthopedic trauma. Percutaneous PNS has been evaluated for the treatment of multiple types of pain, including two case series on postoperative pain following total knee replacement (n = 10 and 8, respectively) and a case series on postamputation pain (n = 9). The orthopedic trauma induced during TKR is highly
representative of multiple types of orthopedic trauma sustained by Service members and frequently produces intense, prolonged postoperative pain and extended opioid use following surgery. Collectively, the results of these three clinical studies demonstrated that percutaneous PNS can provide substantial pain relief, reduce opioid use, and improve function. These outcomes suggest that there is substantial potential for the use of percutaneous PNS following orthopedic trauma.

2019-122 0019

Reduced Complications of Supraclavicular Approach in Simulated Central Venous Access: Applicability to Military Medicine

Source
Military Medicine 2019 184 ( ) 329-334

Author(s)
Sappenfield,J., Grek,S., et al.

Abstract
In a study with 76 anesthesia providers on a mixed reality simulator, central venous access via the supraclavicular approach to the subclavian vein, without ultrasonography required less attempts compared to the infraclavicular approach. Participants had shorter times to venous access and larger improvements in confidence. Results from this simulation-based study indicate that the supraclavicular approach may deserve consideration as an alternative approach for central venous access in deployed military environments. The use of ultrasonography during the supraclavicular approach to the subclavian vein is also described which may improve its safety profile. This technique could be more appropriate in scenarios when central venous access is preferred over intraosseous access for patients being transported to another location for further care.
Analysis of a Military Parachutist Injury - A Retrospective Review of Over 37,000 Landings

Source
Military Medicine 2019 184 (3) 112-112

Author(s)
Anonymous

Abstract
A correction to the article "Analysis of a Military Parachutist Injury - A Retrospective Review of Over 37,000 Landings" is presented which appears in the previous issue.

Assessment of the static upright balance index and brain blood oxygen levels as parameters to evaluate pilot workload

Source
Plos One 2019 14 (3) e0214277-e0214277

Author(s)

Abstract
Objective: To investigate the potential for static upright balance function and brain-blood oxygen parameters to evaluate pilot workload.; Methods: Phase 1: The NASA Task Load Index (NASA-TLX) was used to compare the workloads of real flights with flight simulator simulated flight tasks in 15 pilots (Cohort 1). Phase 2: To determine the effects of workload, 50 cadets were divided equally into simulated flight task load (experimental) and control groups (Cohort 2). The experimental group underwent 2 h of simulated flight tasks, while the control group rested for 2 h. Their static upright balance function was evaluated using balance index-1 (BI-1), before and after the tasks, with balance system posturography equipment and cerebral blood oxygen parameters monitored with near infrared spectroscopy (NIRS) in real time. Sternberg dual-task and reaction time tests were performed in the experimental and control groups before and after the simulated flight tasks.; Results: (Phase1) There was a significant correlation between the workload caused by real flight and simulated flight tasks (P<0.01), indicating that NASA-TLX scales were also a tool for measuring workloads of the stimulated flight tasks. (Phase 2) For the simulated flight task experiments, the NASA-TLX total scores were significantly different between the two groups (P<0.001) and (pre-to-post) changes of the BI-1 index were greater in the experimental group than in controls (P<0.001). The cerebral blood oxygen saturation levels (rsO2) (P<0.01) and ΔHb reductions (P<0.05) were significantly higher in the experimental, compared to the control group, during the simulated flight task. In contrast to the control group the error rates (P = 0.002) and accuracy (P<0.001) changed significantly in the experimental group after the simulated flight tasks.; Conclusions: The simulated flight task model could simulate the real flight task load and static balance and NIRS were useful for evaluating pilots' workload/fatigue.
Factors in Removing Job Restrictions for Cancer Survivors in the United Kingdom Royal Air Force.

Source
Journal of Occupational Rehabilitation 2019 29 (1) 25-30

Author(s)

Abstract
Purpose To identify personal, occupational and clinical factors associated with the lifting of restrictions on duties among Royal Air Force (RAF) personnel who have returned to work after surviving primary cancer treatment. Methods A retrospective cohort of 205 RAF personnel aged 18-58 with cancer diagnosed between 2001 and 2011 was followed up until May 2012. Personal, occupational, and clinical information was extracted from occupational health and primary care records. Predictors of the lifting of (a) employment restrictions on UK duties at 18 months after diagnosis and (b) the lifting of all deployment restrictions at the end of the study were analysed using logistic and Cox regression models. Results At 18 months, 62% of the cancer survivors had restrictions on their UK duties lifted. The positive independent predictors of unrestricted UK duties are testicular cancer (OR5.34; 95% CI 1.21-23.6) and no treatment being required (16.8; 1.11-255.2). The lifting of all employment restrictions and return to full deployability was achieved by 41% of the participants (median time 2.1 years), with testicular cancer (HR2.69; 95% CI 1.38-5.26) and age at diagnosis (1.05; 1.01-1.09) being the positive independent predictors of faster lifting of all restrictions. Conclusion Diagnostic group, prognosis and type of treatment are not the only predictor of employment outcome after cancer. Patient-centred factors such as smoking, age, fatigue, job status, job type and length of employment are also important predictors of return to pre-morbid job function in cancer survivors in the RAF.

Medical Suspension in Female Army Rotary-Wing Aviators.

Source
Military Medicine 2019 184 (3-4) e143-e147

Author(s)
Kelley,A.M., and Curry,I.,

Abstract
Introduction Female aviators with health conditions may face a variety of occupational impacts. Outcomes may include a waiver for continued flight or a permanent suspension, in which flight is no longer possible. The objective of this study is to determine the prevalence of medical diagnosis among female U.S. Army aviators over a ten year period and identify associations of clinical diagnoses leading to waiver or permanent suspension. Materials and Methods This study was a secondary data analysis: data were retrieved on 1,282 female, rated aviator patients from an Army Aviation epidemiological database. The archival dataset was composed of a total of 6,856 cases between June 2005 and June 2015. Age ranged from 19 to 58 years. The data were examined in terms of raw ICD-9 diagnostic codes, grouped system diagnoses (diagnosis categories), and occupational
consequence. Spearman's rho correlations were used to determine associations between diagnosis, waiver and permanent suspension. Results The leading diagnoses were pregnancy, normal delivery, and allergic rhinitis. The systems approach yielded pregnancy, orthopedic disorders, and spinal disorders as the leading diagnosis categories. Leading waived conditions included spinal, psychiatric, and neurological disorders. In terms of permanent suspension, the leading cause was depression, followed by migraine and post-traumatic stress disorders. In almost all diagnostic groupings, the Spearman's rho correlation coefficients between age and diagnosis were positively related. However, age was not associated with negative occupational outcome (permanent suspension), generally. Conclusions A variety of conditions negatively impact the health and occupational status of female aviators, with disparate occupational impacts. Prevalent conditions differed from those reported previously for all aviators in a predominantly male population. The absence of cardiovascular disease is a significant change from 20–30 years ago. Among all medical diagnoses, a minority are responsible for a greater occupational burden.

2019-122 0024

The Moderating Effect of Cognitive Flexibility in the Relationship Between Work Stress and Psychological Symptoms in Korean Air Force Pilots

Source
Military Psychology (American Psychological Association) 2019 31 (2) 100-106

Author(s)
Sung,E., Ji,H.C., et al.

Abstract
Stress is closely associated with not only physical illness but also with indices of psychological maladjustment. However, such negative mental health outcomes may vary depending on the individual's cognitive style, or perception of stress. Air force pilots are particularly vulnerable to experience a high degree of stress as they are required to conduct missions while simultaneously monitoring for safety in complex and uncertain flight situations. It can thus be posited that appropriate use of cognitive stress management strategies is one of the crucial competency requirements for pilots. As such, the present study examined the effects of stress on psychological symptoms of Korean Air Force pilots and further investigated the moderating role of cognitive flexibility in this relationship. A total of 192 air force pilots participated in the present study. The results indicated that degree of stress was positively correlated with indices of psychological maladjustment, while cognitive flexibility was negatively associated with psychological symptoms. Furthermore, cognitive flexibility demonstrated a significant moderating effect on the relationship between stress and psychological symptoms. Such results suggest that cognitive flexibility may serve as a protective factor in the potential effects of stress on psychological adjustment. Implications and suggestions for future research are discussed.
Spontaneous pneumothorax as a complication of chronic Jet propulsion fuel-8 exposure

Source
Heart & Lung 2019 48 (2) 169-172

Author(s)

Abstract
Abstract Jet Propulsion Fuel 8 (JP-8) is a kerosene based fuel commonly used in aviation. Occupational exposure to JP-8 may lead to negative health outcomes, which were described in a small number of studies. We report a case of 33-year-old Caucasian male veteran with a history of JP-8 exposure who presented with chronic dyspnea and recurrent spontaneous pneumothorax. To our knowledge, this is the first case of chronic inhalation injury from JP-8 exposure complicated with recurrent secondary spontaneous pneumothorax.

See also


Combat and operational risk factors for post-traumatic stress disorder symptom criteria among United States air force remotely piloted aircraft "Drone" warfighters. Under PTSD.


Gap Analysis to Identify Clinical Education Needs of Aeromedical Evacuation Clinicians. Under Education & Training.


The Effects of Phase 2 Cardiac Rehabilitation on Changes in Obesity Anthropometric Indices among Military and Non-military Men with Coronary Artery Disease Referred to Cardiac Rehabilitation Center

Source
International Cardiovascular Research Journal 2019 13 (1) 11-16

Author(s)

Abstract
Background: Cardiac rehabilitation program reduces cardiovascular risk factors and increases respiratory capacity in patients with Coronary Artery Disease (CAD). High stress lifestyle is established in military patients with CAD. Military groups have been proposed to have an active lifestyle and better anthropometric changes compared to civilians. However, no studies have been conducted on their response to the cardiac rehabilitation program. Objectives: This study aimed to evaluate the effects of cardiac rehabilitation on alterations in obesity anthropometric indices among military personnel. Methods: This cross-sectional study was conducted on 50 military patients with CAD and 100 non-military ones at a cardiac rehabilitation center. The two groups were compared with regard to obesity anthropometric and rehabilitation indices before and after a 20-session cardiac rehabilitation program. At first, normal distribution of the data was checked using Kolmogorov-Smirnov test. Then, independent sample t-test was used to compare the means between the two groups. Paired t-test was also applied to compare the indices before and after the cardiac rehabilitation program. The data were analyzed using the SPSS statistical software, version 16 and \( P < 0.05 \) was considered to be statistically significant.

Results: The mean age of the patients was 59.72 ± 4.6 and 58.03 ± 5.3 years in the military and civilian groups, respectively (\( P = 0.060 \)). The results showed no significant differences between the two groups regarding the frequency of diabetes mellitus, hypertension, and hyperlipidemia, history of smoking, and positive family history of cardiovascular disease (\( P = 0.46, 0.48, 0.48, 0.29, \) and 0.47, respectively). Obesity anthropometric indices were significantly decreased in each study group, but there was no significant difference between the two groups. Additionally, rehabilitation indices were increased more in the military group than in the civilian group, but the difference was not statistically significant. Conclusion: Despite the military patients’ probably lower rates of obesity anthropometric indices, they did not benefit more from the cardiac rehabilitation program. However, as in the previous research, the results indicated that the cardiac rehabilitation program after cardiac events and interventions were helpful to improve both military and civilian patients' capabilities and quality of lives. Rehabilitation indices were also equally increased in the two groups without any significant differences.
Getting to the heart of the matter: investigating the idiopathic sudden cardiac death of a previous well soldier

Source
Journal of the Royal Army Medical Corps 2019 ( )

Author(s)

Abstract
A 25-year-old infantry soldier, who was previously fit and well, had a cardiac arrest while undertaking an advanced fitness test. Despite early cardiopulmonary resuscitation by colleagues and the emergency services, he was later pronounced dead. A postmortem performed by an expert pathologist and a toxicology screen were normal and the death was attributed to sudden arrhythmic death syndrome (SADS). Screening of his family in our Inherited Cardiac Conditions clinic identified Brugada syndrome (BrS) in two first-degree relatives. This case generates discussion on sudden cardiac death, family screening in SADS, BrS and the limitations of recruit screening with an ECG.
**Protective effects of polydatin against sulfur mustard-induced hepatic injury**

**Source**
Toxicology and Applied Pharmacology 2019 367 ( ) 1-11

**Author(s)**
Zhang,H., Chen,Y., et al.

**Abstract**
Sulfur mustard (SM) is a chemical warfare agent that was applied in a series of military conflicts and still poses a severe threat to civilians and military personnel. Although the cellular and molecular mechanisms of SM toxicity are still not fully understood, oxidative stress has been considered as the initial vital process for damage. Polydatin, the product of resveratrol and glucose, is a promising candidate for the treatment of oxidative stress-related diseases. However, its effects on SM-induced hepatic injury remain unknown. Thus, we investigated the protective effects of polydatin against SM-induced hepatic injury and its possible mechanism. We found that treatment with polydatin remarkably improved the survival rate of mice bear subcutaneously injected with SM. Polydatin decreased the SM-induced increase of serum aminotransferase levels and ameliorated hepatic pathological damage. We also found that indexes of oxidative stress were improved in mouse liver samples and L02 cells. Meanwhile, changes in the Sirtuin family after treatment with SM were explored in mice and cells since polydatin is a potent activator of Sirt1 and Sirt3. Polydatin significantly increased the expression of Sirt1, HO-1, and NQO1; and the nuclear translocation of Nrf2 in mouse liver and L02 cells. Furthermore, we also observed that either Sirt1 or Nrf2 knockdown abolished the protective effect of polydatin. Our data indicated that polydatin could provide protection against SM-induced hepatic injury through the Sirt1/Nrf2 pathway, suggesting that polydatin is a novel potential antidote for sulfur mustard.

**Psychophysiological response to the use of nuclear, biological and chemical equipment with military tasks**

**Source**
Physiology & Behavior 2019 204 ( ) 186-190

**Author(s)**

**Abstract**
The current military training requires the development and optimization of different strategies to improve performance in extreme conditions as well as the possible risk of suffering attacks with chemical and/ or radioactive substances. It turns out mandatory to research the psychophysiological response of soldiers and sanitary personnel when wearing the nuclear, biological and chemical (NBC) equipment. A longitudinal prospective experimental quantitative study has been developed, using a pre-treatment and post-treatment design. A total of 20 soldiers (33.3 ± 5.4 years),
belonging to the Spanish Armed Forces have been analyzed, divided into two 
groups, when carrying out different training activities designed to that effect. The 
following variables were analyzed right before and after accomplishing the different 
tasks: heart rate, heart variability, thermoregulation, blood glucose, explosive 
strength, perceived effort and motion performance in a munitioning task. The results 
showed a significant increase (p < 0.05) in heart rate, blood glucose, perceived effort 
and the time required when developing the triage tasks and when putting a tourniquet 
on other person in the group wearing NBC equipment compared to the other group, 
as well as a longer time required in a munitioning task. These results highlight the 
importance of training and preparing the sanitary and military personnel in the use of 
NBC equipment.
Modified Battlefield Acupuncture Does Not Reduce Pain or Improve Quality of Life in Patients with Lower Extremity Surgery

Source
Military Medicine 2019 184 ( ) 545-549

Author(s)

Abstract
Introduction: This study seeks to determine if modified Battlefield Acupuncture is more effective at relieving acute extremity pain, reducing medication use, and improving quality of life than placebo acupuncture or standard care after lower extremity surgery.; Methods: We conducted a multi-site 3-arm randomized, double-blind controlled trial of standard care alone versus standard care + placebo auricular acupuncture with semi-permanent needles versus standard care + modified battlefield acupuncture with semi-permanent needles for lower extremity surgery at two Air Force hospitals. Subjects reported pain level immediately after acupuncture, 24, 48, 168, and 720 hours later to a blinded research associate. Additionally, subjects completed a PIQ-6 30 days post-operatively, and opioid use was tracked for 30 days post-operatively.; Results: Two hundred thirty-three subjects >18 years old (92 females and 141 males) with a mean age of 44.5 years were randomized with 81 randomized to modified BFA, 74 randomized to placebo acupuncture, and 78 randomized to standard care. Overall pain levels were unchanged at each time point between groups. Outcomes showed unchanged pain, opioid and quality of life between groups.; Conclusion: The use of modified battlefield acupuncture protocol does not change pain opioid use or quality of life in those with lower extremity surgery.
CRITICAL CARE

See also

Successful Use of Colistin Monotherapy as Outpatient Parenteral Antibiotic Therapy for XDR Acinetobacter Hepatic Abscesses. Under Microbiology.
The Incidence of Dental Needs During Isolated Missions Compared to Non-isolated Missions: A Systematic Review and Implications for Future Prevention Strategies.

Source
Military Medicine 2019 184 (3-4) e148-e155

Author(s)
Lloro, V., and Lozano-de, L.V.,

Abstract
Introduction Dental emergencies in isolated groups have always been difficult to treat. Especially in people or groups who cannot be evacuated and who need urgent dental assistance: long-term submarine missions, long-term spaceship trips, military or non-governmental organizations deployments in conflict areas, military maneuvers, etc. The dental and evacuation problems could put the success of the mission at risk, with relevant associated economic and strategic costs. Our study summarizes current evidence about dental problems in isolated personnel (submarines and Antarctic missions) compared to other non-isolation conditions (military deployment in conflict area, military maneuvers) with the objective to assess the need for specific dental equipment in special long-term isolation conditions.

Materials and Methods We searched Medline, Cochrane Library, and Dentalgate between 1960 and 2017 for studies reporting dental disease in long-term isolation conditions (minimum 1 month) versus non-isolation conditions. We conducted the systematic review with all studies fitting the inclusion criteria. The comparison of the incidence rate was performed fitting a Poisson regression model to see the effect of the individual’s condition on the incidence of dental event. Results Thirty-eight studies were included in the systematic review. Antarctic missions showed a higher dental incidence rate compared to non-isolation conditions, but submarine missions showed the lowest dental incidence rate. In the sub-analysis of acute dental events, those with great impact on unit effectiveness, the incidence rates were higher. Caries and secondary decay events were the most prevalent dental problem in all conditions, followed by periodontal pathology and fractures of teeth or tooth problems not due to tooth decay in isolation conditions, and then by molar problems and endodontic problems in non-isolation conditions. The most common acute dental events were third molar problems and endodontic problems in all conditions. Conclusion This systematic review shows that the incidence of dental pathology in long-term isolation conditions may seem relatively infrequent but it exists and is relevant. Dental events are unpredictable, unrelated to trauma, and caused mainly by poor dental status. Preventive measures considerably reduce dental prevalence.
2019-122 0032

**Blister beetle dermatitis caused by cantharidin in South Sudan in Op TRENTON: a case series**

**Source**  
Journal of the Royal Army Medical Corps 2019

**Author(s)**  

**Abstract**  
Cantharidin-producing blister beetles are found worldwide. The pathognomonic feature of their toxin is a blistering dermatitis that presents an environmental health hazard. Cutaneous exposure to cantharidin can produce blistering dermatitis, most commonly seen on exposed skin, in the Bentiu region of South Sudan. This should be treated with appropriate cleaning, debridement and regular dressing changes to cope with extensive initial exudate. The best dressing combinations found were initial treatment with povidone-iodine and hydrocolloid, followed by hydrocolloid only. Hydrocolloid dressings were found to be the most effective at staying in place with South Sudan's high humidity. Prevention strategies should include covering exposed skin, wearing wide-brimmed hats, neck scarves and enclosed footwear, and avoidance of working under white light. Medical personnel should engage with the chain of command to include appropriate force protection education within the arrivals brief.

2019-122 0033

**A Comparison of Two Chronic Skin Conditions: Atopic Dermatitis and Psoriasis.**

**Source**  

**Author(s)**  
Conlon E.G. and Wright,K.T.

**Abstract**  
Atopic dermatitis (eczema) and psoriasis are two common chronic skin diseases that affect many people, including active-duty military Servicemembers and their families. Both conditions have significant psychosocial impacts and can lead to substantial morbidity if undiagnosed and left untreated. We compare and contrast atopic dermatitis and psoriasis in terms of epidemiology, etiology, presentation, diagnosis, and treatment. The goal is to help military medical providers distinguish between the two diseases and provide practical steps for treatment and long-term management.
Painful Scalp Nodules on an Active-Duty Sailor

Source

Author(s)
Schmidgal,E.C. and Wright,K.T.

Abstract
Lesions of the scalp can present a challenging differential diagnosis to the primary care provider, especially in remote military settings where specialist care is not immediately available. Scalp lesions can be painful and disfiguring, and cause duty limitations if they interfere with the donning of personal protective equipment such as helmets, hardhats, or firefighting gear. We present a case of dissecting scalp cellulitis on an active-duty Navy Sailor who was leaving on an extended underway period on his ship the next day.; 2019.
**Army Body Composition Program Study Results Concerning: Enrollees Are More Over Fat Than Expected**

**Source**
Military Medicine 2019 184 ( ) 400-408

**Author(s)**
Meyer,S. and Cole,R.

**Abstract**
Introduction: Whether implementation of the Army Body Composition Program (ABCP) is meeting readiness objectives is unknown.; Objective: This study sought to primarily describe the extent of Active Duty Soldiers' over-fatness when attending the initial ABCP nutrition class at an Army Nutrition clinic in Washington State; and secondarily to describe the proportion of these Soldiers meeting metabolic syndrome (MS) criteria.; Methods: Soldiers (189) in this cross-sectional study completed the following: a questionnaire developed for this study, anthropometric measurements, body fat assessment via AR 600-9 standards, and a laboratory blood draw for fasting glucose and lipid panel.; Results: Soldiers were predominantly male (76%), obese (BMI 32 kg/m2 for males and 30 kg/m2 for females), exceeded body fat standards by 3.8% for males and 7.3% for females, and 16% had three or more risk factors meeting MS diagnostic criteria. Waist circumference was the predominant MS risk factor for males and females.; Conclusion: Soldiers in this study had higher body fat percentages than expected with a majority of Soldiers classified as obese. Achieving and maintaining ABCP standards may be more challenging for obese Soldiers. To maintain Soldier readiness, commanders should consider intervening earlier when signs of weight gain are observed.

**Diet Macronutrient Composition, Physical Activity, and Body Composition in Soldiers During 6 Months Deployment**

**Source**
Military Medicine 2019 184 (3) e231-e237

**Author(s)**
Nykänen,T., Pihlainen,K., et al.

**Abstract**
Introduction: Optimal diet together with good physical fitness maintains readiness and military performance during longer deployments. The purpose of this study was to describe changes in dietary macronutrient and energy intake, total physical activity and body composition during a 6-month deployment in South Lebanon. Furthermore, associations of diet macronutrient intake and physical activity on body composition were also studied.Materials and Methods: Forty male soldiers kept a 3-day food diary and their body composition was measured via bioimpedance and ultrasonography.
Total physical activity was evaluated by accelerometers in a subgroup of participants. Measurements were conducted in the PRE-, MID-, and POST-deployment.

Results:
Mean carbohydrate intakes were 39.5-42.6 E%, protein intakes 18.7-22.3 E%, and fat intakes 34.9-35.7 E%. Daily energy intake remained stable (10.1-10.3 MJ/D).

Total physical activity was decreased during deployment (e.g., step count from 9,835 ± 2,743 to 8,388 ± 2,875 steps/day, p = 0.007). Skeletal muscle mass and subcutaneous fat increased by 1.3% (p = 0.019) and 1.9% (p = 0.006), respectively.

Energy and fat intake associated positively with body mass and skeletal muscle mass (r = 0.31-0.48, p < 0.05-0.001).

Conclusions: Carbohydrate intakes and physical activity were low, compared with the general recommendations. Protein intakes were relatively high. Skeletal muscle mass and subcutaneous fat increased. Suboptimal diet together with low level of physical activity may have a negative impact on body composition, physical performance, and cardiometabolic health. Consequently, soldiers should be encouraged to consume more fiber-rich carbohydrates and less saturated fatty acids as well as maintain a high level of physical fitness to sustain military readiness during long-term deployments.

2019-122 0037

Dietary Intake in Relation to Military Dietary Reference Values During Army Basic Combat Training; a Multi-center, Cross-sectional Study.

Source
Military Medicine 2019 184 (3-4) e223-e230

Author(s)
Lutz, L.J., and Gaffney-Stomberg, E.,

Abstract
Introduction The military dietary reference intakes (MDRIs), outlined in Army Regulation 40-25, OPNAVINST 10110.1/MCO10110.49, AFI 44–141, establish standards intended to meet the nutrient requirements of Warfighters. Therefore, the purpose of this study was to comprehensively compare the revised MDRIs, published in 2017, with estimated dietary intakes in U.S. military personnel. Materials and Methods During this cross-sectional study, Block food frequency questionnaires were administered at the end of the 9-week basic combat training course to estimate dietary intake during basic combat training in male (n = 307) and female (n = 280) recruits. The cut-point method was used to determine nutrient adequacy in comparison to the MDRIs. This study was approved by the Institutional Review Board of the U.S. Army Research Institute of Environmental Medicine. Results Recruits consumed an adequate amount of vitamins A, C and K, as well as the B-vitamins, and phosphorus, selenium, zinc, and protein and carbohydrate as a percentage of total calories when compared with MDRI standards. Vitamin D was the short-fall nutrient affecting the greatest number of participants, as 55 and 70% of males and females, respectively, consumed less than 33% of the MDRI. In addition, less than 50% of males met the MDRI for linoleic and α-linolenic acid, fiber, vitamin E, magnesium, and potassium, and less than 50% of females met the MDRI for α-linolenic acid, fiber, vitamin E, calcium, iron, magnesium, and potassium. In contrast,
fat and sodium were over-consumed by both males (78 and 87%, respectively) and females (73 and 72%, respectively). Conclusion The main findings of this study were that vitamins D and E, magnesium, potassium, α-linolenic acid, and fiber were under consumed by male and female recruits while males also did not consume adequate linoleic acid and females did not consume adequate calcium and iron. Future prospective research studies are needed to determine possible health and performance impacts that may be associated with suboptimal intake of these nutrients.

2019-122 0038

Extended Ketogenic Diet and Physical Training Intervention in Military Personnel

Source
Military Medicine 2019

Author(s)
LaFountain, R.A., Miller, V.J., et al.

Abstract
Introduction: Ketogenic diets (KDs) that elevate ketones into a range referred to as nutritional ketosis represent a possible nutrition approach to address the emerging physical readiness and obesity challenge in the military. An emerging body of evidence demonstrates broad-spectrum health benefits attributed to being in nutritional ketosis, but no studies have specifically explored the use of a KD in a military population using daily ketone monitoring to personalize the diet prescription.

Materials and Methods: To evaluate the feasibility, metabolic, and performance responses of an extended duration KD, healthy adults (n = 29) from various military branches participated in a supervised 12-wk exercise training program. Fifteen participants self-selected to an ad libitum KD guided by daily measures of capillary blood ketones and 14 continued their normal mixed diet (MD). A battery of tests were performed before and after the intervention to assess changes in body mass, body composition, visceral fat, liver fat, insulin sensitivity, resting energy metabolism, and physical performance.

Results: All KD subjects were in nutritional ketosis during the intervention as assessed by daily capillary beta-hydroxybutyrate (βHB) (mean βHB 1.2 mM reported 97% of all days) and showed higher rates of fat oxidation indicative of keto-adaptation. Despite no instruction regarding caloric intake, the KD group lost 7.7 kg body mass (range -3.5 to -13.6 kg), 5.1% whole-body percent fat (range -0.5 to -9.6%), 43.7% visceral fat (range 3.0 to -66.3%) (all p 0.05). Conclusions: US military personnel demonstrated high adherence to a KD and showed remarkable weight loss and improvements in body composition, including loss of visceral fat, without compromising physical performance adaptations to exercise training. Implementation of a KD represents a credible strategy to enhance overall health and readiness of military service members who could benefit from weight loss and improved body composition.

2019-122 0039
Iron status and associations with physical performance during basic combat training in female New Zealand Army recruits.

Source
British Journal of Nutrition 2019

Author(s)
Martin N.M., Conlon C.A., et al.

Abstract
Decreases in Fe status have been reported in military women during initial training periods of 8-10 weeks. The present study aimed to characterise Fe status and associations with physical performance in female New Zealand Army recruits during a 16-week basic combat training (BCT) course. Fe status indicators - Hb, serum ferritin (sFer), soluble transferrin receptor (sTfR), transferrin saturation (TS) and erythrocyte distribution width (RDW) - were assessed at the beginning (baseline) and end of BCT in seventy-six volunteers without Fe-deficiency non-anaemia (sFer =120 g/l) or Fe-deficiency anaemia (sFer =120 g/l) or Fe-deficiency anaemia (sFer 10 mg/l at baseline or end. A timed 2.4 km run followed by maximum press-ups were performed at baseline and midpoint (week 8) to assess physical performance. Changes in Fe status were investigated using paired t tests and associations between Fe status and physical performance evaluated using Pearson correlation coefficients. sFer (56.6 (sd 33.7) v. 38.4 (sd 23.8) mug/l) and TS (38.8 (sd 13.9) v. 34.4 (sd 11.5)) decreased (P<0.001 and P=0.014, respectively), while sTfR (1.21 (sd 0.27) v. 1.39 (sd 0.35) mg/l) and RDW (12.8 (sd 0.6) v. 13.2 (sd 0.7)) increased (P<0.001) from baseline to end. Hb (140.6 (sd 7.5) v. 142.9 (sd 7.9) g/l) increased (P=0.009) during BCT. At end, sTfR was positively (r 0.29, P=0.012) and TS inversely associated (r -0.32, P=0.005) with midpoint run time. There were no significant correlations between Fe status and press-ups. Storage and functional Fe parameters indicated a decline in Fe status in female recruits during BCT. Correlations between tissue-Fe indicators and run times suggest impaired aerobic fitness. Optimal Fe status appears paramount for enabling success in female recruits during military training.

Personality Traits and Occupational Demands Are Linked to Dietary Supplement Use in Soldiers: A Cross-sectional Study of Sensation Seeking Behaviors

Source
Military Medicine 2019 184 (3) e253-e262

Author(s)

Abstract
Introduction: Military personnel use dietary supplements (DS) more frequently and in a higher quantity than the general population. Patterns of DS used and the motivation for use among the military population are different than those of the civilian population. Soldiers are much more likely to use potentially dangerous DS purported to enhance physical performance and/or promote weight loss in spite of limited evidence regarding the safety and efficacy of these products. Sensation seeking (SS) behaviors can be associated with risky lifestyle behaviors and may be associated with use of DS by Soldiers. This study assessed Soldiers’ SS behaviors in relation to DS use and various demographic factors. Materials and Methods: Demographic and
behavioral questionnaires were administered to 289 Soldiers (mean ± SD, 28 ± 6 years, 27 ± 3 kg/m2 BMI, 83% male) at three U.S. military installations. The Brief SS Scale (four 10-point subscales) and Arnett Inventory of SS (two 40-point subscales) were used to assess SS behaviors. Independent sample t-tests determined the significant differences between SS subscale scores of DS users and non-users for each type of DS (i.e., protein, multivitamin, etc.). One-way analysis of variances and Tukey's post hoc comparisons assessed differences in SS scores across demographic categories. Tukey's post hoc analyses assessed SS scores between users and non-users within the DS categories.

Results: Overall, 75% of Soldiers used DS ≥1 time/week. The most frequently used DS were protein/amino acids (52%), multivitamins/multiminerals (47%), "other" supplements (43%), and combination products (35%). Overall, DS users scored higher in experience seeking (8.0 ± 1.7 vs 7.5 ± 2.0; p < 0.05) and novelty (28.4 ± 3.7 vs 26.8 ± 4.7; p < 0.05) than non-users. Protein/amino acid users scored higher than non-users for all six SS traits: experience seeking (p < 0.001), boredom susceptibility (p < 0.001), thrill seeking (p < 0.001), disinhibition (p < 0.01), novelty (p < 0.001), and intensity (p < 0.001). Users of bodybuilding DS scored higher than non-users in four of the six SS traits: boredom susceptibility (p < 0.05), thrill seeking (p < 0.001), disinhibition (p < 0.01), and intensity (p < 0.001).

Conclusions: Soldiers who use DS that are frequently associated with health risks scored higher for sensation-seeking characteristics which are predictors of risky behaviors. Protein/AA and combination product DS users scored higher in sensation-seeking traits and this may be due to underestimation of risk, anticipation of positive outcomes, and/or high levels of confidence in these types of DS by high sensation seekers. Additional investigation into the association of sensation-seeking behaviors as predictors of harmful DS use is warranted.

2019-122 0041

Precision Performance Nutrition What Can Special Operations Forces Communities Expect?

Source

Author(s)
Conkright W. and Deuster,P.A.

Abstract
Modern-day warfare and operational tempo require Special Operations Forces (SOF) personnel to be ready and able to perform optimally on the battlefield at all times. To do this, US Special Operations Command has invested in high-performance training centers and human performance staff, including performance dietitians. Performance dietitians are critical, because it is widely recognized that nutrition affects all aspects of health and performance, particularly for the SOF Operator. These aspects include everything from physical and sensory to psychosocial and cognitive factors, as well as environmental exposures and genetic predispositions. The impact of nutrition on performance has been well established, with specific recommendations and position stands on fueling for athletics from multiple international organizations. However, sports nutrition guidelines are based on outcomes from sample means rather than individual changes in performance. Precision performance nutrition solutions must include a systems-based approach and consider the individuality of the Operator along with their interactions with their environment. The purpose of this article is to summarize what is known about performance nutrition and outline what can be done
to move toward personalized precision nutrition. We discuss pitfalls and challenges with regard to mission-specific goals, optimization versus adaptation, and longitudinal tracking; and present our view of the future.

2019-122 0042

Prospective Cohort Study of Vitamin D Supplementation in AD Soldiers: Preliminary Findings

Source
Military Medicine 2019 184 ( ) 498-505
Author(s)
McCarthy, M.S., Elshaw, E.B., et al.

Abstract
Purpose: To explore response to vitamin D supplementation in active duty (AD) warfighters and translate findings into evidence-based health policy.; Background: Soldiers are at risk for musculoskeletal injuries and metabolic dysfunction that impact physical performance and military readiness; the link with low vitamin D status is unclear.; Methods: This prospective trial enrolled 152 soldiers; baseline 25 hydroxyvitamin (OH) D level determined assignment to a no-treatment control (CG) or treatment group (TG) receiving a vitamin D3 supplement for 90 days. Symptoms, diet, sun exposure, and blood biomarkers obtained at baseline (T1) and 3 months (T2).; Results: Cohort was predominantly white (58%) with a significant difference in racial distribution for vitamin D status. Mean (SD) 25(OH)D levels were 37.8 (5.6) ng/mL, 22.2 (5.0) ng/mL, and 22.9 (4.7) ng/mL for the CG, low dose TG, and high-dose TG at T1, respectively. Following three months of treatment, one-way ANOVA indicated a statistically significant difference between groups (F5,246 = 44.37; p < 0.0001). Vitamin D intake was 44% of Recommended Dietary Allowance throughout the first phase of the trial. Patient-Reported Outcomes Measurement Information System scores improved in TG for fatigue and sleep, p < 0.01.; Conclusions: Vitamin D deficiency is widespread in AD soldiers. Clinicians must intervene early in preventable health conditions impacting warfighter performance and readiness and recommend appropriate self-care strategies.

See also

Airbnb: A New Disaster Shelter?

Source
Disaster Medicine and Public Health Preparedness 2019 13 (1) 3-4

Author(s)
Prot, E.Y.,

Abstract
Predisaster and postdisaster evacuation planning is extremely important to safeguard life, both human and animal. In the aftermath of hurricanes Florence and Harvey, Airbnb offered a website on which a user could look for a home away from home at no cost for “displaced neighbors” and “relief workers deployed to help” (Figure 1). I, too, would rather choose a home than a medical shelter to sleep in during trying times. The challenge is keeping track of evacuees from a public health and medical perspective and linking these displaced populations to available resources.

Monitoring the Health of Public Health Responders: Development and Use of the Responder Safety, Tracking, and Resilience System (R-STaR) for Hurricane Matthew.

Source
Disaster Medicine and Public Health Preparedness 2019 13 (1) 74-81

Author(s)
Turner, A.K., and Edison, L.,

Abstract
On October 7, 2016, Hurricane Matthew traveled along the coasts of Florida, Georgia, and South Carolina causing flooding and power outages. The Georgia Department of Public Health (DPH) developed the Web-based Responder Safety, Tracking, and Resilience (R-STaR) system to monitor the health and safety of public health responders and to inform disaster response planning for Hurricane Matthew. Using R-STaR, responders (n = 126) were e-mailed a daily survey while deployed to document injuries or harmful exposures and a post-deployment survey on their post-deployment health and satisfaction with using R-STaR. DPH epidemiologists contacted responders reporting injuries or exposures to determine the need for medical care. Frequencies were tabulated for quantitative survey responses, and qualitative data were summarized into key themes. Five percent (6/126) of responders reported injuries, and 81% (43/53) found R-STaR easy to use. Suggestions for R-STaR improvement included improving accessibility using mobile platforms and conducting pre-event training of responders on R-STaR. Lessons learned from R-STaR development and evaluation can inform the development and improvement of responder health surveillance systems at other local and state health departments and disaster and emergency response agencies.
Perceived Knowledge, Skills, and Preparedness for Disaster Management Among Military Health Care Personnel

Source
Military Medicine 2019 ( )

Author(s)
King,H.C., Spritzer,N., et al.

Abstract
Introduction: The Indo-Asia-Pacific region has the highest incidence of natural disasters world-wide. Since 2000, approximately 1.6 billion people in this region have been affected by earthquakes, volcanos, tsunamis, typhoons, cyclones, and large-scale floods. The aftermath of disasters can quickly overwhelm available resources, resulting in loss of basic infrastructure, shelter, health care, food and water, and ultimately, loss of life. Over the last 12 years, US military forces have collaborated with countries throughout the Indo-Asia-Pacific region to enhance disaster preparedness and management during shipboard global health engagement missions. Military health care personnel are integral in this effort and have planned subject-matter expert exchanges, multidisciplinary conferences, courses, and hyper-realistic simulated military-to-military training exercises related to disaster preparedness. Military health care providers are essential not only to providing international education and training, but also to ensuring optimal readiness to respond to future disasters in the Indo-Asia-Pacific region and worldwide. The ability to effectively respond to disasters and collaborate with other nations promotes international stability. Yet, few studies have examined disaster preparedness among US military health care personnel. This study aimed to assess knowledge, skills, and preparedness for disaster management among US military health care personnel preparing to deploy on a global health engagement mission.

Materials and Methods:
A descriptive, cross-sectional study utilizing the Disaster Preparedness Evaluation Tool (DPET) examined self-reported perceptions of disaster preparedness among US military health care personnel preparing to deploy on a shipboard global health engagement mission. The DPET assessed perceived knowledge of disaster preparedness, disaster mitigation and response, and disaster recovery. Three hundred Hospital Corpsmen/Medics and officers in the Nurse Corps, Medical Corps, Medical Service Corps, and Dental Corps were invited to participate. One hundred fifty-four surveys were completed (response rate, 51%). Nineteen surveys were excluded from the analysis due to incomplete responses. Participants rated responses to 46 Likert items (scale of 1-6) and responded to 23 descriptive items. The study protocol was approved by the Naval Medical Center San Diego Institutional Review Board, protocol number NMCSD.2017.0061, in compliance with all applicable federal regulations governing the protection of human subject research.

Results: All item mean scores on each of the three DPET subscales resulted in moderate levels of perceived disaster preparedness among military healthcare personnel (disaster preparedness means ranged from 3.04 to 4.67, disaster response means ranged from 3.76 to 4.29, and disaster recovery means ranged from 3.47 to 4.29). The final regression model had 6 significant variables that predicted DPET scores: previous disaster drills (p = 0.00), experiencing a real disaster (p = 0.002), bioterrorism training (p = 0.02), education level (p = 0.025), years in specialty (p = 0.019), and previous global health engagement missions (p = 0.016), with R2 = 0.39, R2adj = 0.36, F (7, 127) = 12.04.

Conclusions: Disaster preparedness among military healthcare personnel could be improved to function optimally for future global health engagement missions. This study expands current understandings of disaster preparedness among US military health care providers and identifies ways to improve and enhance training.
2019-122 0046

Post-Hurricane Distress Scale (PHDS): A Novel Tool for First Responders and Disaster Researchers.

Source
Disaster Medicine and Public Health Preparedness 2019 13 (1) 82-89
Author(s)
Carl,Y., and Ortiz,E.R.,

Abstract
The aim of this study was the construction and validation of a novel research instrument to quantify the degree of post-hurricane trauma and distress in an affected population. The Post-Hurricane Distress Scale (PHDS) has quantitative measures of both acute and prolonged distress, attributable to meteorological and hydrological disasters. Methods A careful evaluation of existing questionnaires, as well as extensive canvassing of the post-Maria population of Puerto Rico, availed the construction of the PHDS. The PHDS consists of 20 items, organized into 4 subscales. The PHDS was pre-validated (n=79), revised, and then distributed to a broad sampling of the post-Hurricane Maria Puerto Rican population (n=597). Validation, including factor analysis, analyses of concurrent validity, discriminant validity, and internal reliability, was performed. Results After comparing various scales, factor loading profiles, concurrent validities, and models of fit, we show that the PHDS is best scored as a single 0–6 distress scale. When compared with the Traumatic Exposure Severity Scale, the PHDS shows superior concurrent validity, more accurately predicting scores for the Peritraumatic Distress Inventory, Impact of Event Scale – Revised, and Generalized Anxiety Disorder 7 Scale. The PHDS shows good internal reliability and discriminant validity. Conclusions The PHDS represents a novel, useful instrument for disaster first-responders and researchers. The prompt identification of high-risk populations is possible using this instrument.

2019-122 0047

Response to Hurricane Maria, Anecdotal Notes on the Coast Guard’s Role.

Source
Military Medicine 2019 184 (3-4) 93-94
Author(s)
Stack,K.M., and Nieves,J.E.,

Abstract
The views and opinions expressed in this article are those of the authors and do not represent the policy or doctrine of the US Army, Department of Defense, US Government or any other organization that the authors may be affiliated with. LCDR B. Vipler’s group article “Disaster Response to Puerto Rico: An Internal Medicine Humanitarian Response Aboard the USNS Comfort” provides an overview on the USNS Comfort internal medicine mission while deployed to Puerto Rico in the post Hurricane Maria period.1 Another recent publication did the same for the Comfort’s Mental Health disaster relief efforts. Both articles also describe the San Juan area post disaster health care service needs...

See also

Sleep deprivation in Air National Guard medical personnel responding to simulated disaster-training exercises. Under Sleep Research.
Experiences of Continuing Professional Development Programme In Pak Army. An Initial Step In Journey Towards Professional Excellence.

Source
Pakistan Armed Forces Medical Journal 2019 69 (1) 47-53

Author(s)
Roshan,R., and Ahamad,G.,

Abstract
Objective: To share initial experience of Continuing Professional Development Programme of Pak Army with overview of uptake rates and opinion of the implementers. Study Design: Cross sectional study was conducted through mix methods convergent parallel design. Place and Duration of Study: Study was conducted across Pak Army, from Jan to Dec 2014. Material and Methods: Mix methods triangulation design was adopted with compilation of uptake rates through quantitative techniques while opinions of implementers was sought through qualitative methodology using thematic content analysis. Results: Programme was implemented in different categories of health care establishments. Eighty-eight establishments submitted 119 claims with overall up take of 64% including the exempted units. Best response obtained from Centers of Excellence (78%) followed by tertiary care referral hospitals (75%) and mid-level establishments (71%). Uptake of 29% and 28% was found in field medical and dental establishments respectively. Opinions of implementers entailed high level of confidence on programme. Programme flexibility, exemption of operational units and inclusion of military training activities were considered strong points and less opportunities for junior and male HCAs in peripheral establishments and stress of attaining CPD credits within stipulated time frame were main barriers identified. Maintenance and retrieval of extensive data, absence of record keeping software and lack of countercheck mechanisms were identified as possible threats. Reduction of credit limit for Junior health care administrators, e-learning and accessibility of data were recommended for further improvement. Conclusion: Effective CPD Programme provides forum for enhancement of professional knowledge.
clinical education needs of students entering the United States Air Force School of Aerospace Medicine Flight Nurse (FN) or Aeromedical Evacuation Technician (AET) course and Air Force FNs and AETs assigned to active duty aeromedical evacuation units.; Method: We recruited 198 students enrolled in the FN or AET course and 103 active duty FN and AET aircrew members and conducted a gap analysis to identify the clinical education needs of Air Force FNs and AETs.; Results: Training gaps were identified for active duty Air Force, Air Force Reserve, and Air National Guard FNs and AETs. The greatest learning needs included use of the portable therapeutic liquid oxygen unit, manual resuscitators, and negative pressure wound therapy systems, and care of special populations such as patients with a burn injury or mental health disorder.; Conclusions: Results of the gap analysis can be used to select and develop educational and simulation training scenarios designed to foster clinical competence.

2019-122 0050

Hospital Medicine: The U.S. Navy Experience to Date and a Proposal for Future Codification and Growth.

Source
Military Medicine 2019 184 (3-4) 90-92

Author(s)
Shutt, B.J., and Quast, T.M.,

Abstract
The views expressed are solely those of the authors and do not reflect the official policy or position of the US Army, US Navy, US Air Force, the Department of Defense, or the US Government. The specialty of hospital medicine was formally introduced in a New England Journal of Medicine article in 1996, which detailed the need for general internists dedicated to inpatient medicine.1 Since that time, the number of hospitalists practicing in the USA has grown exponentially, from 16,000 in 2005 to 44,000 in 2015. Additionally, the number of internal medicine residents selecting a career in hospital medicine is growing. Approximately 15%, of all graduating third-year internal medicine residents...

2019-122 0051

The Importance of Understanding the Medical Education System in Partner Nations.

Source
Military Medicine 2019 184 (3-4) 64-66

Author(s)
Shinwari, S.A., and Zuerlein, S.,

Abstract
The views expressed are solely those of the authors and do not reflect the official policy or position of the Uniformed Services University, U.S. Army, U.S. Navy, U.S. Air Force, the Department of Defense, or the U.S. Government.
Military Physicians Are Not Just Physicians in the Military: Using Leadership Training in Military Graduate Medical Education to Assure Mission Success.

Source
Military Medicine 2019 184 (3-4) 61-63
Author(s)
Will,J.S., and Malave,B.,

Abstract
Physicians in the military often take leadership roles much earlier in their career than their civilian counterparts. Military Graduate Medical Education programs must continue to provide relevant leadership training that prepares graduates for their imminent leadership roles. The following article illustrates the experience of a junior Army Medical Corps Officer deployed shortly after residency. His case illustrates how he utilized the tools and lessons learned from the professional development and leadership training in his residency to assure the operational readiness and success of his unit.

Mobile Phone Usage and Distraction in Learning Sessions.

Source
Pakistan Armed Forces Medical Journal 2019 69 (1) 54-59
Author(s)
Jalil,J., and Sabir,S.,

Abstract
Objective: To identify the prevalence of mobile phone use in class rooms and the distraction they cause. Study Design: Mixed method transformational study conducted in pragmatic paradigm. Place and Duration of Study: Army Medical College, Rawal pindi from 1st Mar 2017 to 31st Mar 2017. Material and Methods: Focus group discussions were conducted employing three expressive students from each of the three classes. These discussions were used to develop themes which were then utilized to formulate a questionnaire. The validity of the questionnaire was confirmed by two expert medical educationists. The survey was conducted by distributing the self-answering questionnaire among the students. Simple descriptive statistics were then used to analyze the cross sectional data thus collected using SPSS version 20.
Results:A total of 300 forms were distributed of which 235 (78.33%) were retrieved. Ninety one (38.72%) were from 3rd year, 82 (34.89%) from 4th year and 62 (26.38%) from final year. A total of 124 (52.8%) were males and 111 (47.2%) were females. Fifty three point two percent used their mobile in class rooms 21-30 times/day and 12.3% even more than that. Fifty four percent students texted and 17% played games during the class. About 50% claimed that they spent 25-50% class time on their mobiles. About 30% claimed that they used mobiles to fight boredom in the class. Fifty two percent agreed that the biggest disadvantage was that they could not pay attention in class due to mobile use while only 21% claimed that they were called by teachers for using their mobiles in class. Only 10% stated that they are distracted significantly when others are using mobiles in the class. Forty one percent students think that it will be helpful to have explicit policies about mobile use in the class room while 44% disagreed with that. Only 17% stated that mobile phones should be banned from classes totally while overwhelming 83% were against this policy. A total of 38.72% students considered
it their personal prerogative to use mobile phones in class while 22% claimed that need to use their mobile phones out-weighed learning in class. Twelve percent stated that they wanted to use mobile phones in the class even if it affected their learning in the class. Conclusion: The use of digital devices in the classroom was found prevalent and causing significant distraction in learning. Most of the students consider it as their right to use these devices and they believe that this right outweighs the distraction caused in learning. Students also believe that teachers should only council the students in case of class disruption and there should not be any penalties for this behavior.

2019-122 0054

Operational Readiness: Redesigning Advanced Practice Registered Nurse (APRN) Curriculum for an Evolving Battlefield

Source
Military Medicine 2019 184 (3) e156-e162

Author(s)

Abstract
Introduction: The Global War on Terror and the ensuing Overseas Contingency Operations has rapidly transformed the U.S. military's strategic philosophy for warfare. The paradigm shift to unconventional warfare has forced military medicine to adapt with the rapidly evolving battle space. To this end, large fixed facility hospitals are being replaced with highly mobile and austere medical platforms that serve farther forward. The transition in operational health care has challenged the role of all health care team members. Through the evolution of the modern battlefield, nursing roles have grown and expanded beyond the traditional roles and peacetime practice. Nurses are seeing greater autonomy and scope of practice in operational settings while caring for patient pathologies that are often different than at home. The expansion of practice extends beyond the registered nurse at the bedside to the Advanced Practice Registered Nurse (APRN) that serves in the provider role. Through anecdotal reports, and a growing body of literature, that APRN operational practice is different than in the traditional health care setting.

Materials and Methods: Although a variety of organizations have codified knowledge, skills and attitudes (KSAs) relevant to operational practice, no formal APRN operational curriculum currently exists. Using an adaptation of Kern’s Six-Step Model of curriculum design, we describe a curriculum development process used to improve and focus educational experiences to better prepare APRNs for evolving operational roles.

Results: Through deliberate approaches the GSN has reimagined its operational readiness curriculum for the preparation of the military APRN on the evolving battlefield. The GSN has operationalized APRN operational readiness through the integration of operationally relevant curriculum designed around interprofessional education experiences. Through this curricular design, GSN APRN students are provided with operationally relevant experiences in the context of authentic military scenarios. Through these encounters, we believe, allows our students to successfully develop the clinical, operational and teamwork skills to successfully perform care in austere and operational settings.

Conclusions: This manuscript describes a novel approach to provide operational readiness education to military APRN students. Through an evaluation of the current literature, expert reports and information of the current operational requirements, the USU GSN has developed a model and curricula for APRN operational readiness that lie beyond the
traditional skills in the peacetime setting. Through this plan of instruction, USU GSN APRN students will have the requisite skills to meet the evolving operational needs of the Department of Defense.

2019-122 0055

Resident Involvement in Tactical Medicine: 12 Years Later

Source
Prehospital and Disaster Medicine 2019 ( ) 1-3

Author(s)

Abstract
Introduction: Interest in tactical medicine, the provision of medical support to law enforcement and military special operations teams, continues to grow. The majority of tactical physicians are emergency physicians with additional training and experience in tactical operations. A 2005 survey found that 18% of responding Emergency Medicine (EM) residencies offered their resident physicians structured exposure to tactical medicine at that time.; Methods: This study sought to assess interval changes in tactical medicine exposure during EM residency and Emergency Medical Services (EMS) fellowship training. A secure online survey was distributed electronically to all 212 EM residency programs and 44 EMS fellowship programs in the United States.; Results: Responses were received from 99 (46%) EM residency and 40 (91%) EMS fellowship programs. Results showed that 52 (53%) of the responding residencies offered physician trainees formal exposure to tactical medicine as part of their training (P < .0001 compared to 18% in 2005). In addition, 32 (72%) of the 40 responding EMS fellowships (newly established since the initial survey) offered this opportunity. Experiences ranged from observation to active participation during tactical training and call-outs. The EM residents and EMS fellows provide support to local, state, and federal law enforcement agencies. A small number of programs (six residencies and four fellowships) allowed a subset of qualified trainees to be armed during tactical operations.; Conclusion: Overall, training opportunities in tactical medicine have grown significantly over the last decade from 18% to 53% of responding EM residencies. In addition, 72% of responding EMS fellowships incorporate tactical medicine in their training program.

See also


Adopting a multidisciplinary approach to maximising performance during military visual search tasks. Under Research & Technology.


The safety paradox in ethics training: a case study on safety dynamics within a military ethics train-the-trainer course. Under Law & Ethics.

Serving All Who Served: Piloting an Online Tool to Support Cultural Competency with LGBT U.S. Military Veterans in Long-Term Care. Under Veterans Health & Welfare.

Surgical Pathology "Boot Camp": A Military Experience. Under Pathology.

Veterans as Students in Higher Education: A Scoping Review. Under Veterans Health & Welfare.
"Stop the Bleed": A U.S. Military Installation’s Model for Implementation of a Rapid Hemorrhage Control Program.

Source
Military Medicine 2019 184 (3-4) 67-71
Author(s)

Abstract
Damage control resuscitation, advances in transfusion medicine, as well as the importance of tourniquet use demonstrated during Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) have helped to revolutionize modern trauma care. These lessons have dramatically improved casualty survival rates to the highest in our military’s history and are now incorporated into civilian trauma centers in the USA and across the world.

An Assessment of Flight Surgeon Confidence to Perform En Route Care

Source
Military Medicine 2019 184 ( ) 306-309
Author(s)

Abstract
Introduction: En Route Care (ERC) is often an ad hoc mission for the USN. In a review of 428 Navy patient transports, a Flight Surgeon (FS) was the sole provider or a member of crew in 118 of the transports. Naval FSs receive approximately 4 hours of didactic ERC training during their 24-week Naval FS course. Regardless, an FS may be caring for a critically ill patient in a helicopter. We conducted a survey to evaluate FS confidence in their ability to perform ERC and to establish their understanding of the training of Search and Rescue Medical Technicians (SMT).

Materials and Methods: A convenience sample of FSs completed a needs analysis survey as part of a process improvement project. Flight Surgeons surveyed were actively assigned or had been assigned within the past year to a squadron with Search and Rescue/MEDEVAC capabilities.

Results: A total of 25 surveys were completed. An average of 13 (range 0-100) patient transport missions were performed by the respondents. Twenty-five percent reported feeling confident in their ability to provide ERC without senior level direction, while 41% stated they would require direction. Nearly 70% of the FSs surveyed expressed "minimal" or less understanding of the training of the SMT.

Conclusions: Our survey results reveal most FSs are confident in neither their ability to perform ERC nor the ability of their hospital corpsman to provide care during patient movement.
Comparison of Three Junctional Tourniquets Using a Randomized Trial Design

Source
Prehospital Emergency Care: Official Journal of the National Association of EMS Physicians and the National Association of State EMS Directors 2019 23 (2) 187-194

Author(s)

Abstract
Background: Hemorrhage remains a leading cause of death in both civilian and military settings. Of preventable deaths from hemorrhage, a significant portion occurs from junctional wounds that are not amenable to traditional extremity tourniquets. Junctional tourniquets (JTQs) can potentially provide hemorrhage control by compressing the arteries at the junction of the trunk and extremities. The FDA has cleared 3 JTQ products: The Combat Ready Clamp (CRoC®), the Junctional Emergency Treatment Tool (JETT™), and the SAM® Junctional Tourniquet (SJT). However, little is known regarding which of these JTQs is superior in application time, effectiveness in pulse elimination, effectiveness during transport, and user preference.; Methods: Active duty corpsmen (N = 49) were given standardized instruction and hands-on training with the CRoC®, JETT™, and SJT, then sequentially applied each JTQ unilaterally to a fellow study participant in a randomized order. Pulse elimination was determined by Doppler ultrasound at the dorsalis pedis immediately then reevaluated after a short transport. User preference data were collected following testing. Data were analyzed using repeated measures ANOVA and non-parametric statistics at p < 0.05.; Results: The CRoC® was significantly slower in application time than the JETT™ and SJT. Effectiveness was similar for CRoC®, JETT™, and SJT. Effectiveness during transport was significantly higher for SJT than for the JETT™, but no JTQ performed well during transport (24-48% effectiveness). SJT ranked first in perceived ease of use, stability, and reliability, and in user trust and overall preference. Participants provided cogent suggestions for product improvement.; Conclusions: All JTQ devices performed poorly during transport. Combined, present findings highlight the potential of JTQ products for saving lives threatened by junctional wounds, but also highlight the need for specific product improvements towards fostering JTQ performance in patient transport.
CPR performed in battlefield emergency care

Source
Australasian Journal of Paramedicine 2019 16 ( ) 1-9

Author(s)
Abelsson, A. and Lundberg, L.

Abstract
Introduction During military missions medical care is provided to military personnel as well as civilians. Although cardiopulmonary resuscitation (CPR) may not be a common task in a military field hospital, all personnel need to be trained to deal with cardiac arrest. Methods This study was a comparative simulation study. Participants (n=36) from the Swedish armed forces performed CPR for 2 minutes at one of three different locations: at ground level, a military bed, or a transportable military stretcher. Compression depth and rate after 2 minutes of CPR and at the time of the participants’ own request to be relieved were measured. Descriptive and inferential analysis was conducted. Results There is a direct correlation between compression depth and working level, concluding that the higher working level, the lower the compression depth. There is in total an overall low percentage of participants within limits for correctly conducted CPR regarding both compression depth and rate. Time to fatigue is related to working level, where increased level results in early fatigue. Conclusion The quality of CPR is affected by the level at which it is performed. The quality of CPR was satisfactory when working at ground level, but suboptimal when working at hospital bed level or military stretcher level. When working at raised levels, participants appeared to misjudge their own compression depth and rate. This may indicate that changes are needed when CPR is practised in the military hospital setting. Future studies regarding the use of footstools are required due to the height of military beds and transportable stretchers.

Impact of Marine Exposure on Hemostatic Gauzes Using Thromboelastography.

Source
Journal of Special Operations Medicine 2019 19 (1) 88-94

Author(s)
George, T., and Jordan, M.,

Abstract
Background: Military forces render emergency care in marine environments, where care for exsanguination is challenging. However, the effect of saltwater on the functionality of hemostatic agents is unknown. In this study, we used thromboelastography (TEG) to quantify the effect of saltwater on the efficacy of five gauze products. Methods: Blood from 24 healthy adult men was diluted by 30% with hetastarch to mimic hemodilution. Dry and saltwater-soaked Kerlix™, ChitoGauze®, Combat Gauze®, NuStat™, and WoundClot™ were contrasted in terms of the TEG parameters of speed of clot initiation (R), clot amplification (K), α angle (i.e., clot...
formation rate), and maximum amplitude of clot (MA), using repeated-measures analysis of variance at the $p < .05$ statistical significance threshold. Results: Compared with untreated dilute blood, R was significantly faster when any dry or wet gauze was added, with the fastest R values recorded for Combat Gauze. K and $\alpha$ angle findings were mixed. MA was greater than dilute blood for dry hemostatic gauze, but in the wet condition, only the MA for Combat Gauze was significantly greater than that of diluted blood. Conclusion: Gauze products, wet or dry, improved clotting compared to diluted blood without gauze. Saltwater exposure did not significantly detract from this benefit. Our findings suggest that Combat Gauze may be the choice hemostatic gauze for maritime environments.

2019-122 0061

**Limb Tourniquet Configuration Preliminary Investigation of Problems and Principles.**

**Source**
Journal of Special Operations Medicine 2019 19 (1) 35-43

**Author(s)**
Kragh,J.F., and Aden,J.K.,

**Abstract**
Background: A tourniquet’s readiness during emergencies depends on how it is configured. We investigated configuration so ways of improving readiness can be developed. Methods: This study was conducted at the Institute of Surgical Research in 2018 as sequential investigations by one user of Combat Application Tourniquets (C-A-Ts) in a band-and-rod design. Results: Each tourniquet comes packaged with paper instructions for use, which include directions on how to configure it in preparation for caregiving. The paper and video instructions for use omit tensioning of the tourniquet in configuration, and the video misconfigured a time strap over the rod. In first-aid classrooms, we saw unwitting learners troubleshoot that misconfiguration. Problems with configuration were also seen in caregiving and with tourniquets stowed in kits. In deliberate practice, we self-applied a tourniquet to a thigh. In configuration after each of 100 uses, tourniquet elongation due to tensioning averaged 2.4 in was important for restoring the tourniquet to its full length. During configuration, if the C-A-T’s stabilization plate slid along the band, out of position, the user slid the plate back into position. In various ways of testing other C-A-Ts, elongations averaged from 0.4 in to 0.9 in, depending on whether the tourniquet was self-applied or applied to a firm manikin. Elongation increments accrued as the tourniquet’s band flattened. Configuration time averaged 22 seconds, and accrued experience improved the compactness of configuration. Conclusion: People are too often unreliable at putting C-A-Ts into the optimal configuration for use. That ready-to-use configuration includes the tourniquet being at its full length, having the stabilization plate positioned correctly along the band, and having the strap fastened to its clip of origin. When used, tourniquets had normal, small elongations in part due to band flattening. This tourniquet study showed the importance of optimal configuration to first-aid readiness practices.
**Linking civilian and military care in a training exercise.**

**Source**
Journal of Paramedic Practice 2019 11 (2) 74-74

**Author(s)**
N.K.

**Abstract**
In a collaborative exercise, the University of Cumbria’s paramedic training team held a multidisciplinary training weekend at its Ambleside campus on 8–9 December 2018. In this feature comment, we hear from some of the key players involved in the training, which importantly linked civilian and military emergency care.

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**Masimo Perfusion Index Versus Doppler for Tourniquet Effectiveness Monitoring.**

**Source**
Journal of Special Operations Medicine 2019 19 (1) 44-47

**Author(s)**
Wall,P., and Buising,C.,

**Abstract**
Background: In addition to a plethysmograph, Masimo pulse oximeters display a Perfusion Index (PI) value. This study investigated the possible usefulness of PI for monitoring limb tourniquet arterial occlusion. Methods: Tactical Ratcheting Medical Tourniquets were applied to the thighs of 15 subjects. Tightening ended at one ratchet-tooth advance beyond Doppler-indicated occlusion. The times and pressures of Doppler and PI signal absences and returns were recorded. Results: Intermittent PI signal error occurred in 149 of 450 runs (PI, 33% versus Doppler, 0%; p < .0001). PI signal loss lagged Doppler-indicated occlusion by 19 ± 15 seconds (mean ± standard deviation, p < .0001). PI Signal Return lagged tourniquet release by 13 ± 7 seconds (Doppler Signal Return took 1 ± 1 seconds following tourniquet release; p < .0001). PI failed to detect early Doppler audible pulse return in 30 of 39 occurrences. Conclusion: The PI available on Masimo pulse oximeters is not appropriate for monitoring limb tourniquet effectiveness.
Military and civilian handover communication in emergency care: how does it differ?

Source
Journal of Paramedic Practice 2019 11 (2) 66-73

Author(s)
Slope,R., and Pope,C.,.

Abstract
There is a growing body of literature on handover communication between prehospital and hospital receiving teams in civilian emergency care settings, but little is known about how this differs from handover in the UK military medical services. This literature review shows that civilian handover is a complex process conducted in less-than-ideal circumstances, and it is affected by human behaviour and patient factors. There is a debate around standardisation including the use of the Mechanism, Injury or Illness, Signs, Treatment (MIST) mnemonic. There is limited understanding of how this mnemonic was used by the UK military, how it was developed to deal with specific patient characteristics or in the context of military operations in Afghanistan within which it evolved. Advancements in clinical practice made during conflict are ancillary to military objectives and should be supported by an evidence base before being transferred to civilian health care.

Prehospital Interventions Performed in Afghanistan Between November 2009 and March 2014

Source
Military Medicine 2019 184 ( ) 133-137

Author(s)
Lairet,J., Bebarta,V.S., et al.

Abstract
Objective: Care provided to a casualty in the prehospital combat setting can influence subsequent medical interactions and impact patient outcomes; therefore, we aimed to describe the incidence of specific prehospital interventions (lifesaving interventions (LSIs)) performed during the resuscitation and transport of combat casualties.;
Methods: We performed a prospective observational, IRB approved study between November 2009 and March 2014. Casualties were enrolled as they were cared for at nine U.S. military medical facilities in Afghanistan. Data were collected using a standardized collection form. Determination if a prehospital intervention was performed correctly, performed incorrectly, or was necessary but was not performed (missed LSIs) was made by the receiving facility's medical provider.; Results: Two thousand one hundred and six patients met inclusion criteria. The mean age was 25 years and 98% were male. The most common mechanism of injury was explosion 57%. There were 236 airway interventions attempted, 183 chest procedures, 1,673 hemorrhage control, 1,698 vascular access, and 1,066 hypothermia preventions implemented. There were 142 incorrectly performed interventions and 360 were missed.; Conclusions: In our study, the most commonly performed prehospital LSI in a combat setting were for vascular access and hemorrhage control. The most
common incorrectly performed and missed interventions were airway interventions and chest procedures respectively.

2019-122 0066

Safety and Flight Considerations for Mechanical Circulatory Support Devices During Air Medical Transport and Evacuation: A Systematic Narrative Review of the Literature

Source
Air Medical Journal 2019 38 (2) 106-114

Author(s)
Yao,H., Samoukovic,G., et al.

Abstract
Objective: The air medical transportation industry has seen a steady rise in the use of mechanical circulatory support devices (eg, intra-aortic balloon pumps, ventricular assist devices, and extracorporeal membrane oxygenation) during transport missions, either for definitive management or repatriation. As these complex devices become more common, the industry will have to adapt to support their use in their clientele. The goal of this narrative review was to assess our current experiences regarding mechanical circulatory support devices in air medical transportation and to identify important factors to ensure successful transport.; Methods: We conducted a systematic search on MEDLINE and Embase using the following search terms: aeromedical transportation, air transportation, intra-aortic balloon pump, ventricular assist device, and extracorporeal membrane oxygenation. Results were cross-referenced to identify articles addressing both air medical transport and mechanical circulatory support devices.; Results: After a systematic review of the available literature, 49 articles addressing mechanical support devices transported by rotary wing and fixed wing aircraft were reviewed. In summary, our review encompassed 811 total aerial transports (152 by balloon pumps, 12 by ventricular assist devices, and 647 by extracorporeal membrane oxygenation). We found air medical transportation with these devices carried out in the public, private, or military sectors, to be safe, with low rates of serious adverse events. Dedicated training sessions focused on device troubleshooting and problem-solving during transport, optimal medical crew composition, predeparture logistical preparations, and on-demand specialist consultation can improve mission success.; Conclusion: We report that air medical transportation of patients supported by mechanical circulatory support devices is safe. Complications can be mitigated by training and addressed either during the predeparture or in-transportation phase.

See also


Bacterial Contamination of Military and Civilian Uniforms in an Emergency Department. Under Infection Control and Communicable Diseases.

A Case of Neglected Achilles Rupture after an Ankle Sprain. Under Orthopaedics
Evaluation of a Novel Fibrin Sealant Patch in Hemorrhage Control After Vascular or Hepatic Injury. Under Research & Technology.


Unstable Pelvic Fracture Reduction Under Ultrasonographic Control. Under Trauma.

The use of whole blood in US military operations in Iraq, Syria, and Afghanistan since the introduction of low-titer Type O whole blood: feasibility, acceptability, challenges. Under Haematology.

**Epidemiological study of metabolic syndrome in Brazilian soldiers**

**Source**
Archives of Endocrinology and Metabolism 2019 ( )

**Author(s)**
Fortes, M. d. S. R., Rosa, S. E. d., et al.

**Abstract**
Objective: The aim of this study was to carry out an epidemiological analysis of metabolic syndrome among Brazilian Army soldiers.; Subjects and Methods: Two thousand seven hundred and nineteen male soldiers of the Brazilian Army were evaluated from 2014 to 2016. Characteristics: age = 27.77 (± 8.59) years and BMI = 25.15 (± 3.41) kg/m². Blood tests and anthropometric measures were performed following the criteria of the International Diabetes Federation Task Force on MS Epidemiology and Prevention, 2009. The epidemiological analysis was based on Odds ratio (OR) with confidence interval (CI); Results: The prevalence of MS found was 12.21%. Both WC and BMI proved to be good predictors of changes in MS physiological markers. Increased WC and BMI were strongly associated with all physiological markers. Soldiers with WC ≥ 90 were more likely to present MS with OR = 33.37 (24.37-45.7). Soldiers with WC ≥ 90 also presented high risk of: high triglycerides with OR = 5.98 (4.69-7.61); low HLD-c with OR = 1.78 (1.47-2.16); and increased systolic blood pressure OR = 3.10 (2.55-3.76). Soldiers with BMI ≥ 30 had a high risk of: increased glucose with OR = 2.69 (1.93-3.75); and increased diastolic blood pressure with OR = 3.02 (2.22-4.10); Conclusion: Both WC and BMI can be considered as good predictors of changes in MS physiological markers. We believe that WC and BMI should be used as screening tools to indicate the soldiers that must undergo blood tests to monitor MS prevalence.

**Female Reproductive, Adrenal, and Metabolic Changes during an Antarctic Traverse**

**Source**
Medicine & Science in Sports & Exercise 2019 51 (3) 556-567

**Author(s)**

**Abstract**
Supplemental digital content is available in the text. Purpose: To explore the effects of the first all-female transantarctic expedition on hormonal axes pertinent to reproductive and metabolic function. Methods: Six females (age, 28–36 yr; body mass index, 24.2 ± 0.97 kg·m⁻²) hauled 80-kg sledges 1700 km in 61 d. Estimated average energy intake was 20.8 ± 0.1 MJ·d⁻¹ (4970 ± 25 kcal·d⁻¹). Whole and regional body composition was measured by dual-energy x-ray absorptiometry 1 and 2 months before and 15 d after, the expedition. Body fat was also estimated by skinfold and bioimpedance immediately before and after the expedition. Basal metabolic and endocrine blood markers and, after 0.25 mg dexamethasone suppression, 1-h 10-μg gonadorelin and 1.0 μg adrenocorticotrophin-(1–24) tests
were completed, 39–38 d preexpedition and 4 to 5 d and 15 to 16 d postexpedition. Cortisol was assessed in hair (monthly average concentrations) and saliva (five-point day curves and two-point diurnal sampling). Results: Average body mass loss was 9.37 ± 2.31 kg (P < 0.0001), comprising fat mass only; total lean mass was maintained. Basal sex steroids, corticosteroids, and metabolic markers were largely unaffected by the expedition except leptin, which decreased during the expedition and recovered after 15 d, a proportionately greater change than body fat. Luteinizing hormone reactivity was suppressed before and during the expedition, but recovered after 15 d, whereas follicle-stimulating hormone did not change during or after the expedition. Cortisol reactivity did not change during or after the expedition. Basal (suppressed) cortisol was 73.25 ± 45.23 mmol·L−1 before, 61.66 ± 33.11 mmol·L−1 5 d postexpedition and 54.43 ± 28.60 mmol·L−1 16 d postexpedition (P = 0.7). Hair cortisol was elevated during the expedition. Conclusions: Maintenance of reproductive and hypothalamic-pituitary-adrenal axis function in women after an extreme physical endeavor, despite energy deficiency, suggests high female biological capacity for extreme endurance exercise.

2019-122 0069

Identifying a Potential Screening Tool for Prediabetes: The Association of Hemoglobin A1c and a Test of Physical Fitness

Source
Military Medicine 2019 184 (3) e139-e142

Author(s)
Timboe,A., Lystrup,R., et al.

Abstract
Introduction: The purpose of this study is to correlate HbA1c values with data points in the Air Force Physical Fitness Test (AFPT) in our active duty population. Materials and Methods: This study looks at 489 active duty U.S. Air Force members who performed the AFPT within 1 month of study participation at Nellis Air Force Base, Las Vegas, NV from July 2011 to August 2013. This cross-sectional study included a demographic survey, examination of AFPT results, and lab values, including Hemoglobin A1c and fasting lipid panel. Results: A statistically significant association was detected between the prevalence of prediabetes or diabetes (HbA1c ≥5.7%) and fitness level (16.98% in Unsatisfactory, 12.12% in Satisfactory, and 6.72% in Excellent; p = 0.0352). Prediabetes and diabetes were more prevalent among subjects who had an exemption for the AFPT (25.67% vs 7.23%; p = 0.0004), a body mass index of ≥30 (20.0% vs 8.35%, p = 0.0026), and among individuals with a first degree relative with diabetes (15.70% vs. 8.15%; p = 0.0164). The prevalence of prediabetes and diabetes was lower in subjects with HDL ≥40 than HDL <40 (22.22% vs 8.40%; p = 0.0073). Conclusions: Exemptions taken on the AFPT, increased abdominal circumference, and elevated body mass index are strongly associated with prediabetes in this military population. HbA1c could be a screening tool for these at-risk personnel to identify diabetes in its early stages.
Testosterone replacement therapy use among active component service men, 2017

Source
Msmr 2019 26 (3) 26-31

Author(s)
Larsen,E., Clausen,S., et al.

Abstract
This analysis summarizes the prevalence of testosterone replacement therapy (TRT) during 2017 among active component service men by demographic and military characteristics. This analysis also determines the percentage of those receiving TRT in 2017 who had an indication for receiving TRT using the 2018 American Urological Association (AUA) clinical practice guidelines. In 2017, 5,093 of 1,076,633 active component service men filled a prescription for TRT, for a period prevalence of 4.7 per 1,000 male service members. After adjustment for covariates, the prevalence of TRT use remained highest among Army members, senior enlisted members, warrant officers, non-Hispanic whites, American Indians/Alaska Natives, those in combat arms occupations, healthcare workers, those who were married, and those with other/unknown marital status. Among active component male service members who received TRT in 2017, only 44.5% met the 2018 AUA clinical practice guidelines for receiving TRT.

See also

Body-worn IMU array reveals effects of load on performance in an outdoor obstacle course

Source
Plos One 2019 14 (3) e0214008-e0214008
Author(s)

Abstract
This study introduces a new method to understand how added load affects human performance across a broad range of athletic tasks (ten obstacles) embedded in an outdoor obstacle course. The method employs an array of wearable inertial measurement units (IMUs) to wirelessly record the movements of major body segments to derive obstacle-specific metrics of performance. The effects of load are demonstrated on (N = 22) participants who each complete the obstacle course under four conditions including unloaded (twice) and with loads of 15% and 30% of their body weight (a total of 88 trials across the group of participants). The IMU-derived performance metrics reveal marked degradations in performance with increasing load across eight of the ten obstacles. Overall, this study demonstrates the significant potential in using this wearable technology to evaluate human performance across multiple tasks and, simultaneously, the adverse effects of body-borne loads on performance. The study addresses a major need of military organizations worldwide that frequently employ standardized obstacle courses to understand how added loads influence warfighter performance. Importantly, the findings and conclusions drawn from IMU data would not be possible using traditional timing metrics used to evaluate task performance.

Characteristics Associated With Participation in a Behavioral Weight Loss Randomized Control Trial in the U.S. Military.

Source
Military Medicine 2019 184 (3-4) e120-e126
Author(s)
Fahey, M.C., and Hare, M.E.,

Abstract
Introduction Effective recruitment and subsequent enrollment of diverse populations is often a challenge in randomized controlled trials, especially those focused on weight loss. In the civilian literature, individuals identified as racial and ethnic minorities, men, and younger and older adults are poorly represented in weight loss interventions. There are limited weight loss trials within military populations, and to our knowledge, none reported participant characteristics associated with enrollment. There may be unique motives and barriers for active duty personnel for enrollment in weight management trials. Given substantial costs and consequences of overweight
and obesity in the U.S. military, identifying predictors and limitations to diverse enrollment can inform future interventions within this population. The study aims to describe the recruitment, screening, and enrollment process of a military weight loss intervention. Demographic and lifestyle characteristics of military personnel lost between screening and randomization are compared to characteristics of personnel randomized in the study and characteristics of the Air Force in general. Materials and Methods The Fit Blue study, a randomized controlled behavioral weight loss trial for active duty personnel, was approved by the Institutional Review Board of the Wilford Hall Ambulatory Surgical Center in San Antonio, TX, USA and acknowledged by the Institutional Review Board at the University of Tennessee Health Science Center. Logistic regressions compared participant demographics, anthropometric data, and health behaviors between personnel that attended a screening visit but were not randomized and those randomized. Multivariable models were constructed for the likelihood of being randomized using a liberal entry and stay criteria of 0.10 for the p-values in a stepwise variable selection algorithm. Descriptive statistics compared the randomized Fit Blue cohort demographics to those of the U.S. Air Force Results In univariate analyses, older age (p < 0.02), having a college degree or higher (p < 0.007) and higher military rank (p < 0.02) were associated with completing the randomization process. The randomized cohort reported a lower percentage of total daily kilocalories for fat compared to the non-randomized cohort (p = 0.033). The non-randomized cohort reported more total minutes and intensity of physical activity (p = 0.073). In the multivariate model, only those with a college degree or higher were 3.2 times more likely to go onto randomization. (OR = 3.2, 95% CI = 2.0, 5.6, p < 0.0001). The Fit Blue study included a higher representation of personnel who identified as African American (19.4% versus 15.0%) and Hispanic/Latino (22.7% versus 14.3%) compared with the U.S. Air Force in general; however, men were underrepresented (49.4% versus 80.0%). Conclusions Accounting for all influencing characteristics, higher educational status was the only independent predictor of randomization. Perhaps, highly educated personnel are more invested in a military career, and thus, more concerned with consequences of failing required fitness tests. Thus, it may be important for future weight loss interventions to focus recruitment on less-educated personnel. Results suggest that weight loss interventions within a military population offer a unique opportunity to recruit a higher prevalence of males and individuals who identify as racial or ethnic minorities which are populations commonly underrepresented in weight loss research.
Counter-Terror Fighting Task: Metabolic Demand and Energy Systems’ Contributions.

Source
Military Medicine 2019 184 (3-4) e238-e244

Author(s)
Inbar,O., and Petluk,L.,

Abstract
Introduction In light of the recent increase in terrorist events around the globe, it is surprising that the metabolic demand of counter-terror fighting tasks had not yet been published in the scientific literature. The purpose of this study, therefore, was to examine the metabolic demand and the contribution of the three energy systems to a typical simulated counter-terror combat scenario. Materials and Methods Oxygen uptake and carbon dioxide output (VO2, VCO2), heart rate, ventilatory responses, and blood lactate concentration were measured in 12 randomly selected elite Special Forces police fighters (mean age 33.3 ± 3.6 years). The fighting task involved ascending flights of stairs, climbing a ladder, shooting on hiding terrorists, performing a search and rescue, relocating a wounded colleague, and then descending and exiting from a seven-floor building. Results The fighting scenario lasted an average of 4:56 ± 0:22 min. Measured oxygen uptake averaged 31.1 ± 2.0 ml kg min−1 (57.7% of VO2max) with an average peak of 37.7 ± 8.1 ml kg min−1 (75.5% of VO2max). Average and peak heart rates were 160.4 ± 12.2 beats min−1 (85% of the HRmax) and 175.5 ± 10.5 beats min−1 (94% of HRmax), respectively. The energy cost of the fighting scenario averaged 74.3 ± 9.9 Kcal, with 75.5% of the energy generated by aerobic pathways, 14.1% from anaerobic lactacid (glycolytic) and 10.4% from anaerobic a-lactacid (phosphogenic) energy sources. Conclusions This study provided novel information related to the physiological demands and the metabolic fuel supplies during a typical counter-terror-fighting task of elite Special Forces. Such information is instrumental in planning and conducting adequate training programs and nutrition support for counter-terror fighting units.

Effectiveness of an applied high intensity interval training as a specific operative training

Source
Physiology & Behavior 2019 201 ( ) 208-211

Author(s)

Abstract
The psychophysiological response due to stress of soldiers in actual combat operations have been determined by recent researchers, but there is a lack of knowledge about the most effective training methodologies to prepare these population for these new psychophysiological and tactical requirements. The aim of this study was to analyze the effect of an operative high intensity interval training
(HIIT) in the psychophysiological response and shooting performance of professional soldiers. We analyzed 20 soldiers of the Spanish Army which performed an operative HIIT composed by 3 series of 7 repetitions of exercises based on operative military procedures with 30 s of workload and 30 s of resting between repetitions and 5 min resting between series. Blood lactate, rate of perceived exertion and stress, upper and lower limbs, and respiratory muscle strength, skin temperature, blood oxygen saturation, heart rate, cortical arousal, short-term memory and anxiety response were measured before and after the training. After the training rated of perceived exertion and stress, leg strength, heart rate and lactate presented a significant increase and blood oxygen saturation and cortical arousal significantly decreased. An operative HIIT achieves similar psychophysical response than the evaluated in combat simulations in professional soldiers, producing a decrease in cortical arousal and lactate values over the anaerobic threshold.

2019-122 0075

Females Engaged in Elite Training Previously Only Open to Males: Exploring the Variables of Successful Outcomes

Source
Military Medicine 2019 184 ( ) 438-442

Author(s)
Givens,M.L. and Eklund,K.

Abstract
To date, there has been no analysis of the skills or attributes predicting success in female trainees who undergo traditionally male elite military training. This retrospective case control study characterized variables specific to females in the Special Operations Combat Medic course. 20/39 males and 15/38 females successfully completed the course. Several objective variables of interest including height and body weight, marital status, dependents, and physical fitness scores revealed trends but marital status and dependents were the only variables that achieved statistical significance. Exploration of subjective measures also highlighted potential trends in upper body strength and personal versus behavioral issues. These variables should be explored further for applicability to altering selection criteria or adjusting training conditions to mitigate sex disparities without altering standards of performance or creating an imbalance of resource investment for intended returns. The variables identified in this sample can be explored in other populations as females are integrated in other previously closed realms of military service.
Genetic, Physiologic, and Behavioral Predictors of Cardiorespiratory Fitness in Specialized Military Men

Source
Military Medicine 2019 ( )

Author(s)

Abstract
Introduction: Cardiorespiratory fitness (CRF) is a crucial performance requirement of specialized military occupations. Age and physical activity are established predictors of CRF, but it is not clear how these predictors combine with each other and/or with genetic predisposition. The goal of this study was to derive inclusive explanatory models of CRF in US Navy Explosive Ordnance Disposal (EOD) operators, synthesizing conventional (e.g., age, body composition, and physical activity) and novel influences (e.g., genetic variance).

Materials and Methods: In this cross-sectional study, 40 male, active duty EOD operators completed a graded exercise test to assess maximal oxygen consumption and ventilatory threshold (VT) using the Bruce protocol. Aerobic performance was further quantified via time of test termination and time at which VT was achieved. Body composition was determined via dual x-ray absorptiometry, and physical activity was assessed by self-report. Genetic variants underlying human stress systems (5HTTLPR, BclI, -2 C/G, and COMT) were assayed. Descriptive analyses were conducted to summarize subject characteristics. Hypotheses were tested with linear regression models. Specifically, separate univariate regression models first determined associations between each of the independent and dependent variables. This protocol was approved by the Naval Health Research Center Institutional Review Board (NHRC.2015.0013).

Results: In univariate regression models, age, body composition, physical activity, and 5HTTLPR consistently predicted CRF and/or aerobic performance (R2 range 0.07-0.55). Multivariate regression models routinely outperformed the univariate models, explaining 36-62% of variance.

Conclusion: This study signifies a shift toward inclusive explanatory models of CRF and aerobic performance, accounting for combined roles of genetic, physiologic, and behavioral influences. Although we were able to quantify combined effects, we were unable to evaluate interaction effects (e.g., gene-gene, gene-behavior) due to limited statistical power. Other limitations are that this specialized military population may not readily generalize to broader populations, and the current sample was all male. Considering these limitations, we aim to replicate this study in various populations, both male and female. Despite its limitations, this study reflects a shift toward more comprehensive predictive models of CRF, explaining the unique and shared contributions of genetic predisposition, physiology, and behavior. These findings have implications for assessment, selection, and training of specialized military members, and may also impact mission success and survivability. Future studies are needed to better characterize additive, interactive, and mediated effects.
Levels of physical activity and associated factors between military policemen and firemen

Source
Transfusion 2019 62; 59 (3; 3) 515; 927-521; 930
Author(s)

Abstract
BACKGROUND: Military Policemen and Firemen are professionals often involved in life-risking activities as well as duties demanding endurance and muscular strength. Nevertheless, their working conditions are rarely satisfactory. OBJECTIVE: To compare levels of physical activity and social, demographic and occupational factors between military policemen and firemen; factors that may impact their ability to efficiently and effectively accomplish their jobs. METHODS: This cross-sectional study was performed in Brazil with 127 local military personnel (67 policemen and 60 firemen). A sociodemographic questionnaire was applied together with the International Physical Activity Questionnaire (IPAQ), short version. RESULTS: It was observed that the firemen participating in this study are 4 times more likely to be inactive than the policemen. However, policemen showed higher sociodemographic risk factors (less schooling and the higher number of children and workplaces) to work performance when compared to military firemen. CONCLUSION: It could be inferred that in relation to the firemen, policemen suffer from less favorable sociodemographic conditions and face major risk situations more frequently once they are directly involved with the public security of the States; on the other hand, both populations should be incentivized and offered systematized physical activity programs in their workplaces.
Neuromuscular Performance and Hormonal Profile During Military Training and Subsequent Recovery Period.

Source
Military Medicine 2019 184 (3-4) e113-e119

Author(s)
Salonen,M., and Huovinen,J.,

Abstract
Introduction Military training loads may induce different physiological responses in garrison and field training and only a little is known about how short-time recovery, lasting a few days, affects neuromuscular fitness and hormonal profile. This study aimed to investigate the effects of garrison and field military service on neuromuscular performance and hormonal profile and to evaluate the effects of a 3-day recovery on those factors. Methods Twenty healthy male soldiers (20 ± 1 years) participated in the study, which consisted of 4 days of garrison training [days (D) 1–4] and 7 days of military field training (Days 5–12) followed by a 3-day recovery period (Day 15). Serum hormone concentrations [testosterone (TES), cortisol (COR), sex-hormone binding globulin (SHBG), free thyroxine (T4)] were assessed at D1, D5, D8–12, and D15. Handgrip strength was measured in 10 participants at D1, D5, D8, D12, and D15. Maximal isometric force, electromyography, and rate of force development (RFD) of the knee extensors and arm flexors were also measured at D5, D12, and D15. Results The maximal force of both the arm flexors and knee extensors was not affected by the garrison or field training, whereas the RFD of the knee extensors was decreased during the field training (D5: 383 ± 130 vs. D12: 321 ± 120 N/s, p < 0.05). In addition, handgrip strength was mostly no affected, although a significant difference was observed between D8 and D12 (531 ± 53 vs. 507 ± 43 N, p < 0.05) during the field training. TES decreased already during the garrison training (D1: 18.2 ± 3.9 vs. D5: 16.2 ± 4.0 nmol/L, p < 0.05) and decreased further during the field training compared to baseline (D8: 10.2 ± 3.6 - D11: 11.4 ± 5.4 nmol/L, p < 0.05) exceeding the lowest concentration in the end of the field training (D12: 7.1 ± 4.1 nmol/L, p < 0.05). Similar changes were observed in free TES (D1: 72.2 ± 31.4 vs. D12: 35.1 ± 21.5 nmol/L, p < 0.001). The TES concentration recovered back to the baseline level and free TES increased after the recovery period compared with the baseline values (D15: 19.9 ± 5.3 nmol/L, D15: 99.7 ± 41.1 nmol/L, respectively). No changes were observed in the COR or SHBG concentrations during the garrison period. COR was decreased in the end of the field training (D12: 388 ± 109 nmol/L) compared with baseline (D1: 536 ± 113 nmol/L) (p < 0.05–0.001) but recovered back to the baseline levels after the recovery period (D15: 495 ± 58 nmol/L), whereas SHBG linearly increased towards the end of the field training (p < 0.05–0.001). Conclusions The present findings demonstrate that neuromuscular performance can be relatively well maintained during short-term garrison and field training even when a clear decrease in hormonal profile is evident. In addition, hormonal responses during field training seem to be greater compared to garrison training, however, the recovery of 3-day in free-living conditions seems to be sufficient for hormonal recovery. Therefore, a short-term recovery period lasting few days after the military field training may be required to maintain operational readiness after the field training.
Physical fitness as a risk factor for injuries and excessive stress symptoms during basic military training

Source
International Archives of Occupational and Environmental Health 2019

Author(s)

Abstract
Purpose: The purpose of basic military training (BMT) is to enable the recruited soldiers to acquire basic military skills and develop the required physical fitness. This training is accompanied by heightened physical stress and the risk of injury and excessive stress symptoms (I&ESS). The objective of this study was to examine the extent to which the level of physical fitness at the beginning of BMT affects the incidence of I&ESS and resultant absence from duty.; Methods: The data of a total of 774 subjects (age 20.5 ± 2.2) from 8 subsequent BMT quarters were analysed. The medical diagnoses made during the consulting hours of the unit physicians were reviewed for I&ESS and the kinds of injuries incurred and the sick leave pronounced were documented. The level of physical fitness per quarter was then categorised by means of the total numbers of points achieved during the standard basic fitness test (BFT). This categorisation was finally used as a basis for an analysis of the lost days in relation to the level of physical fitness.; Results: 255 of the 774 subjects (32.9%) suffered an I&ESS. 60% of all the I&ESS were located at lower extremity. There was a significant increase in the length of absence from duty among the group with the lowest level of physical fitness.; Conclusions: The analysis revealed that the level of physical fitness at the beginning of BMT has a significant influence on the length of absence from duty due to I&ESS. Moreover, 60% of the injuries were lower extremity injuries, which show the specific significance they have for limitations during BMT. Overall, this reveals the necessity for appropriate preventive measures (additional fitness training, adjustment of requirements) to be implemented so that recruits with a low level of fitness can complete BMT with as few injuries as possible.

A pre-training conditioning program to increase physical fitness and reduce attrition due to injuries in Dutch Airmobile recruits: Study protocol for a randomised controlled trial

Source
Contemporary Clinical Trials Communications 2019 14

Author(s)
Dijksma, I., Zimmermann, W.O., et al.

Abstract
Background: Low baseline fitness of recruits entering basic military training is shown to be associated with an increased risk of musculoskeletal injuries (MSIs) and attrition of military training. This in turn leads to an increased demand for health care, increased health care costs and decreased personnel occupancy rate of military units.; Design: Study protocol for a randomised controlled trial.; Objective: To determine the effects of a pre-training conditioning program on cardiovascular
endurance, incidence of overuse injuries, and attrition rates in Dutch Airmobile recruits undertaking initial military training.; Setting: Royal Netherlands Army, Air Assault Brigade military training course.; Participants: Recruits are considered eligible for this study when they are 'low-fit' at the start of the initial military training. Time to complete a 2700 m run test in ≥12'23" is used as selection criteria.; Interventions: We use a complex system approach to cover multiple domains of MSI prevention and optimise intervention circumstance; a pre-training conditioning program, training staff support, process-focused culture and health accountability. The pre-training conditioning program contains functional training to improve mobility, power, agility, lower and upper body strength and cardiovascular endurance. Cardiovascular endurance will be targeted both by endurance training and high intensity interval training.; Main outcome measurements: Outcome measures include cardiovascular endurance, injury incidence, attrition rates, lost training days due to injuries, and implementation fidelity of the PCP.

2019-122 0081

Psychophysiological and Specific Fine Motor Skill Modifications in a Checkpoint Action

Source
Journal of Medical Systems 2019 43 (4) 90-90
Author(s)

Abstract
In last years, the insurgency attacks on task forces bases and checkpoints have been common. The study of psychophysiological response of soldiers in these asymmetrical and non-controlled situations remains a challenge. The present research aimed to analyze the psychophysiological response and the variations in specific fine motor skill after a checkpoint simulation which included surveillance, unexpected attacks, and melee combat. Psychophysiological parameters -heart rate, blood glucose, pressure, oxygen saturation, and lactate, legs’ strength, skin temperature, cortical activation, anxiety-, as well as fine motor skills were analyzed in a sample of 24 professional Spanish Army soldiers (35.67 ± 6.62 years, 177.21 ± 7.37 cm, 82.29 ± 11.02 kg, 26.17 ± 2.82 BMI, 15.25 ± 7.44 years of experience in their unit) before and after a checkpoint simulation. The checkpoint surveillance operation produced a significant increase (p < 0.05) in rated perceived exertion, heart rate, blood lactate concentration, legs’ strength and somatic anxiety, and a significant decrease in blood oxygen saturation and skin temperature values.
We concluded that results were consistent with an activation of sympathetic nervous system, triggering a fight-flight response, a chain of intense psychophysiological reactions and a misinterpretation of perceived exertion. Results may help predicting soldiers’ physical and operative behavior in real situations.
2019-122 0082

**Psychophysiological Monitorization in a Special Operation Selection Course**

**Source**  
Journal of Medical Systems 2019 43 (3) 1-1

**Author(s)**  
Hormeño-Holgado, A.J. and Clemente-Suárez, V.J.

**Abstract**  
The present research aimed: i. to analyse the psychophysiological response of soldiers undertaking a special operation selection course; ii. to study the relationship between fat and muscle loss and the psychophysiological response of soldiers undertaking a special operation selection course. We analysed 46 professional soldiers from a special operations unit (25.1 ± 5.0 years, 1.8 ± 0.1 cm, 76.8 ± 7.9 kg, 24.4 ± 2.5 kg/m²) undertaking the last phase of their 10 weeks special operation selection course. Before and immediately after the exercise the following variables were assessed: Stress subjective perception, fatigue subjective perception, rating of perceived perception, cortical arousal, body temperature, blood oxygen saturation, spirometry, isometric hand strength, lower body muscular strength, urine, body composition, life engagement test, coping flexibility scale, acceptance and action questionnaire, perceived stress scale, anxiety state, visual analogue scale and differential aptitude test. A special operation selection course induced an intense stress and physical response as suggested by the psychophysiological changes with a significant (p < 0.05) increase in fatigue and stress subjective perception, blood oxygen saturation, Ph, cognitive impairment and motivation-loss. Moreover, decreased leg strength, peak expiratory flow, cortical arousal, body composition, body weight, fat and muscle mass, anxiety stress, alertness, sadness and tension decreased after the exercise. Regarding body composition, higher muscle mass loss participants were related to a higher cognitive impairment and similar psychophysiological response than lower fat mass loss participants.

2019-122 0083

**Ranger Athlete Warrior Assessment Performance in a Reserve Officer Training Corps Training Environment.**

**Source**  

**Author(s)**  
Meckley D.P., Hulbert K., et al.

**Abstract**  
Muscular strength, power, and aerobic capacity are vital to Army Reserve Officer Training Corps (AROTC) Cadets as well as active-duty Soldiers, especially when lifting heavy objects, traveling long distances, or moving with maximum speed and agility. The purpose of this study was to examine the change (after a pre/post intervention) of 5 weeks of resistance strength training and aerobic capacity training on a Ranger Athlete Warrior (RAW) assessment. Twelve (males, n = 10; females, n = 2) college-aged AROTC Cadets volunteered for this study during their train-up for the annual Ranger Challenge Competition. Each training week consisted of two resistance, two aerobic, and one tactical training session lasting about 90 minutes. The RAW assessment consisted of the following: 5-10-5 shuttle, standing broad
jump, 3-repetition maximum (RM) trap bar deadlift, pull-ups, metronome pushups, heel claps, and two 300-yard shuttles. Paired samples t tests produced statistically significant differences (pre vs post): 5-10-5 (p = .04), 3-RM trap bar deadlift (p = .01), and metronome push-ups (p = .01). The results suggest that combining resistance strength and endurance and aerobic capacity training at a set volume with a self-selected intensity improved the Cadets’ agility, lower-body strength, and upper-body muscular endurance. Implementing a program similar to this in other AROTC programs could also improve Cadet performance in the field. This study also showed the benefit of an AROTC program collaborating with human performance professionals to optimize Cadets’ human performance capabilities.

2019-122 0084

Reliability and Validity of a Maximal Treadmill Test for Predicting Aerobic Fitness in Norwegian Prospective Soldiers.

Source
Military Medicine 2019 184 (3-4) e245-e252

Author(s)
Aandstad,A., and Hageberg,R.,.

Abstract
Introduction The Norwegian armed forces reintroduced physical fitness testing of prospective conscript soldiers in 2011. Since then, a customized maximal treadmill test (MILMAX) has been used to screen aerobic fitness in 15–20,000 young Norwegian men and women annually. The aim of the current study was to investigate reliability and validity of the MILMAX test. Materials and methods Sixty-seven young Army recruits (including 11 women) participated in this method comparison study. The subjects completed the MILMAX test twice (test–retest), consisting of walking and running at increasing speed and inclination until voluntarily exhaustion. Performance was registered as exercise tolerance time (ETT). Later, the subjects performed a treadmill test of direct maximal oxygen uptake ($\dot{V}O_2$max). All tests were conducted within 15 days. The study protocol was submitted to the Regional Committee for Medical and Health Research Ethics for review, prior to study initiation. The Committee considered the study to be exempted from notification. The study was carried out according to the guidelines in the Declaration of Helsinki. Results There was no significant mean difference in MILMAX ETT between test and retest. Test–retest intraclass correlation coefficient was 0.95 (0.91, 0.97), while 95% limits of agreement was ± 60 seconds. Regression analyses showed that MILMAX ETT and gender explained 78% of the variance in directly measured $\dot{V}O_2$max, and a prediction equation with these two independent variables was generated. The Pearson correlation coefficient between predicted and directly measured $\dot{V}O_2$max was 0.89 (0.83, 0.93), while limits of agreement was ± 5.6 mL·kg⁻¹·min⁻¹. Conclusions The MILMAX is equally reliable and valid compared with well-known maximal indirect tests like the 2-mile run and the 20-m shuttle run test, and may serve as an alternative indoor test of aerobic fitness in the military, in other potentially physically strenuous occupations, or in healthy civilians.
See also


Calcium and vitamin D supplementation and bone health in Marine recruits: Effect of season. Under Orthopaedics.


Psychophysiological response to the use of nuclear, biological and chemical equipment with military tasks. Under CBRN.

Regular physical exercise before entering military service may protect young adult men from fatigue fractures. Under Sport Science & Research.


Shared Neuromuscular Performance Traits in Military Personnel with Prior Concussion. Under TBI.

Extraction of DNA from Skeletonized Postcranial Remains: A Discussion of Protocols and Testing Modalities

Source
Journal of Forensic Sciences 2019 ( )

Author(s)
Edson,S.M.

Abstract
This paper provides a retrospective of the DNA analysis performed by the Armed Forces Medical Examiner-Armed Forces DNA Identification Laboratory between 1990 and 2018. Over 13,000 postcranial osseous materials, comprised of wartime losses from World War II, the Korean War, and South-East Asia, were examined by the following: mitochondrial DNA sequencing, a modified AmpFISTR® Yfiler™, AmpFISTR® MiniFiler™, PowerPlex® Fusion, or NGS. Four different DNA extraction protocols were used: incomplete demineralization coupled with an organic purification; complete demineralization with an organic purification; complete demineralization with an inorganic purification using QIAquick PCR Purification Kit; and a protocol designed specifically for use with next-generation sequencing. In general, complete demineralization coupled with an organic purification was the optimal extraction protocol for sequencing of mitochondrial DNA, regardless of the osseous element tested. For STR testing, demineralization paired with an inorganic purification provided optimum results, regardless of kit used or osseous element tested.
Epidemiology and etiology of diarrhea in UK military personnel serving on the United Nations Mission in South Sudan in 2017: A prospective cohort study

Source
Travel Medicine & Infectious Disease 2019 28 ( ) 34-40

Author(s)
Biswa, J.S., Lentaigne, J., et al.

Abstract
Background. Diarrhea is a well-established problem in travellers, with military personnel at especially high risk. This study aimed to characterise the spectrum of pathogens causing diarrhea in UK military personnel in South Sudan, and assess the utility of culture-independent testing for etiology and antimicrobial resistance in a logistically challenging and austere environment. Methods. All military personnel presenting with diarrhea were admitted to the UK Level 2 Medical Treatment Facility in Bentiu, South Sudan. Samples were tested for etiology utilising multiplex PCR-based diagnostics (BioFire FilmArray). In addition, the presence of carbapenemase resistance genes was determined using the geneXpert Carba-R platform. Results. Over 5 months, 127 samples were tested. The vast majority of pathogens detected were diarrheagenic Escherichia coli. The presence of either enterotoxigenic (ETEC) or enteropathogenic (EPEC) E. coli was a significant predictor of the other being present. In this study patients presenting with vomiting were 32 times more likely to have norovirus than not (p < 0.001). No carbapenem resistance was detected. Conclusions. Diarrhea in UK military personnel in South Sudan was determined to be predominantly bacterial, with norovirus presenting a distinct clinical and epidemiological pattern. Multiplex PCR and molecular resistance point of care testing were robust and effective in this environment.
Artificial Oxygen Carriers and Red Blood Cell Substitutes: An Historic Overview and Recent Developments Toward Military and Clinical Relevance

Source
The Journal of Trauma and Acute Care Surgery 2019 ( )

Author(s)
Bialas,C., Moser,C., et al.

Abstract
Packed red blood cells are a critical component in the resuscitation of hemorrhagic shock. The availability of donor-derived blood products, however, suffers from issues of supply, immunogenicity, and pathogenic contamination. Deployment in remote or austere environments, such as the battlefield, is further hindered by the inherent perishability of blood products. In order to address the significant limitations of allogenic packed red blood cells and the urgent medical need for better resuscitative therapies for both combat casualties and civilians, there has been significant research invested in developing safe, effective, and field deployable artificial oxygen carriers. This article provides a comprehensive review of the most important technologies in the field of artificial oxygen carriers including cell-free and encapsulated hemoglobin based oxygen carriers, perfluorocarbon emulsions, natural hemoglobin alternatives, as well as other novel technologies. Their development status, clinical, and military relevance are discussed.

The use of whole blood in US military operations in Iraq, Syria, and Afghanistan since the introduction of low-titer Type O whole blood: feasibility, acceptability, challenges

Source
Transfusion 2019 59 (3) 965-970

Author(s)

Abstract
Background: Hemorrhage is the leading cause of preventable death in military and civilian traumatic injury. Blood product resuscitation improves survival. Low-titer Type O Whole Blood (LTOWB) was recently re-introduced to the combat theater as a universal resuscitation product for hemorrhagic shock. This study assessed the utilization patterns of LTOWB compared to warm fresh whole blood (WFWB) and blood component therapy (CT) in US Military Operations in Iraq/Syria and Afghanistan known as Operation Inherent Resolve (OIR) and Operation Freedom’s Sentinel (OFS) respectively. We hypothesized LTOWB utilization would increase over time given its advantages.; Study Design and Methods: Using the Theater Medical Data Store, patients receiving blood products between January 2016 and December 2017 were identified. Product utilization ratios (PUR) for LTOWB, WFWB, and CT were compared across Area of Operations (AORs), medical treatment facilities (Role 2 vs. Role 3), and time. PUR was defined as number of blood products transfused/(number of blood products transfused + number of blood products wasted).; Results: The overall PUR for all blood products was 17.4%; the LTOWB PUR was 14.3%. Over the study period, the total number of blood products
transfused increased 133%. Although the total whole blood (WB) increased from 2.1% to 6.6% of all products transfused, WFWB use remained at 2% while LTOWB transfusions increased from 0.5% to 4%. Transfusion of LTOWB occurred more in austere Role 2 facilities compared to Role 3 hospitals.; Conclusions: LTOWB transfusion is feasible in austere, far-forward environments. Further investigation is needed regarding the safety, clinical outcomes, and drivers of

2019-122 0089

Whole Blood in Trauma: A Review for Emergency Clinicians.

Source
Journal of Emergency Medicine 2019

Author(s)
Weymouth W., Long B., et al.

Abstract
Background: Blood products are a cornerstone of trauma resuscitation. From the historically distant battlefields of World War II through present-day conflict around the globe, whole blood (WB) has been a potent tool in the treatment of massive hemorrhagic shock. Component therapy with a targeted ratio of packed red blood cells, platelets, and plasma has previously been utilized.

See also

Sickle cell trait and renal disease among African American U.S. Army soldiers.
Under Nephrology.
Human Papillomavirus Vaccination Rates of Military and Civilian Male Respondents to the Behavioral Risk Factors Surveillance System Between 2013 and 2015

**Source**
Military Medicine 2019 184 ( ) 121-125

**Author(s)**

**Abstract**
Objective: To evaluate human papillomavirus (HPV) vaccination rates among men in the USA and to compare vaccination rates among men who had served in the military to those reporting no previous military service.; Methods: We performed a cross-sectional analysis using Behavioral Risk Factors Surveillance System (BRFSS) data from the 2013 to 2015 to analyze HPV vaccination rates for vaccine eligible adult men. The BRFSS is a multistage, cross-sectional telephone survey conducted nationally by state health departments. Univariable and logistic regression analyses were performed to examine the relationship between military service and HPV vaccination status was assessed as well as the number of HPV vaccination doses received.; Results: A total of 5,274 participants were analyzed representing a weighted estimate of 1.5 million HPV vaccine eligible men in the USA. The vaccination rate among veterans was 25.3% (95% confidence interval (CI), 18.8-33.3%) compared to 15.9% (95% CI, 14.3-17.6%) for civilians (p < 0.01). Veterans were more likely to report having received at least one dose of the HPV vaccine compared to civilian men (adjusted odds ratios aOR = 2.7, 95% CI, 1.7%-4.1%, p < 0.001).; Conclusions: Veteran men are more likely to have received HPV vaccination than similarly aged civilian men. However, for both civilians and veterans, the HPV vaccination coverage remains low when compared to their female counterparts.

Influenza syndromic surveillance and vaccine efficacy in the UK Armed Forces, 2017-2018

**Source**
Journal of the Royal Army Medical Corps 2019 ( )

**Author(s)**
Dermont,M.A. and Elmer,T.

**Abstract**
Introduction: This paper describes the first ever analysis of health data to report influenza vaccine uptake and the effectiveness of the vaccine in preventing general practice presentations for influenza-like illness (ILI) in the UK Armed Forces (UK AF). This was undertaken during the 2017-2018 influenza season.; Methods: Clinical Read codes for ILI and influenza vaccinations were used to generate reports for the period from September 2017 to April 2018. Using a methodology adapted from Public Health England's (PHE) in hours syndromic surveillance, the ILI rate for the UK AF was calculated. Subsequent analysis explored vaccination uptake in target groups and compared the relative risk (RR) of ILI in vaccinated versus unvaccinated Service Personnel (SP).; Results: 4234 SPs had a record of ILI between September 2017 and April 2018, with a peak rate of 216 cases per 100 000 PAR. The absolute risk reduction for reporting ILI in vaccinated versus unvaccinated SP was 0.4%
(p=0.0031), and the RR was statistically significant at 15% (95% CI 5% to 23 %) lower than in the non-vaccinated PAR. The number needed to vaccinate (NNV) to prevent one presentation of ILI was 241 (95% CI 145 to 714). The 8153 vaccinations recorded for the untrained strength equate to approximately 38% of overall training throughput and 65% of all Army SP recorded as being in phase 1 training at some point during this period.; Conclusions: The relative risk reduction (RRR) for vaccinated personnel was modest and lower than reported elsewhere, but closely compares with ILI rates included in a 2018 Cochrane review. The small RRR and large NNV do not support widening the population of UK AF eligible to receive influenza vaccine. Regimental Medical Officers (RMOs) seeking advice on whether to vaccinate other groups of SP should be aware that this approach offers questionable clinical benefit. The ILI surveillance methodology used in this work could be adapted for syndromic surveillance of other infectious diseases.

2019-122 0092

Naval Health Research Center Surveillance for Meningococcal Disease

Source
Military Medicine 2019 184 ( ) 102-105
Author(s)
Broderick,M. and Myers,C.
Abstract
Historically, meningococcal disease has had a devastating impact on U.S. military personnel, but since the introduction of a vaccine in the 1970s, rates have dropped over 90%.1 Department of Defense instructions mandate a meningococcal vaccine for all service personnel. In the last 5 years, rates of meningococcal disease in the military are similar to the U.S. general population. The active duty incidence was 0.21 cases per 100,000 person-years from 2013-2017. Six cases occurred in the 6 months between September 2016 and February 2017; of these, only one was determined to be a vaccine-covered strain. Ongoing surveillance shows vaccination has resulted in a dramatic reduction in meningococcal cases in the military; however, it also demonstrates cases continue to occur sporadically. The recent emergence of new cases reminds us that surveillance and accompanying research are important for evaluating changes in the disease and informing new vaccine development and policy.

2019-122 0093

Outbreak of Acute Respiratory Illness Associated with Adenovirus Type 4 at the U.S. Naval Academy, 2016.
Human adenoviruses (HAdVs) are known to cause respiratory illness outbreaks at basic military training (BMT) sites. HAdV type-4 and -7 vaccines are routinely administered at enlisted BMT sites, but not at military academies. During August–September 2016, U.S. Naval Academy clinical staff noted an increase in students presenting with acute respiratory illness (ARI). An investigation was conducted to determine the extent and cause of the outbreak. During 22 August–11 September 2016, 652 clinic visits for ARI were identified using electronic health records. HAdV-4 was confirmed by realtime polymerase chain reaction assay in 18 out of 33 patient specimens collected and 1 additional HAdV case was detected from hospital records. Two HAdV-4 positive patients were treated for pneumonia including 1 hospitalized patient. Molecular analysis of 4 HAdV-4 isolates identified genome type 4a1, which is considered vaccine-preventable. Understanding the impact of HAdV in congregate settings other than enlisted BMT sites is necessary to inform discussions regarding future HAdV vaccine strategy.


Source
MSMR Medical Surveillance Monthly Reports 2019 26 (2) 15-20
Author(s)
Clark,L., and Taubman,S.,.

Abstract
Glaucoma is an eye disease that involves progressive optic nerve damage and vision loss, leading to blindness if undetected or untreated. This report describes an analysis using the Defense Medical Surveillance System to identify all active component service members with an incident diagnosis of glaucoma during the period between 2013 and 2017. The analysis identified 37,718 incident cases of glaucoma and an overall incidence rate of 5.9 cases per 1,000 person-years (p-yrs). The majority of cases (97.6%) were diagnosed at an early stage as borderline glaucoma; of these borderline cases, 2.2% progressed to open-angle glaucoma during the study period. No incident cases of absolute glaucoma, or total blindness, were identified. Rates of glaucoma were higher among non-Hispanic black (11.0 per 1,000 p-yrs), Asian/Pacific Islander (9.5), and Hispanic (6.9) service members, compared with non-Hispanic white (4.0) service members. Rates among female service members (6.6 per 1,000 p-yrs) were higher than those among male service members (5.8). Between 2013 and 2017, incidence rates of glaucoma diagnoses increased by 75.4% among all service members.
Update: Malaria, U.S. Armed Forces, 2018

Source
MSMR Medical Surveillance Monthly Reports 2019 26 (2) 2-7

Author(s)
n,k,...

Abstract
Malaria infection remains an important health threat to U.S. service members who are located in endemic areas because of long-term duty assignments, participation in shorter-term contingency operations, or personal travel. In 2018, a total of 58 service members were diagnosed with or reported to have malaria. This represents a 65.7% increase from the 35 cases identified in 2017. The relatively low numbers of cases during 2012–2018 mainly reflect decreases in cases acquired in Afghanistan, a reduction due largely to the progressive withdrawal of U.S. forces from that country. The percentage of cases of malaria caused by unspecified agents (63.8%; n=37) in 2018 was the highest during any given year of the surveillance period. The percentage of cases identified as having been caused by Plasmodium vivax (10.3%; n=6) in 2018 was the lowest observed during the 10-year surveillance period. The percentage of malaria cases attributed to P. falciparum (25.9 %) in 2018 was similar to that observed in 2017 (25.7%), although the number of cases increased. Malaria was diagnosed at or reported from 31 different medical facilities in the U.S., Afghanistan, Italy, Germany, Djibouti, and Korea. Providers of medical care to military members should be knowledgeable of and vigilant for clinical manifestations of malaria outside of endemic areas.

See also


The Greater Good: Agency and Inoculation in the British Army, 1914-18

Source
Canadian Bulletin of Medical History = Bulletin Canadien D'Histoire De La Medecine
2019 ( ) 1-27
Author(s)
Walker, S.H.

Abstract
As the First World War progressed, rates of typhoid diminished. This was heralded as a triumph of sanitary improvement and disease protection; yet as to how the British military achieved this remains a contentious issue. Objections arose around the danger of inoculation and the unpleasant and potentially deadly side effects. Between the unaffected and the sufferers of the vaccine's side effects are the unexplored stories of the refusers. Often bizarre, their accounts include stories of unsanctioned cajoling, arrests, suspension of privileges, and even physically forced inoculation. Soldiers could be encouraged, convinced, and, in rare cases, even forced to undergo inoculation. For others, the opportunity to refuse was often not made clear, as inoculation became part of routine military life. Despite the fact that soldiers were supposed to have complete autonomy over their own inoculation, the reality was often different. Penalties for noncompliance and a lack of clarification about soldiers' rights demonstrated that throughout the war a clash developed between individual autonomy and an authoritarian regime determined to ensure the health of its fighting force.
Dual loyalties: Everyday ethical problems of registered nurses and physicians in combat zones

Source
Nursing Ethics 2019 26 (2) 480-495

Author(s)
Lundberg,K., Kjellström,S., et al.

Abstract
Background:: When healthcare personnel take part in military operations in combat zones, they experience ethical problems related to dual loyalties, that is, when they find themselves torn between expectations of doing caring and military tasks, respectively.; Aim:: This article aims to describe how Swedish healthcare personnel reason concerning everyday ethical problems related to dual loyalties between care and military tasks when undertaking healthcare in combat zones.; Design:: Abductive qualitative design.; Participants and Research Context:: Individual interviews with 15 registered nurses and physicians assigned for a military operation in Mali.; Ethical Considerations:: The participants signed up voluntarily, and requirements for informed consent and confidentiality were met. The research was approved by the Regional Ethics Review Board in Gothenburg (D no. 816-14; 24 November 2014).; Findings: Three main categories emerged: reasons for not undertaking combat duties, reasons for undertaking combat duties and restricted loyalty to military duties, and 14 subcategories. Reasons for not undertaking combat duties were that it was not in their role, not according to ethical codes or humanitarian law or a breach towards patients. Reasons for undertaking combat duties were that humanitarian law does not apply or has to be treated pragmatically or that it is a case of force protection. Shortage of resources and competence were reasons for both doing and not doing military tasks. Under some circumstances, they could imagine undertaking military tasks: when under threat, if unseen or if not needed for healthcare duties.; Discussion/conclusion:: These discrepant views suggest a lack of a common view on what is ethically acceptable or not, and therefore we suggest further normative discussion on how these everyday ethical problems should be interpreted in the light of humanitarian law and ethical codes of healthcare personnel and following this, further training in ethical reflection before going on military operations.
Is the four-quadrant approach to military medical ethics a cargo cult? A call for more unity between philosophers and practitioners

Source
Journal of the Royal Army Medical Corps 2019 ( )
Author(s)
Jenkins, S.P.

Abstract
Moral theory should be practically useful, but without oversight from the philosophical community, the practical application of ethics by other institutions such as the military may drift into forms that are not theoretically robust. Ethical approaches that drift in this way run the risk of becoming 'cargo cults': simulations that will never properly fulfil their intended purpose. The four-quadrant approach, a systematic method of ethical analysis that applies moral principles to clinical cases, has gained popularity in the last 10 years in a variety of medical contexts, especially the military. This paper considers whether the four-quadrant approach is a cargo cult or whether it has theoretical value, with particular reference to the more popular four principles approach. This analysis concludes that the four-quadrant approach has theoretical advantages over the four principles approach, if used in the right way (namely, with all four quadrants being used). The principal advantage is that the four-quadrant approach leaves more room for clinical judgement, and thus avoids the charge of being too algorithmic, which has been levelled at the four principles approach. I suggest that it is the fourth quadrant, which invites the user to consider wider, contextual features of the case, which gives the approach this key advantage. Finally, I make a more general proposal that theoretical ethicists should work closely with those practitioners who apply ethics in the world, and I call for a symbiotic relationship between these two camps.

Legal framework versus moral framework: military physicians and nurses coping with practical and ethical dilemmas

Source
Journal of the Royal Army Medical Corps 2019 ( )
Author(s)
Hooft, F.B.

Abstract
Within military operations, military physicians and nurses experience a dual loyalty to their professional identities. The moral frameworks of the medical and military professions are not similar and require different kinds of choices and action from its members. But above all, the legal framework in which the healthcare personnel has to operate while deployed is different from the medical moral standards. Military necessity is prioritised over medical necessity. In debates on dual loyalty, legal frameworks should be considered as a more decisive factor in ethical decision-making processes. Legal frameworks, both general and mission-specific, support this prioritisation of military necessity, complicating the work of military physicians and nurses. During the post-Cold War era, in which neutrality and moral supremacy have served as legitimising factors for military peacekeeping or humanitarian missions, this
misalignment between the moral and the legal framework is problematic. What is legally correct or justifiable may not be morally acceptable to either the medical professional standards or to the general public. The legal framework should be given more prominence within the debates on dual loyalty and military medical ethics. This paper argues that the misalignment between the legal and moral framework in which deployed healthcare personnel has had to operate complicated ethical decision-making processes, impeded their agency, and created problems ranging from military operational issues to personal trauma and moral injury for the people involved, and ultimately decreasing the legitimacy of the armed forces within society.

2019-122 0100

The Protection of Civilians and ethics of humanitarian governance: beyond intervention and resilience.

Source
Disasters 2019 43 (Supplement 2) (pp S210-S229) ate of Pubaton: 01 Ar 2019

Author(s)
Liden,K.

Abstract
The principle of the Protection of Civilians (PoC) in armed conflict has ethical repercussions in various actions undertaken by states and international organisations, from humanitarian relief, development aid, and peacekeeping, to warfare and military intervention. While the ethics of humanitarian intervention are instructive in this regard, most PoC practices should be conceived rather as modes of humanitarian governance across borders—from interventionist to resilience-oriented kinds. The consequences of this for the ethics of PoC are explored in this paper, highlighting questions of power, culture, and complicity. By relating these questions to the ethical strands of solidarist and pluralist internationalism, it positions the ethics of PoC within the broader field of the ethics of world politics. Examples are drawn from recent scholarly debate on PoC efforts in war-torn countries such as South Sudan. This analysis of the ethics of PoC reconfigures central positions in the debate on humanitarian intervention to an era of global humanitarian governance.

2019-122 0101

The safety paradox in ethics training: a case study on safety dynamics within a military ethics train-the-trainer course

Source
Medicine, Health Care, and Philosophy 2019 22 (1) 107-117

Author(s)
vvan Baarle,E., van,d.B., et al.

Abstract
There is considerable support for the idea that an atmosphere of safety can foster learning in groups, especially during ethics training courses. However, the question how safety dynamics works during ethics courses is still understudied. This article aims to investigate safety dynamics by examining a critical incident during a military ethics train-the-trainer course during which safety was threatened. We examine this incident by means of a four-factor analysis model from the field of Theme-Centered Interaction (TCI). We show that during ethics training courses a safety paradox can occur, involving a tension between honesty and openness to other perspectives and
values. Finally, we discuss how trainers can foster safety during ethics training.
Bacterial Contamination of Military and Civilian Uniforms in an Emergency Department

Source
Journal of Emergency Nursing: JEN: Official Publication of the Emergency Department Nurses Association 2019 45 (2) 169-177.e1
Author(s)
West, G.F., Resendiz, M., et al.

Abstract
Introduction: The emergency department is a fast-paced, high-volume environment, serving patients with diverse and evolving acuities. Personnel providing direct care are continually exposed to pathogenic microorganisms from patients and everyday surfaces, to which the organisms may spread. Indeed, hospital items—such as electronic devices, stethoscopes, and staff clothing—have demonstrated high rates of contamination. Despite this, policies governing the use, disinfection, and wear of various environmental surfaces remain relaxed, vague, and/or difficult to enforce. This study aimed to examine the bacterial contamination on 2 hospital uniform types in a large military hospital within the emergency department.

Methods:
Environmental sampling of military and civilian nursing staff uniforms was performed on 2 separate occasions. Emergency nurses wore hospital-provided freshly laundered scrubs on the first sampling day and home-laundered personally owned uniforms complicit with ED policy on the second sampling day. Samples were collected by impressing of contact blood agar growth medium at arrival (0 hour), 4 hours, and 8 hours of wear. Microbiological methods were used to enumerate and identify bacterial colonies.

Results: Bacterial contamination of personally owned uniforms was significantly higher than freshly laundered hospital-provided scrubs on 4 different sampling sites and across the span of an 8-hour workday. No significant differences were observed between military and civilian personally owned uniforms. However, several risk factors for nosocomial infection were increased in the military subgroup.

Discussion: Re-evaluating organizational factors (such as uniform policies) that increase the propensity for pathogenic contamination are critical for mitigating the spread and acquisition of multidrug-resistant organisms in the emergency department.
Combat-Related Extremity Wounds: Injury Factors Predicting Early Onset Infections

Source
Military Medicine 2019 184 ( ) 83-91
Author(s)
Stewart,L., Shaikh,F., et al.

Abstract
We examined risk factors for combat-related extremity wound infections (CEWI) among U.S. military patients injured in Iraq and Afghanistan (2009-2012). Patients with ≥1 combat-related, open extremity wound admitted to a participating U.S. hospital (≤7 days postinjury) were retrospectively assessed. The population was classified based upon most severe injury (amputation, open fracture without amputation, or open soft-tissue injury defined as non-fracture/non-amputation wounds). Among 1271 eligible patients, 395 (31%) patients had ≥1 amputation, 457 (36%) had open fractures, and 419 (33%) had open soft-tissue wounds as their most severe injury, respectively. Among patients with traumatic amputations, 100 (47%) developed a CEWI compared to 66 (14%) and 12 (3%) patients with open fractures and open soft-tissue wounds, respectively. In a Cox proportional hazard analysis restricted to CEWIs ≤30 days postinjury among the traumatic amputation and open fracture groups, sustaining an amputation (hazard ratio: 1.79; 95% confidence interval: 1.25-2.56), blood transfusion ≤24 hours postinjury, improvised explosive device blast, first documented shock index ≥0.80, and >4 injury sites were independently associated with CEWI risk. The presence of a non-extremity infection at least 4 days prior to a CEWI diagnosis was associated with lower CEWI risk, suggesting impact of recent exposure to directed antimicrobial therapy. Further assessment of early clinical management will help to elucidate risk factor contribution. The wound classification system provides a comprehensive approach in assessment of injury and clinical factors for the risk and outcomes of an extremity wound infection.

EpiNATO-2: Enhancing Situational Awareness and Overall Force Health Protection While Deployed in the Combined Joint NATO Environment: Describing the Identified 2016 Q Fever Outbreak in Kosovo Force (KFOR).

Source
Journal of Special Operations Medicine : A Peer Reviewed Journal for SOF Medical Professionals 2019 19 (1) 76-80
Author(s)
Hoysal N., McCown M.E., et al.

Abstract
EpiNATO-2 is the only interoperable health surveillance system that is defined in North Atlantic Treaty Organization (NATO) doctrine. It was first implemented in the Kosovo Force and European Union Training Mission Mali in 2013. EpiNATO-2 is mandated for use during all NATO operations. Its coverage has steadily increased and now includes all NATO Joint and Component Command Operations and several non-NATO operations. The system monitors morbidity predominately for Role 1 sites by using weekly reports from the medics and other medical providers. The reports for all sites in theater are sent to the Combined Joint Medical (CJMED), which consolidates and submits them to NATO Deployment Health Surveillance Capability
(DHSC), the satellite branch of NATO Centre of Excellence for Military Medicine (MILMED COE), for analysis and feedback. Although EpiNATO-2 will likely have a number of overlaps with most nations' disease and nonbattle injury trackers, a distinguishing characteristic is that it has specific categories for classifying more clinical activity. Sustaining the quality of data collection is paramount and achieved through contemporaneous analysis and feedback that are disseminated via CJMED to all providers. This enhances situational awareness about evolving trends in health issues across the deployed force and is intended to provide information for action and medical decision-making and force health protection assurance at the local and theater levels. The awareness imparted by this article can add to the Special Operations Forces (SOF) medics' tool kit to ensure success for the SOF medic and SOF community while deployed or collaborating with NATO and NATO partner nation militaries at any level in theater.

2019-122 0105

Group A Streptococcus Outbreak in a Canadian Armed Forces Training Facility.

Source
Military Medicine 2019 184 (3-4) e197-e204

Author(s)
Hammond-Collins,K., and Strauss,B.,

Abstract
Between December 2016 and April 2017, two cases of invasive Group A Streptococcus (GAS) infections were reported at a Canadian military training facility. An outbreak was declared and a field investigation was launched to characterize the outbreak and identify associated risk factors to limit transmission. Throat culture data from military personnel at the garrison were analyzed. Investigators tracked invasive GAS cases and non-invasive hospitalized GAS cases, and conducted site visits and case interviews. Sensitivity and specificity for a rapid antigen detection test were evaluated. Molecular typing and phylogenomic relationships of outbreak isolates were analyzed using whole-genome sequencing. During this outbreak, four invasive cases were reported and six non-invasive cases were hospitalized. In a sample of 705 throat cultures examined, 35.2% were GAS-positive. Among 65 platoon contacts of one invasive case, 30.2% were GAS-positive. Reluctance to seek medical care, challenges in following cough etiquette, and low compliance with antibiotics were identified among recruits. The rapid antigen detection test had low sensitivity (31.6%) during the outbreak. The outbreak sequence type was emm6.4 and outbreak isolates were highly related phylogenetically, differing by 0–4 single nucleotide variants. This is the first report of a GAS outbreak among Canadian military trainees. Increased surveillance of GAS infections, increased control measures and outbreak-specific clinical guidelines were implemented in-garrison. No further invasive GAS cases were identified. A GAS surveillance system was implemented and efforts to improve antibiotic compliance and medical consultation were recommended.

2019-122 0106
The Israeli Defense Forces Point of Injury Antimicrobial Treatment Protocol - A New Protocol and Review of the Literature

Source
Military Medicine 2019 184 ( ) 78-82
Author(s)
Glick,Y., Furer,A., et al.

Abstract
Introduction: Combat wound infection is a common and serious complication, leading to significant morbidity and mortality. In 2005, a point of injury antimicrobial protocol was published by the Israel Defense Forces, in which Moxifloxacin was chosen. During 2016-2017, a revision of this protocol was performed and concluded with the publication of an updated protocol. The purpose of this report is to present this process and the revised protocol, together with a review of the literature.; Methods: We searched "Medline" and "Google Scholar" for studies dealing with antimicrobial prophylaxis in trauma, for militaries' point of injury antimicrobial protocol protocols and for established surgical antimicrobial prophylaxis protocols.; Results: Point of injury antimicrobial protocol is aimed at preventing early infection and its complications. The choice of Moxifloxacin for this purpose may not be optimal since Moxifloxacin spectrum might be overly broad, there is scant evidence supporting it for this indication, and the available preparation does not meet distinctive technical requirements. Contrarily, Ceftriaxone seemed to have suitable microbiological, pharmacological and technical features.; Conclusion: Point of injury antimicrobial protocol should be used especially when evacuation and definitive surgical treatment are delayed. According to present scientific data and operational needs, Ceftriaxone was chosen for most penetrating injuries, with Metronidazole addition for penetrating abdominal and cranial trauma.

Latent Lyme Disease Resulting in Chronic Arthritis and Early Career Termination in a United States Army Officer

Source
Military Medicine 2019 ( )
Author(s)

Abstract
Lyme disease is a continuing threat to military personnel operating in arboriferous and mountainous environments. Here we present the case of a 24-year-old Second Lieutenant, a recent graduate from the United States Military Academy, with a history of Lyme disease who developed recurrent knee effusions following surgery to correct a hip impingement. Although gonococcal arthritis was initially suspected from preliminary laboratory results, a comprehensive evaluation contradicted this diagnosis. Despite antibiotic therapy, aspiration of the effusions, and steroid treatment to control inflammation, the condition of the patient deteriorated to the point where he was found to be unfit for duty and subsequently discharged from active military service. This case illustrates the profound effect that latent Lyme disease can have on the quality of life and the career of an active duty military member. It highlights the need for increased surveillance for Borrelia burgdorferi (B. burgdorferi)
in military training areas and for the early and aggressive diagnosis and treatment of military personnel who present with the symptoms of acute Lyme disease.

Re-evaluation of the MSMR Case Definition for Incident Cases of Malaria.

Source
MSMR Medical Surveillance Monthly Reports 2019 26 (2) 8-14

Author(s)
O'Donnell,F.L., and Mancuso,J.D.,.

Abstract
The MSMR has been publishing the results of surveillance studies of malaria since 1995. The standard MSMR case definition uses Medical Event Reports and records of hospitalizations in counting cases of malaria. This report summarizes the performance of the standard MSMR case definition in estimating incident cases of malaria from 2015 through 2017. Also explored was the potential surveillance value of including outpatient encounters with diagnoses of malaria or positive laboratory tests for malaria in the case definition. The study corroborated the relative accuracy of the MSMR case definition in estimating malaria incidence and provided the basis for updating the case definition in 2019 to include positive laboratory tests for malaria antigen within 30 days of an outpatient diagnosis.

See also
Under Gastroenterology.

HIV/aids prevention practices among military personnel in northwest Ethiopia.
Under Sexual Health.

Naval Health Research Center Surveillance for Meningococcal Disease.
Under Health Surveillance.

Relationship between depression and risk behaviors in a US Military population with HIV infection.
Under Sexual Health.

An Unusual Wound Infection Due to Acinetobacter junii on the Island of Oahu.
Under Special Operations Medicine.

Outbreak of Acute Respiratory Illness Associated with Adenovirus Type 4 at the U.S. Naval Academy, 2016.
Under Health Surveillance.

Under Health Surveillance.
Cohort profile: the Prospective Research In Stress-Related Military Operations (PRISMO) study in the Dutch Armed Forces

Source
BMJ Open 2019 9 (3)

Author(s)

Abstract
Purpose: The Prospective Research in Stress-Related Military Operations (PRISMO) study was initiated to gain a better understanding of the long-term impact of military deployment on mental health, and to map the different biological and psychological factors that contribute to the development of stress-related mental health symptoms.
Participants: The PRISMO cohort consists of a convenience sample of Dutch military personnel deployed to Afghanistan between 2005 and 2008. Baseline data collection resulted in the recruitment of 1032 military men and women. Combat troops as well as non-combat support troops were recruited to increase the representativeness of the sample to the population as a whole.
Findings To Date: The prevalence of various mental health symptoms increases after deployment in PRISMO cohort members, but symptom progression over time appears to be specific for various mental health symptoms. For post-traumatic stress disorder, we found a short-term symptom increase within 6 months after deployment (8.2%), and a long-term symptom increase at 5 years after deployment (12.9%). Several biological vulnerability factors associated with the development of stress-related conditions after deployment were identified, including predeployment glucocorticoid receptor sensitivity and predeployment testosterone level. Thus far, 34 publications have resulted from the cohort.
Future Plans: Various analyses are planned that will include the prevalence of mental health symptoms at 10 years postdeployment, as well as trajectory analyses that capture the longitudinal development of symptoms. Furthermore, we will use a machine learning approach to develop predictive and network models for several mental health symptoms, incorporating biological, psychological and social factors.
**Concussion among military service academy members: identifying risk factors, recovery trajectories, and the role of mental health**

**Source**
British Journal of Sports Medicine 2019 53 (6) 368-369

**Author(s)**
O'Connor, K.L.

**Abstract**
From a sample of 10,604 cadets, I investigated 800 concussions at three US service academies to identify factors that increase concussion risk, prolong recovery, and the relationship between concussion and psychological symptoms. The primary aim was to use multivariate methods across all concussion settings (sport, military and free time related) to achieve a more comprehensive understanding of concussion burden and outcomes.

**Cost of post-deployment screening for mental illness in the UK military: findings from a cluster randomised controlled trial.**

**Source**
Journal of Mental Health 2019

**Author(s)**
Osumili B., McCrone P., et al.

**Abstract**
Background: Little is known about the economic impact of military mental health screening. Aims: To investigate (a) whether post-deployment screening of military personnel affects use and cost of services and (b) the impact of psychiatric morbidity on costs. Methods: Participants were recruited from UK Royal Marine and Army platoons and randomised to an intervention group (which received tailored advice predicated upon mental health status) or a control group (which received general advice following assessment of mental health status). The intervention costs were calculated while service use and associated costs were assessed at 12-month follow-up. Results: Data were available for 6323 participants. Mean screening cost was £34. Service costs were slightly higher in the control group compared to the intervention group (£1197 vs. £1147) which was not statistically significant (bootstrapped 95% CI, −£363 to £434). In both groups, screening and control, costs were significantly higher for those who screened positive for mental health problems. Conclusions: Costs were not affected by screening. In countries that have already implemented post-deployment screening, the political cost of disinvestment needs careful consideration. Those who develop psychiatric morbidity have substantially higher care costs than those who do not.
Mental Health Care for Service Members and Their Families Across the Globe

Source
Military Medicine 2019 184 ( ) 418-425

Author(s)

Abstract
The U.S. Defense Department partnered with the International Initiative for Mental Health Leadership on effective leadership and operational practices for delivery of mental health (MH) as well as addiction services throughout the world for Service Members (SM) and beneficiaries. A Military Issues Work Group (MIWG) was established in 2011 to focus on challenges experienced by military SM and beneficiaries among countries. The MIWG found common concerns related to MH care delivery to rural and remote beneficiaries. Gaps in access to care were identified and prioritized to explore. This led to better collaboration and understanding of telemental health (TMH) practices and technology applications (apps) which increase access to care for rural and remote SMs and beneficiaries. An assessment of the number of SMs and dependents distant from MH care services in the USA was conducted, as well as an environmental scan for psychological health-focused mobile apps and TMH services geared toward SM, veterans, and beneficiaries. The MIWG is developing a compendium of existing military TMH programs and apps that address MH concerns and extant literature on use of technology to extend global access to care for military members and their families across the world.

Mental health symptoms and the reintegration difficulty of military couples following deployment: A longitudinal application of the relational turbulence model.

Source
Journal of Clinical Psychology 2019 75 (4) 742-765

Author(s)

Abstract
OBJECTIVE: Understanding the factors that predict the reintegration difficulty of military couples during the postdeployment transition has important implications for theory, research, and practice. Building on the logic of the relational turbulence model, this paper evaluates the relationship processes of reunion uncertainty and reintegration interference from a partner as mediators of the connection between people's mental health symptoms and their difficulty with reintegration after deployment.
Mental Health Treatment Delay: A Comparison Among Civilians and Veterans of Different Service Eras

Source
Psychiatric Services (Washington, D.C.) 2019

Author(s)

Abstract
Objective: The study compared delay of treatment for posttraumatic stress disorder (PTSD), major depressive disorder, and alcohol use disorder among post-9/11 veterans versus pre-9/11 veterans and civilians.; Methods: The 2012-2013 National Epidemiologic Survey on Alcohol and Related Conditions-III (NESARC-III), a nationally representative survey of U.S. noninstitutionalized adults, was used. Participants included 13,528 civilians, 1,130 pre-9/11 veterans, and 258 post-9/11 veterans with lifetime diagnoses of PTSD, major depression, or alcohol use disorder. Cox proportional hazard models, controlling for relevant demographic characteristics, were used to estimate differences in treatment delay (i.e., time between diagnosis and treatment).; Results: Post-9/11 veterans were less likely to delay treatment for PTSD and depression than pre-9/11 veterans (adjusted hazard ratios AHRs]=0.69 and 0.74, respectively) and civilians (AHRs=0.60 and 0.67, respectively). No differences in treatment delay were observed between post-9/11 veterans and pre-9/11 veterans or civilians for alcohol use disorder. In an exploratory analysis, post-9/11 veterans with past-year military health care coverage (e.g., Veterans Health Administration) had shorter delays for depression treatment compared with post-9/11 veterans without military coverage, pre-9/11 veterans regardless of health care coverage, and civilians, although past-year coverage did not predict treatment delay for PTSD or alcohol use disorder.; Conclusions: Post-9/11 veterans were less likely to delay treatment for some common psychiatric conditions compared with pre-9/11 veterans or civilians, which may reflect efforts to engage recent veterans in mental health care. All groups exhibited low initiation of treatment for alcohol use disorder, highlighting the need for further engagement efforts.;
Mental resilience training.

Source
Journal of the Royal Army Medical Corps 2019 165 (2) 106-108

Author(s)
Precious,D., and Lindsay,A.,.

Abstract
This paper will explain the concept behind mental resilience training (MRT) and how the training package was developed and implemented within the British Army Infantry Training Centre (ITC) Catterick between 2014 and 2016. MRT is a mindfulness-based psychological skills training package that integrates cognitive behavioural and mindfulness-based principles and techniques, which have been proven to improve stress regulation, emotional and cognitive control and self-confidence in military personnel. MRT is based on an extensive evidence base that has demonstrated that psychological skills training delivers tangible improvements in performance in elite sport and in healthcare, business and military contexts. The initial trials at the ITC Catterick have delivered tangible improvements in infantry recruits’ use of psychological skills within real-life training contexts.

Out of sight out of mind: an examination of mental health problems in UK military reservists and veterans

Source
Journal of Mental Health (Abingdon, England) 2019 ( ) 1-6

Author(s)

Abstract
Background: Reservists often have different experiences to regular military personnel which may impact their mental health.; Aims: To investigate the incidence of mental health problems in both active and veteran reservists and determine how this compares to regular service personnel and ex-regular veterans.; Method: Five studies which included reservist and/or veteran participants, a validated assessment of mental health problems, and provided primary data were included in the synthesis. Common mental health disorders, post-traumatic stress disorder and alcohol use disorder were examined.; Results: Nondeployed mobilized reservists were significantly less likely to report common mental health disorders than nondeployed regulars. There were no other significant differences between groups. Regardless deployed reservists reported more mental health problems than nondeployed reservists. Similarly, ex-regular deployed veterans were more likely to experience mental health difficulties than nondeployed ex-regular veterans. Notably, a large proportion of non-deployed reservists reported probable alcohol use disorders, indicating that problematic alcohol consumption may not be due to deployment in this group.; Conclusion: These results highlight the need for ongoing support for military regular, ex-regular and reservist personnel. Additional research is needed to examine potential risk and protective factors for mental health problems in both deployed and nondeployed reservists. Key points Overall, mobilized deployed reservists were more likely to experience mental health problems than non-deployed reservists.
Nondeployed regulars reported significantly more common mental health problems than nondeployed mobilized reservists. Reservists and (ex-)regulars reported similar rates of PTSD. This suggests reservists are vulnerable to developing PTSD following non-combat related trauma that may not lead to PTSD in regulars and this warrants future research. Reservists were less likely to report problematic alcohol consumption compared to regular personnel and ex-regular veterans. The greatest amount of reservist problematic drinking was reported in non-deployed veteran reservists. This indicates problematic alcohol consumption is not deployment related in this group and highlights the need for ongoing formal support for alcohol use disorders in the UK Armed Forces.

2019-122 0117

Suffering for Others While Making Others Suffer: Military Narratives of Sacrifice

Source
The Journal of Pastoral Care & Counseling: JPCC 2019 73 (1) 30-40

Author(s)
Grimell,J.

Abstract
Voices from theology seldom participate in a contemporary conversation on military cultures and identities; this article attempts to stimulate this conversation from such a perspective. The article combines a literature review with narratives of sacrifice from real-life cases. It presents a reflective perspective on the formation of military identities about responsibilities and sacrifices. Forgiveness and atonement are discussed as pathways to cultivate growth.

See also

Correlates of Depression in U.S. Military Service Members with a History of Mild Traumatic Brain Injury. Under TBI.

Functional Outcome and Mental Health Symptoms in Military Personnel and Veterans Pursuing Postsecondary Education After Traumatic Brain Injury: A VA TBI Model Systems Study. Under TBI.

Relationship between depression and risk behaviors in a US Military population with HIV infection. Under Sexual Health.


Successful Use of Colistin Monotherapy as Outpatient Parenteral Antibiotic Therapy for XDR Acinetobacter Hepatic Abscesses.

Source
Military Medicine 2019 184 (3-4) e311-e313
Author(s)
Prestwood,J., and Chang,D.,.

Abstract
Acinetobacter baumannii is naturally resistant to several classes of antibiotics and readily develops further resistance mechanisms under antibiotic pressure. For patients infected with extremely drug-resistant organisms, effective antibiotic treatments are intravenous and often require inpatient hospitalization for monitoring and dose adjustment. A 31-year-old active duty service member, stationed in Southeast Asia, sustained thermal burns from an electrical arc injury to over 40% of his total body surface area. His hospital course was complicated by multiple extensively drug resistant (XDR) A. baumanii infections including bacteremia and hepatic abscesses. To facilitate discharge to his family, his hepatic abscesses were treated successfully as an outpatient with several weeks of parenteral colistin monotherapy. With regular renal function testing, his dosages were held and/or adjusted to compensate for acute kidney injuries, and he was successfully cleared of his infection. Up to 50% of A. baumannii isolates in American hospitals, including major DOD facilities, are carbapenem resistant. As a result, historically last-line therapies, such as polymyxins, are increasingly used as treatment. New dosing guidance is emphasized to minimize renal toxicities. This case demonstrates the ability to administer parenteral colistin as an outpatient under close supervision.

See also
Bacterial Contamination of Military and Civilian Uniforms in an Emergency Department. Under Infection Control and Communicable Diseases.
The Application of a Self-Labeling Approach among Military-Connected Adolescents in a Public School Setting

Source
Health & Social Work 2019 ( )
Author(s)
Kranke, D., Barmak, S., et al.

Abstract
The contextual factors and individual responses to the labeling of military-connected adolescents as "being in a military family" is an understudied yet important phenomenon. Minimal research construes the experience of being in a military family as a label applied to military-connected populations by people in society. However, social environmental factors associated with school setting among military-connected adolescents being in a military family have common components to the process of self-labeling. This article seeks to explore the concept and application of self-labeling by (a) providing a literature review of self-labeling among military-connected adolescents and (b) relying on modified labeling theory to identify any consistencies or potential nuances. The analysis of the process is strictly hypothetical, but could help to account for widely varying responses, sequence of events, and underlying reasons for the behaviors among some military-connected adolescents identified in the literature review and in light of the U.S. protracted military involvement in Iraq and Afghanistan. Authors conclude by highlighting the need for future research to assess the adequacy of this self-labeling framework to ensure the healthy development of military-connected youths.

Attachment anxiety and trauma history uniquely and interactively predict adjustment during and following deployment among military partners.

Source
Journal of Family Psychology : JFP : Journal of the Division of Family Psychology of the American Psychological Association (Division 43) 2019 33 (2) 226-233
Author(s)
Borelli J.L., Froidevaux N.M., et al.

Abstract
The psychological impact of military deployment on nondeploying partners of service members is only recently gaining attention in the literature, with preliminary findings suggesting that partners of military service members experience significant mental health consequences of deployment, but with little work examining factors that could heighten or attenuate risk for maladjustment in response to deployment. The current study uses attachment theory as a guide to explore the unique and interactive effects of two factors likely to increase risk for maladjustment among nondeploying partners: attachment anxiety and trauma history. Participants (N = 86) completed assessments 2 weeks prior to and 2 weeks following their partners' deployment departure, as well
as 2 weeks following their partners' return. Attachment anxiety and trauma history independently contributed to adjustment during and following the deployment, with partners high in either factor at greatest risk for maladjustment and partners high in both exhibiting the most linguistic signs of threat orientation. Further, low attachment anxiety was associated with better adjustment when trauma history was low or moderate, but not high; similarly, low trauma history was associated with better adjustment when attachment anxiety was at low or moderate, but not high. In terms of postdeployment adjustment, partners with less trauma history reported less distress. Somewhat surprisingly, among those with more trauma history, higher attachment anxiety was associated with less risk for maladjustment. We discuss these findings in terms of their implication for theory and prevention.

2019-122 0121

Post-deployment parenting in military couples: Associations with service members' PTSD symptoms.

Source
Journal of Family Psychology : JFP : Journal of the Division of Family Psychology of the American Psychological Association (Division 43) 2019 33 (2) 166-175

Author(s)

Abstract
Severity of posttraumatic stress disorder (PTSD) symptoms has been linked to parenting impairments in military service members (SMs), but little is known about how SMs' PTSD is related to their partners' parenting. This study evaluated associations of SMs' PTSD symptoms with parenting indices in SMs and their partners, with additional exploratory analyses of how intrapersonal and interpersonal distress might play a role in such associations. Online self-report measures were completed by 128 SMs who scored >27 on the PTSD Checklist (PCL-M) at baseline and their partners at four timepoints over 1.5 years. Data were analyzed using multilevel modeling, with timepoints nested within individuals within couples. SMs' PTSD symptoms were significantly associated with decreased parenting alliance and increased inconsistent discipline in SMs and partners, increased harsh parenting in SMs only, and increased supervision in partners only. Couple satisfaction and conflict accounted for PTSD symptoms' association with parenting alliance, and couple conflict accounted for the association with inconsistent discipline. Couple conflict, couple satisfaction, and individual depression accounted for SMs' increased harsh parenting. SM PTSD remained the only predictor of partners' supervision. Limitations include that data were collected from online self-report and from heterosexual Army couples only. Overall, SMs' PTSD symptoms showed associations with parenting in SMs and their partners, with some evidence of compensatory higher supervision by partners.
The role of social work in the Spanish Armed Forces: Needs and resources

Source
International Social Work 2019 62 (2) 518-528
Author(s)
Martinez Borrego, R.

Abstract
The Spanish military and their families share problems with the rest of society, but they have to face them in even more difficult circumstances, such as continuous relocations, separations, restrictions on some rights, and stress and uncertainty in at-risk situations. Our aim has been to determine the social reality of this group through the role played by social work in the Spanish Armed Forces, as well as their current situation, and make proposals for the future.

Supporting a Spouse With Military Posttraumatic Stress: Daily Associations With Partners’ Affect

Source
Journal of Traumatic Stress 2019 ( )
Author(s)

Abstract
Service members and veterans (SM/Vs) with posttraumatic stress disorder (PTSD) can receive significant benefits from social support by a spouse or romantic partner. However, little is known about how providing support impacts partners. This study sought to identify (a) how provision of support is associated with partners’ daily negative and positive affect and (b) how SM/Vs’ PTSD symptom severity might moderate such associations. In a 14-day daily-diary study that assessed 64 couples in which one member was an SM/V with PTSD symptoms, partners reported nightly on whether or not they provided instrumental support and/or emotional support that day as well as their current negative and positive affect. Multilevel modeling showed that the provision of emotional and instrumental support were both significantly related to partners’ lower levels of negative affect, $f^2 = 0.09$, and higher levels of positive affect, $f^2 = 0.03$, on that same day but not the next day. The positive same-day effects were seen if any support was given, with no additive effects when both types of support were provided. Severity of SM/V PTSD moderated the association between provision of emotional support and lower same-day negative affect such that the association was significant only when PTSD symptoms were more severe. Overall, these findings indicate that support provision to a partner with PTSD is associated with improved affect for the romantic partner providing support. However, given that only same-day affect was associated with support, the findings may also suggest that positive affect increases the provision of support.
See also

**Intimate partner cohesion and military unit cohesion: Different types of interpersonal relationships each uniquely predict soldier wellbeing.** Under Psychology.

**Mental Health Care for Service Members and Their Families Across the Globe.** Under Mental Health.

**Mental health symptoms and the reintegration difficulty of military couples following deployment: A longitudinal application of the relational turbulence model.** Under Mental Health.
A Guide to Understanding Reimbursement and Value-Based Care in the Military Health System.

Source
Military Medicine 2019 184 (3-4) e205-e210
Author(s)
Galvin, J.W., and Thompson, J.C.,

Abstract
Introduction With the continued rise in the cost of U.S. health care, there is an increased emphasis on value-based care methodologies. Value is defined as health outcomes achieved per dollar spent. Few studies have evaluated the role of value-based care in the Military Health System (MHS), especially in a format which physicians and providers can understand. The purpose of this article is to provide a guide to understanding current reimbursement systems and value-based care in the MHS and discuss potential strategies for improving value and military readiness.

Materials and Methods We outlined the current value-based care methodologies in the MHS, and by using musculoskeletal care as an example, offer strategies for further improvement. Results The MHS has been a leader in the health care industry in adopting value-based care strategies. Current value-based systems in the MHS are primarily designed to incentivize process measure compliance. Initial steps toward measurement and reporting health outcomes have been made, however, with the military’s use of the Integrated Resourcing and Incentive System (IRIS), National Surgical Quality Improvement Program (NSQIP) database, and the Joint Outpatient Experience Survey (JOES). Conclusion As this article will describe, universal reporting of health outcomes, adoption of integrated practice units, and a focus on determining outcomes of illness over the entire care cycle offer a significant opportunity to accelerate the MHS journey to providing true value-based care. The universal measurement and systematic improvement of outcomes based on this measurement will contribute to military medical readiness and warfighter effectiveness.
Identifying Predictors of Pressurized Submarine Escape Training (PSET) Attrition

Source
Military Medicine 2019 184 ( ) 476-487

Author(s)
Hughes,L.M. and Clarke,J.

Abstract
Pressurized Submarine Escape Training (PSET) physically prepares submariners to safely escape a submarine at depth. Failure to complete PSET is not a submarine service disqualification. Serious medical incidents are rare, but the safety record tradeoff has been low throughput. From 2009 to 2015, only 34% of students screened completed PSET. Students may be medically screened out of the training altogether (disqualified), or dropout during the physical training (attrite). Training records from 12,122 U.S. Navy students were used to identify factors contributing to training disqualification and attrition. Multivariate logistic regression model predictors included demographic and screening items. Association to PSET disqualification included cold/congestion/cough (ORadj 12.34), limited duty status (ORadj 4.29), Physical Readiness Test failure (ORadj 3.37), pneumonia or bronchitis in last 2 years (ORadj 3.17) and nervousness or anxiety in tight spaces (ORadj 2.37). Basic Enlisted Submarine School students were more likely to be disqualified and attrite than other submariner groups, and black/African American (ORadj 1.53) students were more likely to attrite than white students. Only cold/congestion/cough (ORadj 1.52), trouble swimming (ORadj 1.53), and screening during cold/flu season (ORadj 1.28), were associated with training attrition. Recommendations to modify screening requirements are listed in conclusions.


Source
Military Medicine 2019 184 (3-4) e135-e138

Author(s)
Wood,K.M., and Ellison,C.,

Abstract
Introduction This is a retrospective review of information collected during operation Continuing Promise 2017 from the Wayuu population in Colombia, South America. Materials and Methods Team objective was to present an overview of women’s health care needs in an isolated underserved population of Colombia by a humanitarian mission of health care providers from the U.S. Navy. We analyzed demographics, contraceptive selection, presenting complaint, diagnosis, and
disposition of those female patients presenting for care. Results The acute care clinics of this mission saw patients for 10 full clinic days in each of the countries of Guatemala, Honduras, and Colombia. In the Wayuu clinic of Colombia, 356 patients were seen in the acute care women’s clinic. These women averaged 36 years of age with an age range of 9–77 years of age and a gravidity of 3 ± 3.3 and a range of 0–18. Of the women less than the age of 50, not permanently sterilized, 186/220 (84.5%) were not using any form of contraception. The most common chief complaints were vaginal discharge and pelvic pain and the most common final diagnosis was bacterial vaginosis. The two most common secondary diagnoses of the pregnant women were urinary tract infection and anemia. Other significant diagnoses included uterine cancer, preterm labor, and fetal posterior urethral valve syndrome. Conclusions A majority of Wayuu women presenting to an acute clinic setting in Colombia, South America were in their mid-thirties having had three pregnancies and the majority were not using any form of contraception. The most common diagnoses were straightforward diagnoses such as vaginal infections, urinary tract infections, and abnormal uterine bleeding. Our findings suggest a need for access to routine gynecologic care, general hygiene education, and increased availability of birth control among the Wayuu population.

See also

**Close quarters: Counseling aboard the Training Ship Golden Bear.** Under Psychology.

**Detainee operations guards in Iraq and Afghanistan reported elevated risk for posttraumatic stress disorder during deployment.** Under PTSD.

**Impact of Marine Exposure on Hemostatic Gauzes Using Thromboelastography.** Under Emergency Medicine.


**Naval Health Research Center Surveillance for Meningococcal Disease.** Under Health Surveillance.

Source
Military Medicine 2019 184 (3-4) 81-83

Author(s)
Hoareau,G.L., and Beyer,C.A.,

Abstract
Trauma-induced acute kidney injury (AKI) has affected many U.S. warfighters throughout history. We seek to provide a historical review of the epidemiology of combat-acquired AKI and to highlight the importance of adapting current renal replacement therapy (RRT) capabilities to prepare for the next armed conflict. While severe AKI was rare in the recent conflicts in Iraq and Afghanistan, an analysis of prior wars suggests that it will be more common in future combat operations characterized by prolonged evacuation times, limited resuscitation capabilities, and delayed aeromedical evacuation. Therefore, the military community must develop RRT capabilities to satisfy the demands of prolonged field care and austere environments. We propose a series of solutions such as re-enforcing forward deployment of conventional RRT capabilities as well as novel therapies such as improvised dialysis systems or sorbent-based RRT.

Sickle cell trait and renal disease among African American U.S. Army soldiers

Source
British Journal of Haematology 2019 ( )

Author(s)

Abstract
Sickle cell trait and certain renal disorders are disproportionately prevalent among African American individuals, so a clear understanding of their association is important. We conducted a longitudinal study using the Stanford Military Data Repository to examine sickle cell trait in relation to the incidence of acute kidney injury (AKI) and chronic kidney disease (CKD). Our study population consisted of African American U.S. Army soldiers on active duty between January 2011 and December 2014. The cumulative incidence was 0.51% for AKI (236 cases out of 45,901 soldiers) and 0.56% for CKD (255 cases out of 45,882 soldiers). Discrete time logistic regression models adjusting for demographic-, military- and healthcare-related covariates showed that sickle cell trait was associated with significantly higher adjusted odds of both AKI odds ratio (OR): 1.74; 95% confidence interval (CI): 1.17-2.59] and CKD (OR: 2.00; 95% CI: 1.39-2.88). Elevated odds of AKI and CKD were
also observed in association with prior CKD and AKI, respectively, and with obesity and prior hypertension. Individuals with sickle cell trait and their providers should be aware of the possibility of increased risk of AKI and CKD to allow for timely intervention and possible prevention.
4-Aminopyridine as a Single Agent Diagnostic and Treatment for Severe Nerve Crush Injury

Source
Military Medicine 2019 184 ( ) 379-385

Author(s)
Noble,M., Tseng,K., et al.

Abstract
Background: Traumatic peripheral nerve injury (TPI) is a major medical problem without effective treatment options. There is no way to diagnose or treat an incomplete injury and delays contribute to morbidity. We examined 4-aminopyridine (4-AP), a potassium-channel blocker as a possible treatment for TPI.

Methods: We used standard mouse models of TPI with functional outcomes including sciatic-functional-index, sensory indices, and electrodiagnostics; in addition to standard immunohistochemical, and electron microscopic correlates of axon and myelin morphology.

Results: Sustained early 4-AP administration increased the speed and extent of behavioral recovery too rapidly to be explained by axonal regeneration. 4-AP also enhanced recovery of nerve conduction velocity, promoted remyelination, and increased axonal area post-injury. 4-AP treatment also enabled the rapid distinction between incomplete and complete nerve lesions. Conclusion: 4-AP singularly provides both a new potential therapy to promote durable recovery and remyelination in acute peripheral nerve injury and a means of identifying lesions in which this therapy would be most likely to be of value. The ability to distinguish injuries that may respond to extended therapy without intervention can offer benefit to wounded soldiers.

Autonomic Symptoms in Gulf War Veterans Evaluated at the War Related Illness and Injury Study Center.

Source
Military Medicine 2019 184 (3-4) e191-e196

Author(s)
Fox,A., and Helmer,D.,

Abstract
Introduction We characterized the presence of autonomic symptoms in a sample of Veterans with Gulf War Illness (GWI) using the Composite Autonomic Symptom Scale (COMPASS-31). In addition, we examined the report of autonomic symptoms across comorbid mental health conditions in this sample. Materials and Methods Case-series follow-up of Gulf War veterans evaluated by the War Related Illness and Injury Study Center (WRIISC) between 2011 and 2016 (n = 153). Phone-based interview consisted of questionnaires designed to investigate autonomic symptoms, physical symptoms, mental health conditions, and GWI. Sixty-One Veterans agreed to participate in this follow-up arm of the study. We restricted our analysis to only
those Veterans meeting CDC and/or Kansas criteria for GWI, leaving us with a sample of 56 Veterans. Results Veterans in our sample were, male (n = 55, 98%), 49 (±6.8) years old and used 8 (±6.6) medications. The mean COMPASS-31 score for our sample was 45.6 (±18.3). There were no differences in reports of autonomic symptoms between participants who screened positive or negative for depression or post-traumatic stress disorder, but COMPASS-31 scores were higher among those who screened positive for anxiety (49.6 (±16.0)) compared with those who screened negative (29.3 (±18.9)) (p < 0.001). Conclusions The elevated COMPASS-31 scores suggest that there may be autonomic dysfunction present in our sample of Veterans with GWI, consistent with other published reports. Additionally, we believe that the high scores on the anxiety measure may reflect assessment of physiological symptoms that are not specific to anxiety and may reflect GWI symptoms. Objective physiological tests of the autonomic nervous system are warranted to better characterize autonomic function and the clinical relevance of COMPASS-31 in this population.

2019-122 0131

A Retrospective, Epidemiological Review of Hemiplegic Migraines in a Military Population

Source
Military Medicine 2019 ( )

Author(s)

Abstract
Introduction: Headaches are one of the world’s most common disabling conditions. They are also both highly prevalent and debilitating among military personnel and can have a significant impact on fitness for duty. Hemiplegic migraines are an uncommon, yet severely incapacitating, subtype of migraine with aura for which there has been a significant increase amongst US military personnel over the past decade. To date, there has not been a scientific report on hemiplegic migraine in United States military personnel.; Materials and Methods: The aim of this study was to provide an overview of hemiplegic migraine, to analyze data on the incidence of hemiplegic migraine in US military service members, and to evaluate demographic factors associated with hemiplegic migraine diagnoses. First time diagnoses of hemiplegic migraine were extracted from the Defense Medical Epidemiological Database according to ICD-9 and ICD-10 codes for hemiplegic migraine. One sample Chi-Square goodness of fit tests were conducted on weighted demographic samples to determine whether significant proportional differences existed between gender, age, military grade, service component, race, and marital status.; Results: From 1997 to 2007 there were no cases of hemiplegic migraine recorded in the Defense Medical Epidemiological Database. However, from 2008 to 2017 there was a significant increase in the number of initial diagnoses of hemiplegic migraine, from 4 in 2008 to a high of 101 in 2016. From 2008 to 2017, 597 new cases of hemiplegic migraine were reported among US military service members. Disproportional incidence of hemiplegic migraine was observed for gender, X2 (1, 597) = 297.37, p < .05.; Conclusion: Over the past decade, there has been a significant increase in the number of initial diagnoses of hemiplegic migraine in Active Duty United States military personnel. Based on these diagnosis rates, there is evidence to suggest that hemiplegic migraine has a higher incidence and prevalence rate among post 9/11 service members of the United States military as compared to the general population. Given the sudden increase in new patients diagnosed with hemiplegic migraine in the
past decade, the global prevalence estimates of hemiplegic migraine should be reconsidered. Additionally, the impact of hemiplegic migraine on service member's duties and responsibilities deserves further consideration.

See also

Cortical thinning in military blast compared to non-blast persistent mild traumatic brain injuries. Under TBI.

Air Force Nursing Executive leadership impact on health care 2004–2008

Source
Nursing Outlook 2019 67 (2) 161-168

Author(s)
Hughes,V.

Abstract
Highlights • Through the lessons learned while caring for combat causalities during two-theater wars, major advances in trauma care, critical care air transport, and healthcare operations resulted in unprecedented combat survival rates. • Nursing's value is as a clinical discipline and must be grounded in the best evidence-based nursing care during times of peace, disaster, or war. • Air Force nurses are involved every day in humanitarian missions, disaster response, and advancing nursing education within the United States and throughout the global communities.

Recorded history allows us to recognize our past and can contribute to the present and future nursing practice. The purpose of this study is to examine the impact of the United States Air Force Nursing Executive leadership on military health care transformation, through Major General (Retired) Melissa A. Rank's personal stories and experiences. This study explores the development and impact of Air Force nursing in its historical, social, and global context between the years of 2004–2008. The oral history method was used to explore and record the professional life experiences of a great military nurse leader. The United States Air Force Nurse Corps has contributed to global healthcare via humanitarian medical support, medical disaster relief, aeromedical patient transport, development of best practices, advances in technology, education programs, and transformation in deployed medical care during times of war, peace, and natural disasters.

See also

Bacterial Contamination of Military and Civilian Uniforms in an Emergency Department. Under Infection Control and Communicable Diseases.

Dual loyalties: Everyday ethical problems of registered nurses and physicians in combat zones. Under Law & Ethics.

Operational Readiness: Redesigning Advanced Practice Registered Nurse (APRN) Curriculum for an Evolving Battlefield. Under Education & Training.
OBSTETRICS & GYNAECOLOGY

See also

Female Reproductive, Adrenal, and Metabolic Changes during an Antarctic Traverse. Under Endocrinology.


0133

Activity modification in heat: critical assessment of guidelines across athletic, occupational, and military settings in the USA

Source
International Journal of Biometeorology 2019 63 (3) 405-427

Author(s)
Hosokawa, Y., Casa, D.J., et al.

Abstract
Exertional heat illness (EHI) risk is a serious concern among athletes, laborers, and warfighters. US Governing organizations have established various activity modification guidelines (AMGs) and other risk mitigation plans to help ensure the health and safety of their workers. The extent of metabolic heat production and heat gain that ensue from their work are the core reasons for EHI in the aforementioned population. Therefore, the major focus of AMGs in all settings is to modulate the work intensity and duration with additional modification in adjustable extrinsic risk factors (e.g., clothing, equipment) and intrinsic risk factors (e.g., heat acclimatization, fitness, hydration status). Future studies should continue to integrate more physiological (e.g., valid body fluid balance, internal body temperature) and biometeorological factors (e.g., cumulative heat stress) to the existing heat risk assessment models to reduce the assumptions and limitations in them. Future interagency collaboration to advance heat mitigation plans among physically active population is desired to maximize the existing resources and data to facilitate advancement in AMGs for environmental heat.

0134

The introduction of health behavior profiles in the Hungarian Defense Forces: a cluster analysis of lifestyle factors according to the health screening tests performed in 2011-2015.

Source
International Journal of Occupational Medicine and Environmental Health 2019 32 (1) 99-114

Author(s)

Abstract
Objectives: The main aim of this study was to examine the health behavior patterns of soldiers in the Hungarian Defense Forces and to introduce health behavior profiles according to the cluster analysis of lifestyle factors.
Work-related stress indicator surveys in UK Ministry of Defence.

Source
Journal of the Royal Army Medical Corps 2019 165 (2) 128-132

Author(s)
Wattie,S.C., and Bridger,R.S.,

Abstract
Introduction UK Ministry of Defence (MOD) policy and strategy recommend the use of a ‘Defence MODified’ version of the Health and Safety Executive Management Standards Indicator Tool to help managers identify risks of work-related stress among Defence personnel. The Defence MODified Tool (‘Stress Indicator Survey’) asks personnel to rate their perceptions of eight working conditions known to be significantly associated with work-related stress. MOD psychologists are developing a Defence norm group against which future survey scores can be compared. This article describes the use of the Stress Indicator Survey in MOD and gives an overview of findings from 2016 to 2018. Method MOD psychologists conducted 27 Stress Indicator Surveys in 2016–2018. Data were collated from 6227 personnel for the Defence norm group and comparisons were conducted between Service personnel and MOD civil servants, and between Services (Royal Navy/Royal Marines (RN/RM), Army and Royal Air Force (RAF)). Results Service personnel had significantly more favourable perceptions than MOD civil servants of most working conditions. The RN/RM had significantly more favourable perceptions than either the Army or the RAF of all working conditions. These findings indicate differential risks of work-related stress in different groups of personnel. Discussion Possible explanations for the observed differences in risk of work-related stress are discussed, including the nature of military life and planned changes to Defence civilian headcount. Examples of managerial actions to improve working conditions based on individual survey findings are given.

Rates of Chronic Medical Conditions in 1991 Gulf War Veterans Compared to the General Population.

Source
International Journal of Environmental Research and Public Health 2019 16 (6) (pagination) ate of Pubaton: 16 Mar 2019

Author(s)
Zundel C.G., Krengel M.H., et al.

Abstract
Prevalence of nine chronic medical conditions in the population-based Ft. Devens Cohort (FDC) of GW veterans were compared with the population-based 2013-2014 National Health and Nutrition Examination Survey (NHANES) cohort. Excess prevalence was calculated as the difference in prevalence estimates from the Ft. Devens and NHANES cohorts; and confidence intervals and p-values are based on the standard errors for the two prevalence estimates. FDC males were at increased risk for reporting seven chronic medical conditions compared with NHANES males. FDC females were at decreased risk for high blood pressure and increased risk for diabetes when compared with NHANES females. FDC veterans reporting war-related
chemical weapons exposure showed higher risk of high blood pressure; diabetes; arthritis and chronic bronchitis while those reporting taking anti-nerve gas pills had increased risk of heart attack and diabetes. GW veterans are at higher risk of chronic conditions than the general population and these risks are associated with self-reported toxicant exposures.

See also

Levels of physical activity and associated factors between military policemen and firemen. Under Fitness Levels & Physical Performance.


Spontaneous pneumothorax as a complication of chronic Jet propulsion fuel-8 exposure. Under Aviation & Space Medicine.

Detection of early lung cancer among military personnel (DECAMP) consortium: study protocols

Source
BMC Pulmonary Medicine 2019 19 (1) 59-59

Author(s)
Billatos,E., Duan,F., et al.

Abstract
Background: Lung cancer is the leading cause of cancer-related death due in large part to our inability to diagnose it at an early and potentially curable stage. Screening for lung cancer via low dose computed tomographic (LDCT) imaging has been demonstrated to improve mortality but also results in a high rate of false positive tests. The identification and application of non-invasive molecular biomarkers that improve the performance of CT imaging for the detection of lung cancer in high risk individuals would aid in clinical decision-making, eliminate the need for unnecessary LDCT follow-up, and further refine the screening criteria for an already large high-risk population.; Methods: The Detection of Early Lung Cancer Among Military Personnel (DECAMP) consortium is conducting two multicenter prospective studies with the goals of developing an integrated panel of both airway and blood-based molecular biomarkers that discriminate benign and malignant indeterminate nodules detected on CT scan as well as predict the future development of lung cancer in high-risk individuals. To achieve these goals, DECAMP is compiling an extensive array of biospecimens including nasal brushings, serum, plasma and intrathoracic airway samples (bronchial brushings and bronchial biopsies) from normal-appearing airway epithelium.; Discussion: This bank of samples is the foundation for multiple DECAMP efforts focused on the identification of those at greatest risk of developing lung cancer as well as the discrimination of benign and malignant pulmonary nodules. The clinical, imaging and biospecimen repositories will serve as a resource for the biomedical community and their investigation of the molecular basis of chronic respiratory disease.; Trial Registration: Retrospectively registered as NCT01785342 - DECAMP-1: Diagnosis and Surveillance of Indeterminate Pulmonary Nodules (DECAMP-1). Date of Registration: February 7, 2013. Retrospectively registered as NCT02504697 - DECAMP-2: Screening of Patients With Early Stage Lung Cancer or at High Risk for Developing Lung Cancer (DECAMP-2).

Source
Clinical Pharmacology and Therapeutics 05 Mar 2019

Author(s)

Abstract
The Applied Proteogenomics Organizational Learning and Outcomes (APOLLO) network is implementing a prospective curation and translation of real-world data into real-world evidence within the learning healthcare environment of the Department of Defense and Department of Veterans Affairs. To support basic, translational, clinical, and epidemiological sciences, APOLLO will release data to public repositories for secondary analysis to assist others in assessing whether similar molecular-driven clinical practice guidelines will improve health outcomes for their relevant cancer populations.

Is Vitamin D Level at Melanoma Diagnosis Associated With Stage Of Tumor? An Observational Study of Melanoma Patients Living in a High Ultraviolet Radiation Environment

Source
Military Medicine 2019 184 ( ) 506-510

Author(s)
Kimlin,M.G., Youl,P., et al.

Abstract
Objectives: This study will assess the relationship between vitamin D concentration at melanoma diagnosis and melanoma tumor characteristics, in individuals in a high ultraviolet radiation (UVR) environment.; Methods: We aim to recruit 600 recently diagnosed melanoma patients from Queensland, Australia, a high UVR location with one of the world's highest melanoma incidence rates. Patients are recruited through general practitioner, skin cancer specialist, dermatological and hospital-based practices. As close as possible to diagnosis, participants provide a blood sample for vitamin D analysis and have their sun exposure/sun protection behavior, melanoma risk factors and dietary vitamin D intake assessed by questionnaire and phone interview. Details of tumor pathology, including tumor level, thickness, and ulceration, are abstracted from cancer registry records. Here, we describe the study methods and present preliminary findings from early participants.; Results: As of December 2017, we have recruited 128 participants (48% male, mean age 60.2 years, mean Breslow thickness 0.63 mm).; Conclusions: When complete, this study will give insights into the association between vitamin D at diagnosis and melanoma tumor characteristics whilst adjusting for recent sun exposure and sun protection use. This study may impact military sun exposure and nutrition policies as vitamin D may play a role in melanomagenesis.

Ballistic Eye Protection: Why Are Soldiers Reluctant to Use Them?

Source
Military Medicine 2019 184 (3-4) e211-e216
Author(s)
Weinstein,O., and Mandel,Y.,

Abstract
Introduction The Israel Defense Forces (IDF), as well as many other armies, faces major challenges in balancing the need to protect soldiers from harm while not impeding their ability to fight. Eye protections available in the IDF are underused, for reasons that are as yet unclear. In this study, we aim to gain a better understanding of the influence of eye protection currently in use in the IDF on vision. Materials and Methods In this cross-sectional study, subjects were assessed for best corrected visual acuity, contrast sensitivity, and binocular visual fields (Goldmann) in a crossover design (with and without eye protection). In addition, we established a comprehensive review on the subjective faults of the eye protection, both from personal experiences of soldiers who used them during their military service and from civilian volunteers who used them in a sterile laboratory setting. Results Visual acuity, contrast sensitivity and visual fields with and without the eye protection were assessed in 25 subjects. Eye protection did not cause any statistically significant change in visual acuity. However, the eye protection caused a statistically significant decrease in visual fields in all quadrants and in both isopters used. Conclusions Significant restriction of the visual field can pose a major challenge for soldiers on the battlefield. The use of eye protection with wider lenses or no frame should be considered. Education and instruction should focus on increasing awareness among commanders and soldiers of the benefits of eye protection and fostering trust in the technology's capabilities. In parallel, it is crucial to educate soldiers about its disadvantages, and how such disadvantages can be overcome. We stipulate the findings to the standard IDF goggle and might not apply to other designs.

Comparison of a Novel Trainer to a Traditional Swine Model for Training Providers in Lateral Canthotomy and Cantholysis

Source
Military Medicine 2019 184 ( ) 342-346
Author(s)

Abstract
Research Objective: Military personnel are at greater risks of head and facial traumas and permanent blindness from orbital compartment syndrome in modern warfare. Rapid treatment must be implemented with a low-risk surgical remedy: lateral canthotomy and cantholysis (LCC). Traditional training of LCC is primarily
performed using an animal tissue trainer (ATT); however, limitations to these types of trainers exist. Therefore, our research objectives were focused on highlighting the effectiveness, benefits, and vision-saving potential of learning LCC on a synthetic trainer.;

Methods: Participants included 22 second-year medical students and 6 healthcare professionals. A pre-quiz assessed baseline knowledge. Next, an experienced ophthalmologist provided an overview and instruction. Subjects were randomized to either the synthetic trainer or the ATT and then switched to the other model for comparison. After performing LCC procedures on both models, a post-quiz and survey were administered.;

Results: Participants found the synthetic trainer easier to use than the ATT model (p < 0.01). There was no statistically significant preference (p = 0.23), or preference of practical eye anatomy (p = 0.26) between the trainers. Post-quiz results demonstrated an overall improvement from pre-quiz scores for participants (p < 0.001).; Conclusions: The synthetic trainer is comparable to the traditional swine model for training LCC procedures and should be considered as a future training platform.

See also


Calcium and vitamin D supplementation and bone health in Marine recruits: Effect of season

Source
Bone 2019 ( )

Abstract
Stress fractures are common overuse injuries caused by repetitive bone loading. These fractures are of particular concern for military recruits and athletes resulting in attrition in up to 60% of recruits that sustain a fracture. Army and Navy recruits supplemented with daily calcium and vitamin D (Ca + D) demonstrated improved bone strength and reduced stress fractures. The aim of the current study was to evaluate whether Ca + D supplementation improves measures of bone health in recruits undergoing United States Marine Corps initial military training (IMT), and whether the effect of supplementation on indices of bone health varied by season. One-hundred ninety-seven Marine recruits (n = 107 males, n = 90 females, mean age = 18.9 ± 1.6 y) were randomized to receive either Ca + D fortified snack bars (2000 mg Ca and 1000 IU vitamin D per day) or placebo divided into twice daily doses during 12 weeks of IMT. Anthropometrics, fasted blood samples, and peripheral quantitative computed tomography (pQCT) scans of the tibial metaphysis and diaphysis were collected upon entrance to- and post-training (12 weeks later). Half of the volunteers entered training in July and the other half started in February. Time-by-group interactions were observed for vitamin D status (25OHD) and the bone turnover markers, BAP, TRAP and OCN. 25OHD increased and BAP, TRAP and OCN all decreased in the Ca + D group (p < .05). Training increased distal tibia volumetric BMD (+1.9 ± 2.8%), BMC. (+2.0 ± 3.1%), and bone strength index (BSI; +4.0 ± 4.0%) and diaphyseal BMC (+1.0 ± 2.2%) and polar stress strain index (SSIp; +0.7 ± 2.1%) independent of Ca + D supplementation (p < .05 for all). When analyzed by season, change in BSI was 67% greater in the Ca + D group as compared to placebo in the summer iteration only (T*G; p < .05). When categorized by tertile of percent change in BSI, recruits demonstrating the greatest changes in BSI and 25OHD entered training with the lowest levels of 25OHD (p < .05). Taken together, these data suggest that Ca + D supplementation reduced indices of bone turnover and the decline in 25OHD over training in volunteers that started training in the summer was prevented by supplementation. Baseline 25OHD and trajectory may be important for optimizing skeletal health during IMT.
A Case of Neglected Achilles Rupture after an Ankle Sprain.

Source
Military Medicine 2019 184 (3-4) e306-e310

Author(s)
Dreyer, M.A., and Dookie, A.,

Abstract
Lateral ankle sprains are common injuries seen by primary care and podiatric specialties. However, lateral ankle pain from a suspected inversion injury of the ankle may be more than a Grades I, II, or III ankle sprain. This case report illustrates a 30-year-old U.S. Navy Active Duty Service Member that was initially diagnosed with a “lateral ankle sprain”. Upon subsequent follow-up with a podiatric foot and ankle surgeon, he was diagnosed with a 3-month-old chronic and neglected Achilles tendon rupture. The purpose of this manuscript is to present an uncommon and unique presentation of lateral ankle pain after injury, subsequent surgical treatment, as well as a review of the common differential diagnoses of “lateral ankle pain.”.

Evaluation of Shoulder Strength and Kinematics as Risk Factors for Shoulder Injury in United States Special Forces Personnel

Source
Orthopaedic Journal of Sports Medicine 2019 7 (3)

Author(s)

Abstract
Background: Musculoskeletal injuries at the shoulder are highly prevalent and place a large burden on United States Special Forces personnel. Literature is lacking regarding the risk factors for these types of injuries.; Purpose/hypothesis: The purpose of this study was to evaluate the association of shoulder strength and kinematic characteristics, which have shown retrospective associations with shoulder conditions/injuries, with prospectively collected shoulder injuries. We hypothesized that lower strength and abnormal kinematics would be predictive of future shoulder injury.; Study Design: Case-control study; Level of evidence, 3.; Methods: A total of 140 male Special Forces operators underwent a musculoskeletal evaluation of the shoulder that included a scapular kinematic assessment during a humeral elevation task and isokinetic strength testing of the scapular protractors/retractors, external/internal rotators, and elevators of the shoulder. From strength assessments, ipsilateral strength ratios and bilateral strength asymmetries were also calculated. Musculoskeletal injuries of the shoulder were collected prospectively by use of medical chart reviews at 365 days following the evaluation. Separate generalized estimating equations (GEEs) and simple logistic regressions were used to analyze the association between baseline predictors and development of shoulder injury.; Results: Results of the GEEs showed no significant prediction of shoulder injury by shoulder strength (odds ratio OR, 1.00-1.03), ipsilateral strength ratios (OR, 0.43-2.12), or scapular kinematics (OR, 0.99-1.01). Logistic regression indicated that none of the bilateral asymmetries were significantly predictive of shoulder injury (OR, 1.00-1.04).; Conclusion: The results indicate that shoulder strength and kinematic characteristics are not risk factors for shoulder injury in the Special Forces population. These findings are in opposition to the general findings of previous
research using a retrospective analysis.

2019-122 0145

**Fasciotomy Improvement Through Recognition of Errors Course: A Focused Needs Assessment for Error Management Training for Lower Extremity Fasciotomy Performance**

**Source**
Journal of Surgical Education 2019 ( )

**Author(s)**
Kucera,W., Nealeigh,M., et al.

**Abstract**

**Background:** Many injuries from recent wars involve extremity trauma secondary to blasts, which predispose patients to developing extremity compartment syndrome. In military studies, 17% of fasciotomies required revision on arrival to a Role 4 hospital, and 41% of these had missed compartments, which is similar to that seen in civilian centers. While training has decreased this rate to 8%, this number is still too high. We conducted a focused needs assessment to guide the development of lower-extremity fasciotomy training.

**Methods:** In a predeployment assessment, 42 military surgeons performed a 2-incision, 4-compartment, lower-extremity fasciotomy on simulated lower leg models. Models were assessed for standardized and objectively-assessed major (inadequate skin or fascial incisions, missed compartments) and minor (failure to make an H-shaped incision over the lateral compartments, division of the greater saphenous vein) errors based on joint Trauma System clinical practice guidelines and approved training curricula.

**Results:** Four of 42 (9.5%) models contained no errors. Models averaged 4.3 ± 2.6 major and 0.3 ± 0.5 minor errors. 11 models (26.2%) had at least one missed compartment. The most common missed compartments were the deep posterior (17%) and anterior (14%). 29 (69%) had inadequate or poorly-placed skin incisions, with the most common being inadequate distal extension of the medial (10, 24%) and lateral (14, 33%) incisions, inadequate proximal extension of the lateral incision (6, 14%), medial incision too close to the tibia (7, 17%), and lateral incision over or behind the fibula (12, 29%). A total of 36 (86%) had inadequate fascial incisions. Inadequate fasciotomies were seen in the anterior (57%), lateral (55%), superficial (52%), and deep (34%) posterior compartments.

**CONCLUSIONS:** Performance on the models approximates what has been seen in military and civilian settings. This needs assessment will inform development of a simulation curriculum based on error-management and mastery learning theory to reduce the morbidity of lower-extremity compartment syndrome.

2019-122 0146

**A Military Case Review Method to Determine and Record the Mechanism of Injury (BioTab) from In-Theater Attacks**

**Source**
Military Medicine 2019 184 ( ) 374-378

**Author(s)**

**Abstract**

A recent study of all mounted vehicle underbody blast attacks found that 21% of
Abbreviated Injury Scale Severity 2+ injuries in the Joint Trauma Analysis and Prevention of Injury in Combat network were injuries to the leg and ankle. To develop effective countermeasure systems for these attacks, the epidemiology and mechanisms of injury from this loading environment need to be quantified. The goal of this study was to develop a military correlate of an existing civilian case review framework, the Crash Injury Research and Engineering Network (CIREN), to consider the differences in military event types and the amount of available vehicle/attack information. Additional data fields were added to the CIREN process to cover military-specific data and "certainty" definitions in the proposed injury hypothesis were modified. To date, six group reviews have been conducted analyzing 253 injuries to the foot/ankle, tibia, femur, pelvis, and lumbar spine from 52 occupants. The familiar format and unclassified nature of the presentations allowed for the involvement of biomechanics experts from multiple disciplines.

2019-122 0147

Nonsteroidal Anti-Inflammatory Drug Prescriptions Are Associated With Increased Stress Fracture Diagnosis in the US Army Population

Source

Author(s)
Hughes,J.M., McKinnon,C.J., et al.

Abstract
Stress fractures are common in military personnel and endurance athletes, and nonsteroidal anti-inflammatory drug (NSAID) use is widespread in these populations. NSAIDs inhibit prostaglandin synthesis, which blunts the anabolic response of bone to physical activity and could therefore increase risk of stress fracture. The objective of this study was to determine whether prescribed NSAIDs were associated with stress fracture diagnoses among US Army soldiers. We also aimed to establish whether acetaminophen, an analgesic alternative to NSAIDs, was associated with stress fracture risk. A nested case-control study was conducted using data from the Total Army Injury and Health Outcomes Database from 2002 to 2011 (n = 1,260,168). We identified soldiers with a diagnosis of stress fracture (n = 24,146) and selected 4 controls per case matched on length of military service (n = 96,584). We identified NSAID and acetaminophen prescriptions 180 to 30 days before injury (or match date). We also identified soldiers who participated in basic combat training (BCT), a 10-week period of heightened physical activity at the onset of Army service. Among these individuals, we identified 9088 cases and 36,878 matched controls. Conditional logistic regression was used to calculate incident rate ratios (RR) for stress fracture with adjustment for sex. NSAID prescription was associated with a 2.9-fold increase (RR = 2.9, 95% confidence interval CI] 2.8-2.9) and acetaminophen prescription with a 2.1-fold increase (RR = 2.1, 95% CI 2.0-2.2) in stress fracture risk within the total Army population. The risk was more than 5-fold greater in soldiers prescribed NSAIDs (RR = 5.3, 95% CI 4.9-5.7) and more than 4-fold greater in soldiers prescribed acetaminophen (RR = 4.4, 95% CI 3.9-4.9) during BCT. Our results reveal an association between NSAID and acetaminophen prescriptions and stress fracture risk, particularly during periods of heightened physical activity. Prospective observational studies and randomized controlled trials are needed to support these
findings before clinical recommendations can be made. © 2018 American Society for Bone and Mineral Research.

2019-122 0148

Outcomes of Triceps Rupture in the US Military: Minimum 2-Year Follow-up

Source
Hand (New York, N.Y.) 2019 14 (2) 197-202
Author(s)
Dunn, J.C., Kusnezov, N., et al.

Abstract
Background: The objective of this study was to examine the subjective and objective midterm functional clinical outcomes of surgically repaired triceps injuries in a moderate- to high-demand population.; Methods: The US Military Health System was queried to identify all surgically treated triceps tendon ruptures between 2008 and 2013. Primary endpoints included rates of rerupture, perioperative complications, or significant persistent elbow dysfunction; Disability of the Arm, Shoulder and Hand (DASH) score, Mayo Elbow score, and ability to do push-ups were also extracted.; Results: Thirty-seven patients underwent triceps tendon repair with a mean follow-up of 49.8 ± 17.3 months (range: 26.8-80.2). The most common mechanisms of injury were military duties (27%), sporting activity (24%), or fall-related (21.6%), with most injuries occurring during an eccentric movement (54%). While 45% experienced occasional elbow pain postoperatively, only 1 patient (2.7%) had a rerupture. Despite this, at 2 years, 31 patients (84%) were able to return to full military duty. While 6 patients were discharged from military service, only 1 underwent medical separation while 5 retired for reasons unrelated to their triceps tendon rupture. Patient-reported outcomes were available for 14 patients at final follow-up. The average DASH and Mayo Elbow scores were 4.7 (SD ± 4.7, range: 0-15.9) and 85.4 (SD ± 11.7, range: 60-100), respectively. The cohort could perform mean 54.2 (range: 9-90) push-ups. In additional, 12 of 14 (85.7%) were satisfied with their elbow function.; Conclusions: The active duty cohort experienced excellent postoperative results with a high rate of return to military duty, despite nearly half of the patients recognizing some degree of activity-related, elbow pain.

2019-122 0149

Perceptions and Response to Conservative Treatment of Low Back Pain in Soldiers During Initial Entry Training: A Convergence Mixed Methods Study

Source
Military Medicine 2019 184 ( ) 550-556
Author(s)

Abstract
Low back pain (LBP) is a common condition suffered by military personnel. Psychosocial factors play a role in LBP prognosis and can be addressed with self-management tools. This study’s purpose was to (1) describe clinical changes in
psychosocial factors of LBP following a self-management intervention and (2) explore the LBP experience of military trainees. Ten participants in Initial Entry Training (IET) were included in this mixed methods study. A self-management intervention of exercises and psychosocial education was provided. Quantitative instruments assessing psychosocial factors were delivered at baseline and 6 weeks. Qualitative data were gathered after treatment and analyzed using a phenomenological approach. Low levels of psychosocial risk factors were reported. Patient satisfaction (COPM-Satisfaction subscale) was the only outcome that achieved statistical significance at 6 weeks (p = 0.037). Three themes emerged from the qualitative results: the influence of the military culture on recovery from LBP, the LBP experience of a trainee, and promoting the self-management of LBP. While this cohort of IET soldiers exhibited low levels of psychosocial risk factors, qualitative reports indicate that LBP has a negative impact on participation in training, academics, and interpersonal relationships. The constraints of military training make seeking care and applying treatment strategies challenging.

2019-122 0150

Posterior Shoulder Dislocation During Morning PT: A Case Report.

Source
Military Medicine 2019 184 (3-4) e302-e305

Author(s)
Williams, S.E., and Hackett, A.J.,

Abstract
Posterior shoulder dislocation should be considered in the differential diagnosis of acute shoulder pain and immobility following trauma. Although far less common than the anterior dislocation, it is associated with high rates of comorbidity. Seventy-nine percent of posterior shoulder dislocations are missed on initial presentation, which is partially responsible for the high rate of comorbidity associated with these injuries. The mechanism of injury is varied from generalized seizure to minor trauma, which adds to the complexity of the diagnosis. There is a well-documented “vulnerable position” described as injury to the arm while it is in a flexed, adducted, and internally rotated position that is highly associated with posterior shoulder dislocation. The plain film scapular Y is the most clinically significant imaging and can be used alone to diagnose the injury, although ancillary imaging such as magnetic resonance imaging is often warranted. Once this rare condition has been diagnosed, there are a number of appropriate reduction techniques available to the health care provider. Presented here is a case of posterior shoulder dislocation that occurred while doing pushups for routine morning physical training. Also discussed are keys to recognition and treatment as well as a brief discussion of associated complications of the injury.

See also

Analysis of a Military Parachutist Injury - A Retrospective Review of Over 37,000 Landings. Under Aviation & Space Research.


The Immediate Effect of Taping and Counterforce Brace on Pain and Grip Strength in Patients with Tennis Elbow. Under Rehabilitation.

Percutaneous Peripheral Nerve Stimulation to Control Postoperative Pain, Decrease Opioid Use, and Accelerate Functional Recovery Following Orthopedic Trauma. Under Anaesthesiology.

Regular physical exercise before entering military service may protect young adult men from fatigue fractures. Under Sport Science & Research.


Shared Neuromuscular Performance Traits in Military Personnel with Prior Concussion. Under TBI.
Blast Exposure Impairs Sensory Gating: Evidence from Measures of Acoustic Startle and Auditory Event-Related Potentials

Source
Journal of Neurotrauma 2019 36 (5) 702-712

Author(s)
Papesh,M.A., Elliott,J.E., et al.

Abstract
Many military service members and veterans who have been exposed to high-intensity blast waves experience traumatic brain injury (TBI), resulting in chronic auditory deficits despite normal hearing sensitivity. The current study sought to examine the neurological cause of this chronic dysfunction by testing the hypothesis that blast exposure leads to impaired filtering of sensory information at brainstem and early cortical levels. Groups of blast-exposed and non-blast-exposed participants completed self-report measures of auditory and neurobehavioral status, auditory perceptual tasks involving degraded and competing speech stimuli, and physiological measures of sensory gating, including pre-pulse inhibition and habituation of the acoustic startle reflex and electrophysiological assessment of a paired-click sensory gating paradigm. Blast-exposed participants showed significantly reduced habituation to acoustic startle stimuli and impaired filtering of redundant sensory information at the level the auditory cortex. Multiple linear regression analyses revealed that poorer sensory gating at the cortical level was primarily influenced by a diagnosis of TBI, whereas reduced habituation was primarily influenced by a diagnosis of post-traumatic stress disorder. A statistical model was created including cortical sensory gating and habituation to acoustic startle, which strongly predicted performance on a degraded speech task. These results support the hypothesis that blast exposure impairs central auditory processing via impairment of neural mechanisms underlying habituation and sensory gating.

Characterization of Protection Mechanisms to Blast Overpressure for Personal Hearing Protection Devices - Biomechanical Measurement and Computational Modeling

Source
Military Medicine 2019 184 ( ) 251-260

Author(s)
Gan,R.Z., Leckness,K., et al.

Abstract
Hearing damage induced by blast exposure is a common injury in military personnel involved in most operation activities. Personal hearing protection devices such as earplugs come as a standard issue for Service members; however, it is not clear how to accurately evaluate the protection mechanisms of different hearing protection
devices for blast overpressures (BOP). This paper reports a recent study on characterization of earplugs' protective function to BOP using human cadaver ears and 3D finite element (FE) model of the human ear. The cadaver ear mounted with pressure sensors near the eardrum (P1) and inside the middle ear (P2) and with an earplug inserted was exposed to BOP in the blast test chamber. P1, P2, and BOP at the ear canal entrance (P0) were simultaneously recorded. The measured P0 waveform was then applied at the ear canal entrance in the FE model and the P1 and P2 pressures were derived from the model. Both experiments and FE modeling resulted in the P1 reduction which represents the effective protection function of the earplug. Different earplugs showed variations in pressure waveforms transmitted to the eardrum, which determine the protection level of earplugs.

2019-122 0153

I'm Wearing My Hearing Protection - Am I Still At Risk for Hearing Loss?
Lurking Ototoxins in the Military Environment

Source
Military Medicine 2019 184 ( ) 615-620

Author(s)
Hammill,T.L., McKenna,E., et al.

Abstract
Objective: Information is summarized from the overall body of published literature regarding ototoxic chemicals encountered outside of clinical exposures, largely in occupational settings. While summarizing the most common non-pharmaceutical ototoxins, this review provides clinically relevant information and recommendations such that hearing health professionals may adopt a more comprehensive and appropriate diagnostic case history, test battery, documentation scheme, and education delivery.; Methods: Solvents, metals, and asphyxiants literature was reviewed using PubMed, national and international agency websites, and communications with known ototoxicity experts.; Results: Initial intentions to summarize the existing programs for occupational ototoxicity monitoring fell short when it was discovered that such programs have not yet formalized across the major oversight agencies in the United States. Instead, recommended guidance documents and fact sheets, which highlight existing occupational exposure limits and suggest monitoring and education are discussed.; Conclusions: While evidence in humans is limited, potentially ototoxic substances are worthy of improved surveillance and further research to understand their ototoxic mechanisms, effects, and possible mitigation strategies. A triad approach of monitoring, protecting, and educating is recommended for effective prevention of hearing loss: the Department of Defense Hearing Center of Excellence’s Comprehensive Hearing Health Program model employs such an approach.
Impact of Tinnitus on Military Service Members

Source
Military Medicine 2019 184 ( ) 604-614

Author(s)

Abstract
Objectives: The Noise Outcomes in Servicemembers Epidemiology (NOISE) Study is obtaining longitudinal data to evaluate the effects of noise and other exposures on auditory function in military personnel. A gap in the literature is the lack of studies concerning how active-duty Service members might be impacted by having tinnitus. The present study reports NOISE Study data that address this gap.; Methods: Data are reported from current Service members and recently-separated (within 2.5 years) Veterans, enabling a direct comparison of results between active and post-military samples. Data were collected from two sites: VA Portland Health Care System, Portland, OR and Department of Defense Hearing Center of Excellence, San Antonio, TX. Participants completed comprehensive audiometric testing and numerous questionnaires.; Results: Results are presented from n = 428 participants across the two sites, including 246 Veterans and 182 Service members. The data reveal that, for both Service members and Veterans, the presence of tinnitus has effects on job performance, concentration, anxiety, depression, and sleep.; Conclusions: This study has revealed that, for these samples of study participants, tinnitus has an impact on military Service members that is comparable to how it affects Veterans who have completed their military service within the previous 2.5 years.

Living at Work: 24-hour Noise Exposure Aboard US Navy Aircraft Carriers

Source
Annals of Work Exposures and Health 2019 63 (3) 316-327

Author(s)

Abstract
Background: Personnel assigned to aircraft carriers are exposed to a variety of noise sources from equipment and flight deck operations for durations >12 h. Personnel work and live in environments where hazardous noise areas and hearing recovery spaces such as sleeping and relaxation areas are in proximity to one another which provides little recovery time from hazardous noise. This investigation describes noise levels measured over a 24-h period on a US Navy aircraft carrier during flight operations for different populations of aircraft carrier personnel.; Methods: Personal noise monitoring occurred from 23 to 28 January 2014 aboard a US Navy Nimitz-class aircraft carrier during a routine at-sea period. Fifty-nine study volunteers were assigned to similar exposure groups (SEGs). The SEGs were compared to determine which groups were at greatest risk of hazardous noise exposure. Statistical analysis was conducted with SPSS version 24 using an alpha level of 0.05.; Results: Mean 24-h equivalent continuous sound levels Leq(24-h) and on-duty time weighted
averages (TWA(on-duty)) ranged from 71 to 127 decibels A weighted (dBA). The 80
dBA American Conference of Governmental Industrial Hygienists (ACGIH) threshold
limit value (TLV) for 24-h noise exposure was exceeded by 93% of the study
volunteers. The 85 dBA ACGIH TLV and Department of Defense Occupational
exposure limit for 8-h noise exposures was exceeded by 68% of the population.
Leq(off-duty) ranged from 38 to 102 dBA with 61% of the population exceeding the
70 dBA ACGIH TLV classified as effective quiet to allow for temporary threshold shift
recovery. SEG 2 Flight Deck Launch and Recovery had significantly higher 24-h
noise exposures than SEG 3 Damage Control Maintenance and Repair (P = 0.01),
SEG 5 Supply (P = 0.01), and SEG 7 Administrative/Professional (P = 0.009). Similar
results were found for TWA(on-duty) noise exposures. Median TWA(on-duty) and
Leq(24-h) for SEG 2 were 16-21 dB higher than SEG 3, 5, and 7. There were no
significant differences between off-duty Leq noise exposures according to SEG.;
Discussion/conclusions: SEGs located on the flight deck (SEGs 1 and 2) and SEGs
responsible for maintenance and repair activities (SEGs 3 and 4) supporting flight
operations had the highest TWA(on-duty) and Leq(24-h). These findings raise
serious concerns because high noise exposures both on- and off-duty may result in
immediate acoustic trauma and development of temporary threshold shifts, which, if
unresolved with auditory rest, may lead to permanent hearing loss.

2019-122 0156

Prevalence, Characteristics and Impact of Dysphonia in US Marine Corps Drill
Instructors.

Source
Journal of Voice 2019

Author(s)
Spellman J., Coulter M., et al.

Abstract
Importance: Prior studies have evaluated various populations at increased risk of
voice impairment. However, minimal data is available for military Drill Instructors, a
population known to have significant vocal demands.

2019-122 0157

Treatment of military acoustic accidents with N-Acetyl-L-cysteine (NAC).

Source
International Journal of Audiology 2019 58 (3) 151-157

Author(s)
Rosenhall U., Skoog B., et al.

Abstract
OBJECTIVE: To study if the antioxidant (AO) N-Acetyl-L-cysteine (NAC) reduces the
risk of hearing loss after acoustic accidents in humans. DESIGN: A retrospective,
observational study. STUDY SAMPLE: Personnel of the Swedish Armed Forces
(SAF) exposed to military acoustic accidents during a 5 year period. Included in the
study were 221 cases (mean age: 22.9 years). Most of the exposures, 84%, were
weapon related. NAC (400mg) was given directly after the accident in 146 cases; 75
had not received NAC.
The Joint Pathology Center/Vision Center of Excellence Approach to Analyzing Intra-Ocular "Foreign Bodies"

Source
Military Medicine 2019 184 ( ) 565-570
Author(s)

Abstract
Background: The Military Health System recognizes the importance of analyzing "foreign bodies" removed from US service members through several policy documents. This activity focuses on detecting potentially toxic metals. Intra-ocular "foreign bodies" (IOFBs) represent a small, clinically important subset. The development of ocular metallosis with iron and copper fragments is a specific local reaction to IOFBs. The results of the compositional analysis of removed IOFBs can influence clinical management decisions aimed at optimizing the preservation of sight.; Method: The Joint Pathology Center (JPC) and Vision Center of Excellence (VCE) have established a pathway for the analysis of IOFBs removed from Department of Defense and Veterans Health Administration patients. The analysis of IOFBs uses analytical methods to provide information about the fragments’ surface elemental and molecular composition.; Results: Metallic specimens analyzed included iron and copper-containing fragments. Non-metallic IOFBs analyzed include glass, plastic (polyurethane), and nitro-cellulose fragments.; Conclusion: The JPC/VCE approach to analyzing IOFBs promotes uniform handling and shipping of specimens to minimize contamination. The analytical approach allows for the characterization of IOFBs with a wide variety of compositions. The results support clinical management decisions aimed at optimal treatment for the preservation of patients' visual acuity.

Surgical Pathology "Boot Camp": A Military Experience

Source
Archives of Pathology & Laboratory Medicine 2019 ( )
Author(s)

Abstract
Context.—: A common concern in pathology residency training is the variability with which incoming trainees have attained basic pathology competencies during undergraduate medical education. While multifactorial deficiencies are likely due to recent de-emphasis of dedicated pathology courses during preclinical training, accelerating the transition from medical student to pathology resident is critical particularly in military practice where a greater degree of autonomy is required of recent graduates.; Objective.—: To describe the implementation and results of a 4-week surgical pathology "boot camp" in the largest military pathology residency in the
United States.; Design.—: Interns were administered an assessment on basic pathology knowledge, slide practicals, and a skills self-assessment. All specimens were grossed by interns with constant direct supervision. A daily microscopic didactic session was given by an upper level resident and a daily gross conference was led by the interns. Subsequent academic performance was evaluated via monthly slide practicals and diagnostic agreement with faculty.; Results.—: Following boot camp, average scores on the knowledge assessment increased from 36.0% ± 16.2% (standard deviation SD) to 80.0% ± 12.6% (SD) ( P < .001). Slide practical scores showed an increase from 32% ± 12.0% (SD) to 74.0% ± 16.2% (SD) ( P < .001). Skills self-assessment showed a global increase across all measures. Throughout the following academic year, postgraduate year 1 (PGY1) residents performed at the same level of current PGY2 residents, based on surgical pathology faculty diagnostic agreement and slide practical performance.; Conclusions.—: An intense 4-week surgical pathology rotation specifically tailored to incoming interns was successful in transitioning medical students to pathology residents within a relatively short time.
Penicillin Allergy…Maybe Not? The Military Relevance for Penicillin Testing and De-labeling.

Source
Military Medicine 2019 184 (3-4) e163-e168
Author(s)
Lee,R.U., and Banks,T.A.,.

Abstract
Introduction Penicillin allergy is the most common drug allergy reported. About 8–10% of individuals in the USA have a documented penicillin allergy, yet 90% are not truly allergic to penicillin. A penicillin allergy “label” results in increased antibiotic-related adverse reactions and increased health care costs, thus impacting the overall “readiness” of the military. Materials and Methods A review of the current literature and approaches to penicillin allergy and “de-labeling” a patient who reports penicillin allergy was conducted and future strategies to identify and assess military beneficiaries were outlined. Military allergists had a formal discussion at the Tri-service Military Allergy Immunology Assembly regarding the state of penicillin allergy testing in military allergy clinics. Results A PubMed search yielded 5,775 results for “penicillin allergy” and 484 results for “penicillin allergy testing.” There were two formalized penicillin testing programs in the military treatment facilities. In 2017, the military trained nearly 165,000 new recruits. If 5–10% reported a penicillin allergy and 90% were de-labeled, that would yield a $15–30 million cost savings annually. Further, de-labeling of the 9.4 million active duty, beneficiaries and retirees with a 90% success rate could result in even greater savings for the military health care system. Conclusion A penicillin allergy label is a risk to military readiness secondary to associated increases in the length of hospitalizations and emergency department and medical visits. Penicillin de-labeling is a simple intervention that can improve readiness, significantly decrease health care costs and prevent antibiotic resistance, as well as antibiotic-associated adverse events. The military allergist should be “front and center” providing expertise guidance and leadership for clinic and hospital-based penicillin de-labeling efforts which are nested within the antibiotic stewardship programs.

See also
Successful Use of Colistin Monotherapy as Outpatient Parenteral Antibiotic Therapy for XDR Acinetobacter Hepatic Abscesses. Under Microbiology.
Changes in the dynamic network structure of PTSD symptoms pre-to-post combat

Source
Psychological Medicine 2019

Author(s)
Segal, A., Wald, I., et al.

Abstract
Background Combat exposure is associated with elevated risk for post-traumatic stress disorder (PTSD). Despite considerable research on PTSD symptom clustering, it remains unknown how symptoms of PTSD re-organize following combat. Network analysis provides a powerful tool to examine such changes. Methods A network analysis approach was taken to examine how symptom networks change from pre- to post-combat using longitudinal prospective data from a cohort of infantry male soldiers (Mage = 18.8 years). PTSD symptoms measured using the PTSD Checklist (PCL) were assessed after 6 months of combat training but before deployment and again after 6 months of combat (Ns = 910 and 725 at pre-deployment and post-combat, respectively) Results Stronger connectivity between PTSD symptoms was observed post-combat relative to pre-deployment (global strength values of the networks were 7.54 pre v. 7.92 post; S = .38, p < .05). Both the re-experiencing symptoms cluster (1.92 v. 2.12; S = .20, p < 0.03) and the avoidance symptoms cluster (2.61 v. 2.96; S = .35, p < 0.005) became more strongly inter-correlated post-combat. Centrality estimation analyses revealed that psychological reaction to triggers was central and linked the intrusion and avoidance sub-clusters at post-combat. The strength of associations between the arousal and reactivity symptoms cluster remained stable over time (1.85 v. 1.83; S = .02, p = .92). Conclusions Following combat, PTSD symptoms and particularly the re-experiencing and avoidance clusters become more strongly inter-correlated, indicating high centrality of trigger-reactivity symptoms.

Combat and operational risk factors for post-traumatic stress disorder symptom criteria among United States air force remotely piloted aircraft "Drone" warfighters

Source
Journal of Anxiety Disorders 2019 62 ( ) 86-93

Author(s)
Chappelle, W., Goodman, T., et al.

Abstract
The prevalence and expression of post-traumatic stress disorder (PTSD) symptoms among United States Air Force remotely piloted aircraft (RPA; commonly referred to as "drones") warfighters exposed to battlefield trauma via remote, electronic warfare is relevant and critical to the effective delivery of mental health care for this population. RPA warfighters (n = 715) with real-time exposure to at least one traumatic event participated in an online survey. Measures included the PTSD Checklist for DSM-5 (PCL-5) and survey of exposure to traumatic events during the course of operational combat missions. A total of 6.15% met PTSD symptom criteria;
those in the age ranges of 31-35 and 36-40 and those working 51 or more hours per week had greater odds of meeting symptom criteria. For combat-related events, the number of events in which RPA warfighters witnessed civilian bystanders being killed by enemy forces or felt shared responsibility for the injury or death of bystanders were also significant predictors, regardless of whether the risk was anticipated or unanticipated. The results of this study suggest that specific types of exposure and participation in missions with specific outcomes, albeit via electronic, remote means, are associated with an increased risk for meeting PTSD symptom criteria.

2019-122 0163

Defence Clinical Psychology Service: an overview of clinical psychology in the UK Ministry of Defence.

Source
Journal of the Royal Army Medical Corps 2019 165 (2) 71-73

Author(s)
Norris, R., and McCauley, M.,

Abstract
The Defence Clinical Psychology Service (DCPS) is the professional clinical psychology service and community of clinical psychology practice within UK Ministry of Defence (MoD). The DCPS provides professional clinical care, consultation and research in support of the UK Armed Forces. Regulated by the Health and Care Professions Council, DCPS psychologists are employed as Crown (Civil) Servants within the MoD. Serving as assets of Joint Forces Command within the Defence Primary Healthcare organisation, the professional leadership for such personnel is provided by the office of the Defence Consultant Advisor (DCA) for clinical psychology. The following paper offers an overview of the history, service context, training and mission of the DCPS. Areas for future development are also considered.

2019-122 0164

Detainee operations guards in Iraq and Afghanistan reported elevated risk for posttraumatic stress disorder during deployment

Source
Traumatology 2019 25 (1) 41-50

Author(s)

Abstract
This study investigated posttraumatic stress disorder (PTSD) symptoms in U.S. Navy sailors assigned to guard duty in detainee operations (DETOPS, n = 444) facilities and other duties (non-DETOPS, n = 1,715) in Iraq and Afghanistan via analysis of cross-sectional, self-report surveys. The majority of DETOPS sailors reported being in serious danger of being injured or killed (61%), a frequency significantly higher (χ² = 19.45, p < .001) than non-DETOPS sailors (49%). The assumption of measurement invariance for the PTSD Checklist was confirmed with both samples possessing the 4-factor structure identified by Simms, Watson, and Doebbeling (2002). Consistent with previous reports, the DETOPS sample was significantly higher, Wilks’s λ = .98, F(5, 2146) = 10.93, p < .001, than the non-DETOPS sample when compared across 4 PTSD Checklist factors observed in the 2 samples. The
percentage of sailors scoring above the threshold for probable PTSD, based on 3 scoring methods, ranged from 11.9% to 16.1%, frequencies significantly higher (p < .001) than that of the non-DETOPS sample (6.4%–9.6%). The results provide the first empirical evidence that DETOPS sailors in Iraq and Afghanistan were a high-risk population for developing PTSD.

2019-122 0165

The development of a brief version of the Posttraumatic Cognitions Inventory (PTCI-9)

Source
Assessment 2019 26 (2) 193-208

Author(s)

Abstract
Negative posttraumatic cognitions lead to the development and maintenance of posttraumatic stress disorder symptoms. There is a need for a brief measure to assess these cognitions. Participants were administered the Posttraumatic Cognitions Inventory (PTCI) and measures of mental health symptomatology. These data were used to develop a brief version of the PTCI (PTCI-9) in 223 male and female veterans, which was then examined in a sample of 117 female civilians. Confirmatory factor analyses demonstrated an acceptable fit in both samples. The PTCI-9 total and subscale scores showed strong internal consistencies (Cronbach’s αs = .80-.87) and strong correlations with the PTCI in veterans (rs = .90-.96) and civilians (rs = .91-.96). Measurement invariance testing demonstrated partial invariance between the two samples. The PTCI-9 significantly correlated with measures of PTSD, depression, and quality of life. These findings demonstrate that the PTCI-9 is a reliable and valid measure of posttraumatic cognitions that can reduce patient and provider burden.

2019-122 0166

Dynamic changes in marines' reports of PTSD symptoms and problem alcohol use across the deployment cycle

Source
Psychology of Addictive Behaviors 2019 33 (2) 162-170

Author(s)
Berke,D.S., Yeterian,J., et al.

Abstract
Posttraumatic stress disorder (PTSD) and alcohol misuse are commonly co-occurring problems in active-duty service members (SMs) and veterans. Unfortunately, relatively little is known about the temporal associations between these problems in the acute period following exposure to combat stressors. Discerning the temporal associations between these problems across the deployment cycle could inform prevention and treatment efforts. In this study, we examined the association between PTSD symptom severity and problem alcohol use in a large cohort of United States Marines (n = 758) evaluated prior to deployment and approximately 1, 5, and 8 months postdeployment. Results indicate that problem alcohol use was associated with a subsequent exacerbation of PTSD symptoms between the 1st and 2nd and
2nd and 3rd postdeployment assessments. PTSD symptom severity was associated with increased problem alcohol use between the 1st and 2nd postdeployment assessments. These findings suggest that problem drinking may lead to new onset or worsening of PTSD symptoms over time and that SMs with greater PTSD symptom severity upon returning from deployment may increase alcohol use in the weeks immediately following homecoming.

The effect of genetic vulnerability and military deployment on the development of post-traumatic stress disorder and depressive symptoms

Source
European Neuropsychopharmacology: The Journal of the European College of Neuropsychopharmacology 2019 29 (3) 405-415

Author(s)

Abstract
Exposure to trauma strongly increases the risk to develop stress-related psychopathology, such as post-traumatic stress disorder (PTSD) or major depressive disorder (MDD). In addition, liability to develop these moderately heritable disorders is partly determined by common genetic variance, which is starting to be uncovered by genome-wide association studies (GWASs). However, it is currently unknown to what extent genetic vulnerability and trauma interact. We investigated whether genetic risk based on summary statistics of large GWASs for PTSD and MDD predisposed individuals to report an increase in MDD and PTSD symptoms in a prospective military cohort (N = 516) at five time points after deployment to Afghanistan: one month, six months and one, two and five years. Linear regression was used to analyze the contribution of polygenic risk scores (PRSs, at multiple p-value thresholds) and their interaction with deployment-related trauma to the development of PTSD- and depression-related symptoms. We found no main effects of PRSs nor evidence for interactions with trauma on the development of PTSD or depressive symptoms at any of the time points in the five years after military deployment. Our results based on a unique long-term follow-up of a deployed military cohort suggest limited validity of current PTSD and MDD polygenic risk scores, albeit in the presence of minimal severe psychopathology in the target cohort. Even though the predictive value of PRSs will likely benefit from larger sample sizes in discovery and target datasets, progress will probably also depend on (endo)phenotype refinement that in turn will reduce etiological heterogeneity.
Evaluation of an Integrative Post-Traumatic Stress Disorder Treatment Program

Source

Author(s)

Abstract
Objectives: Post-traumatic stress disorder (PTSD) and combat-related stress can be refractory, pervasive, and have a devastating impact on those affected, their families, and society at large. Challenges dealing with symptoms may in turn make a servicemember more susceptible to problems, including alcohol abuse, interpersonal conflict, and occupational problems. An effective treatment strategy will address multifactorial issues by using a holistic multimodal approach. Back on Track is an intensive outpatient program utilizing a holistic philosophy and multimodal treatments to provide a whole systems approach for the treatment of combat-related stress reactions and PTSD in active duty servicemembers. 

Design/setting/subjects: An explanatory, sequential, mixed-methods program evaluation was conducted to assess the effectiveness of a PTSD and combat stress treatment program. Quantitative outcomes were collected and analyzed on 595 participants at pre- and postinterventions and 6-week follow-up and qualitative data were gathered through participant interviews.

Intervention: The manualized program uses a multimodal, psychoeducational group therapy format with a holistic approach for treating combat stress, increasing resiliency, and assisting with reintegration. Rotating providers visit from other programs and services to deliver content in biopsychosocial-spiritual domains, including didactic lectures on mindfulness and the relaxation response and daily sessions of yoga nidra and meditation.

Outcome Measures: The primary outcome measure was PTSD symptom severity assessed with the PTSD Checklist-Military Version (PCL-M). Secondary outcomes included self-efficacy, knowledge, use, and satisfaction. Quantitative data were contextualized with interview data.

Results: Results demonstrated a highly statistically significant effect of the program when comparing within-subject PCL-M scores before and after program participation, signed rank S (N = 595) = -47,367, p < 0.001. This translates to a moderate effect size, Cohen's d (N = 595) = -0.55, 95% confidence interval = -0.62 to -0.47, and a mean decrease of 7 points on the PCL-M at postintervention, demonstrating response to treatment. There were significant increases in knowledge and self-efficacy and high levels of satisfaction with the program overall, content, materials, and delivery.

Conclusions: The treatment program has served ~800 servicemembers since inception and has since expanded to five installations. The provision of whole systems care where the approach is holistic, multimodal, and multidisciplinary may be a way forward for the successful treatment of PTSD and other debilitating behavioral health conditions in military contexts and beyond.
The Impact of Military Status on Cognitive Processing Therapy Outcomes in the Community.

Source
Journal of Traumatic Stress 2019 (pagination) at of Pubaton: 20 Mar 2019

Author(s)

Abstract
Military-affiliated individuals (i.e., active duty personnel and veterans) exhibit high rates of posttraumatic stress disorder (PTSD). Although existing evidence-based treatments for PTSD, such as cognitive processing therapy (CPT), have demonstrated effectiveness with military-affiliated patients, there is evidence to suggest these individuals do not benefit as much as civilians. However, few studies have directly compared the effects of PTSD treatment between civilian and military-affiliated participants. The current study compared treatment outcomes of military-affiliated and civilian patients receiving CPT. Participants with PTSD who were either civilians (n = 136) or military-affiliated (n = 63) received CPT from community-based providers in training for CPT. Results indicated that military-affiliated participants were equally likely to complete treatment, Log odds ratio (OR) = 0.14, p = .648. Although military-affiliated participants exhibited reductions in PTSD, B = -2.53, p < .001; and depression symptoms, B = -0.65, p < .001, they experienced smaller reductions in symptoms relative to civilians: B = 1.15, p = .015 for PTSD symptoms and B = 0.29, p = .029 for depression symptoms. Furthermore, variability estimates indicated there was more variability in providers' treatment of military-affiliated versus civilian participants (i.e., completion rates and symptom reduction). These findings suggest that military-affiliated patients can be successfully retained in trauma-focused treatment in the community at the same rate as civilian patients, and they significantly improve in PTSD and depression symptoms although not as much as civilians. These findings also highlight community providers' variability in treatment of military-affiliated patients, providing support for more military-cultural training.

Inflammation and PTSD.

Source
PTSD Research Quarterly 2019 29 (4) 1-10

Author(s)
Neylan, T.C., and O'Donovan, A.,

Abstract
Veterans with posttraumatic stress disorder (PTSD) suffer from a high burden of diseases typically associated with aging including cardiovascular disease, autoimmune disorders, and dementia. A large literature demonstrates that PTSD is associated with a pro-inflammatory activation of the immune system, which may contribute to accelerated aging. The current state of the science suggests that there is a bidirectional causal relationship between PTSD and inflammation, which has implications for the development of clinically useful biomarkers and novel treatments.
Internal consistency and factor structure of a brief scale assessing sensitivity to blood, injury, and mutilation

Source
BMC Research Notes 2019 12 (1) 167-167

Author(s)

Abstract
Objective: US Army soldiers and military veterans experience high rates of post-traumatic stress disorder (PTSD). However, PTSD risk factors are not fully understood. Sensitivity to blood, injury, and mutilation (SBIM), which includes fear of being injured, seeing another person injured, and exposure to mutilation-relevant stimuli (e.g., blood, wounds) may be a PTSD risk factor that is identifiable prior to trauma exposure. Building on previous research that used a subset of items from the Mutilation Questionnaire (MQ), the aim of this study was to examine the reliability and validity of two brief scales assessing SBIM.

Results: Data from two independent samples of male, US Army soldiers, was utilized to examine a brief 10-item SBIM measure (MQ-SBIM-10) and a shorter version 5-item SBIM measure (MQ-SBIM-5). Internal consistency was indexed by the Kuder-Richardson 20 formula. Construct validity was assessed using confirmatory factor analysis and results obtained from each sample, and from a combined sample. The MQ-SBIM-10 demonstrated acceptable internal consistency and the hypothesized one-factor structure. Although the MQ-SBIM-5 explained a substantial amount of the variance in the 10-item measure and had a one-factor structure, internal consistency of the 5-item measure was poor. Analyses supported the MQ-SBIM-10 as a reliable and cohesive measure of sensitivity to blood, injury, and mutilation.

No trauma, no problem: Symptoms of posttraumatic stress in the absence of a criterion a stressor

Source
Journal of Psychopathology and Behavioral Assessment 2019 41 (1) 107-111

Author(s)

Abstract
Previous research on Posttraumatic Stress Disorder (PTSD) has investigated the sentinel role of Criterion A to the diagnosis. Some researchers have found that PTSD symptom measures are elevated in the absence of a Criterion A stressor. Therefore, the current study sought to extend this research to the Diagnostic and Statistical Manual, fifth edition (DSM-5; American Psychiatric Association 2013) using the PTSD Checklist for DSM-5 (PCL-5; Weathers et al. 2013b). Data from 222 veterans presenting to a general outpatient mental health clinic at a Veterans Health Administration were asked to complete the PCL-5 after indicating the presence of a stressful or traumatic life event. In line with previous research, the current study revealed no differences between veterans with (n = 92) and without (n = 120) a Criterion A stressor on PTSD symptom severity, clinically-indicated levels of PTSD, or symptom clusters. However, these groups differed on empirically-identified core symptoms of PTSD (Brewin et al. Journal of Traumatic Stress 22 (5), 366-373, 2009), such that veterans with a Criterion A stressor reported significantly more core PTSD
symptoms. A significant limitation to these findings is that Criterion A status was examined only via self-report on the PCL-5. The findings highlight the need for more research on the definition of a Criterion A stressor, use of the PCL-5, and the current composition of PTSD symptoms that make up the DSM-5 diagnostic criteria. In the future, clinicians are encouraged to conduct a thorough trauma assessment in conjunction with a PTSD screening measure to facilitate diagnostic accuracy and treatment planning.

Pilot testing a manualized equine-facilitated cognitive processing therapy (EF-CPT) intervention for PTSD in veterans

Source
Psychiatric Rehabilitation Journal 2019 ( )
Author(s)
Wharton,T., Whitworth,J., et al.

Abstract
Objective: The objective of this study was to test effectiveness and feasibility of equine-facilitated cognitive processing therapy (EF-CPT), a manualized adaptation of the cognitive processing therapy model for veterans with posttraumatic stress disorder (PTSD) championed by the Department of Veterans Affairs, in which equine-facilitated activities are integrated into face-to-face sessions. Method: Twenty-seven veterans with a diagnosis of PTSD participated (Mage = 51; 78% male) in a pretest-posttest design. Veterans were seen by a single psychologist for 12 sessions of individual EF-CPT. Instruments included: PTSD Checklist (PCL), Trauma Related Guilt Inventory (TRGI), Working Alliance Inventory (WAI), and the Human Animal Bond Scale (HABS). We hypothesized improvement on all measures, low attrition, and good model fidelity. Paired sample t tests were conducted using SPSS. Results: PCL scores improved significantly (M1 = 68.25, M2 = 35.96, p = .001), as did TRGI scores (p = .001 on all scales). HABS and WAI indicated good working relationship. Two individuals attended one session and did not return (both under the age of 50); there was no other attrition (7% rate). Audio of sessions was reviewed for fidelity; there were variations in temporal order of session plans, which is within the acceptable flexibility of the manual. Conclusions and Implications for Practice: This manualized intervention has promise as an effective and well-tolerated treatment for veterans with PTSD. (PsycINFO Database Record (c) 2019 APA, all rights reserved); Impact and Implications—This pilot of an adapted, manualized equine-facilitated cognitive processing therapy model for veterans with posttraumatic stress disorder demonstrated efficacy and low attrition, suggesting a viable alternative treatment option for veterans who have been reluctant to engage with services. This pilot is unique in the use of a novel standardized manual and attention to fidelity to the model.
Posttraumatic Stress Disorder and Neurocognitive Impairment in a U.S. Military Cohort of Persons Living with HIV

Source
Psychiatry 2019 ( ) 1-12

Author(s)
Deiss,R., Campbell,C.J., et al.

Abstract
Objective: Neurocognitive impairment (NCI) is a well-known complication of human immunodeficiency virus (HIV) infection and may be influenced by a number of psychological factors. We examined the relationship between NCI and mental health disorders, including posttraumatic stress disorder (PTSD), in a cohort of 189 active-duty and retired U.S. military men living with HIV.; Methods: Participants completed selected modules of the Composite International Diagnostic Interview (CIDI) to ascertain the presence of PTSD, major depressive disorder, and other mental health diagnoses. We also obtained demographic data, including history of head trauma, via personal interview. NCI was assessed with a comprehensive battery of standardized neuropsychological tests.; Results: The median age of study subjects was 36 years (interquartile range IQR] 28 to 43) and median total years of education was 14 (IQR 12 to 16). NCI was diagnosed in 19% of subjects. Individuals with and without a history of PTSD were similar with respect to most HIV-related characteristics; however, the former were significantly more likely to have a prior acquired immunodeficiency syndrome (AIDS) diagnosis. In multivariate analysis, lifetime history of PTSD was independently associated with NCI (odds ration OR] = 6.12; 95% confidence interval CI] = 1.85, 20.27), while a history of head of trauma was negatively associated (OR = 0.37 95% CI = 0.15,0.92).; Conclusions: Our findings demonstrate that PTSD is an important predictor of NCI in this U.S. military cohort. HIV-infected individuals with cognitive difficulties should be screened for mental health disorders, including PTSD, and prospective studies of the longitudinal relationship between PTSD and NCI, as well as the impact of PTSD treatment on future NCI, are warranted.

Predictors of attendance and dropout in three randomized controlled trials of PTSD treatment for active duty service members

Source
Behaviour Research and Therapy 2019 118 ( ) 7-17

Author(s)
Berke,D.S., Kline,N.K., et al.

Abstract
Dropout from first-line posttraumatic stress disorder (PTSD) treatments is a significant problem. We reported rates and predictors of attendance and dropout in three clinical trials of evidence-based PTSD treatments in military service members (N = 557). Service members attended 81.0% of treatment sessions and 30.7% dropped out. Individually delivered treatment was associated with greater attendance rates (β = 0.23, p < .001) than group therapy; trauma-focused treatments were associated with higher dropout (β = 0.19, p < .001) than Present-Centered Therapy. Age was a significant predictor of session attendance (β = 0.17, p < .001) and dropout (β = -0.23, p < .001). History of traumatic brain injury (TBI) predicted lower attendance rates (β = -0.26, p < .001) and greater dropout (β = 0.19, p < .001).
Regardless of treatment type or format, patients who did not drop out were more likely to experience clinically significant gains (d = 0.49, p < .001). Results demonstrate that dropout from PTSD treatments in these trials was significantly associated with treatment outcome and suggest that strategies are needed to mitigate dropout, particularly in group and trauma-focused therapies, and among younger service members and those with TBI.

2019-122 0176

Predictors of change in cognitive processing therapy for veterans in a residential PTSD treatment program

Source
Journal of Clinical Psychology 2019 75 (3) 364-379

Author(s)
Hale,A.C., Rodriguez,J.L., et al.

Abstract
Objective: Cognitive processing therapy is an evidence-based treatment for posttraumatic stress disorder (PTSD); however, questions remain regarding variability in treatment response. Method: A total of 123 veterans participated in group-based cognitive processing therapy (CPT) in residential PTSD treatment. Change over time in PTSD symptoms was modeled as a function of selected demographic and clinical variables. Results: PTSD checklist (PCL) scores decreased by an average of 1 point per session (standard deviation SD] = 0.1). Initial PCL scores were predicted by the Beck Depression Inventory-II \( \gamma_0 = 0.25; \) standard error SE \( = 0.08 \), Insomnia Severity Index \( \gamma_2 = 0.53; \) SE \( = 0.15 \), and Infrequency (F) scale of the Minnesota Multiphasic Personality Inventory-2 \( \gamma_3 = 0.09; \) SE \( = 0.04 \). Rate of change was predicted by the Somatic Complaints (RC1) scale \( \gamma_1 = -0.03; \) SE \( = 0.01 \) and the Antisocial Behavior (RC4) scale \( \gamma_2 = 0.02; \) SE \( = 0.01 \). Conclusions: These results provide insight into characteristics that may influence degree of benefit received from group-based CPT.

2019-122 0177

Predictors of recovery from post-deployment posttraumatic stress disorder symptoms in war veterans: The contributions of psychological flexibility, mindfulness, and self-compassion

Source
Behaviour Research and Therapy 2019 114 ( ) 7-14

Author(s)
Meyer,E.C., Szabo,Y.Z., et al.

Abstract
Posttraumatic stress disorder (PTSD) is a major challenge among war veterans. This study assessed the contribution of several interrelated, modifiable psychosocial factors to changes in PTSD symptom severity among combat-deployed post-9/11 Veterans. Data were drawn from a longitudinal study of predictors of mental health and functional outcomes among U.S. Iraq and Afghanistan war Veterans (N = 117). This study assessed the unique contribution of psychological flexibility, mindfulness, and self-compassion to PTSD recovery, after accounting for established predictors of PTSD chronicity, including combat exposure, alcohol use problems, and traumatic
brain injury. PTSD symptom severity was assessed using a clinician-administered interview, and PTSD recovery was defined as the change in symptom severity from lifetime worst severity, measured at baseline, to current severity at one-year follow-up. A mindful awareness latent factor comprised of all three variables measured at baseline predicted PTSD recovery beyond the other predictors of PTSD chronicity ($f^2 = 0.30$, large effect). Each construct predicted PTSD recovery when tested individually. When tested simultaneously, self-compassion, but not mindfulness or psychological flexibility, predicted PTSD recovery. These findings suggest that mindful awareness of emotional distress predicts recovery from PTSD symptoms in war veterans, which supports the utility mindfulness-based interventions in promoting post-trauma recovery.

2019-122 0178

Protective correlates of suicidality among veterans with histories of posttraumatic stress disorder and major depressive disorder: Results from the National Health and Resilience in Veterans Study

Source
Journal of Affective Disorders 2019 246 ( ) 731-737

Author(s)
Kachadourian,L.K., Tsai,J., et al.

Abstract
Background: Although several studies have identified risk factors for suicidal behaviors in general samples of Veterans, fewer studies have examined protective factors, particularly in high-risk samples. To address this gap, we examined protective correlates of suicidal ideation (SI) and suicide attempts (SA) in a sample of Veterans with histories of posttraumatic stress disorder (PTSD) and/or major depressive disorder (MDD). Method: Data were analyzed from a nationally representative sample of 3157 U.S. Veterans who completed the first wave of a web-based survey as part of the National Health and Resilience in Veterans Study (NHRVS). Of this sample, 577 Veterans met criteria for history of PTSD, MDD or both. Results: Multivariable logistic regression analyses were used to examine relationships between protective factors (curiosity, resilience, purpose in life, dispositional gratitude, optimism, and community integration) and suicidal behaviors (SI and SA). The prevalence of any SI during the previous two weeks was 29.4% and the prevalence of lifetime SA was 28.0%. After adjusting for relevant sociodemographic and military characteristics, greater purpose in life, curiosity, and optimism were negatively associated with SI. None of the protective correlates were associated with SA. Limitations: Given the cross-sectional nature of this study, conclusions about causality cannot be made. The assessment of suicidality also was limited to three self-report items. Conclusion: Results provide a characterization of protective factors for suicidality and may help inform prevention and treatment approaches designed to mitigate suicide risk among high-risk military Veterans.
Provider perspectives on choosing prolonged exposure of cognitive processing therapy for PTSD: A national investigation of VA residential treatment providers

Source
Practice Innovations 2019 ( )

Author(s)
Simiola, V., Ellis, A.E., et al.

Abstract
As part of a longitudinal mixed-methods investigation on implementation of 2 evidence-based psychotherapies (EBPs) for Posttraumatic Stress Disorder, 164 mental health providers from 38 Department of Veterans Affairs (VA) residential treatment programs across the United States were asked questions about their decision making for using Prolonged Exposure and Cognitive Processing Therapy. Many providers viewed both EBPs as equally efficacious and encouraged veterans to decide for themselves which treatment they wished to engage in. Some providers said that it was hard to know which EBP would be the most effective for a given patient, and that occasionally they started work with a veteran thinking that a particular EBP would work and were surprised when the veteran did not receive the full potential benefit of the intervention. Other providers noted that their decision making regarding which EBP to use depended on the type and nature of the veterans’ index trauma, memory of the trauma, and traumatic stress symptoms (e.g., fear vs. guilt). Additional factors that impacted the choice of EBP included whether the patient already had one of the treatments before or if a provider deemed one as more compatible with their previous training. Implications for clinical practice as well as the design and improvement of training and implementation efforts are discussed. (PsycINFO Database Record (c) 2019 APA, all rights reserved); Clinical Impact Statement: Clinical Impact Statement This article provides information regarding how VA residential treatment providers choose between two EBPs, Prolonged Exposure and Cognitive Processing Therapy, for veterans presenting with PTSD, and may be helpful to others who are interested in using these treatments.

2019-122 0180


Source
Military Medical Research 2019 6 (1) 8-8

Author(s)
Cameron, K.L., Sturdivant, R.X., et al.

Abstract
Background: The impact of combat operations in Iraq and Afghanistan on the incidence of post-traumatic stress disorder (PTSD) in military service members has been poorly quantified. The purpose of this study was to examine trends in the incidence rate of physician-diagnosed PTSD in active-duty military personnel between 1999 and 2008.; Methods: We conducted a retrospective cohort study utilizing data extracted from the Defense Medical Surveillance System to identify incident cases of PTSD within the study population. The incidence rate of physician-diagnosed PTSD was the primary outcome of interest. Multivariable Poisson regression was used to analyze the data.; Results: The overall incidence rate of PTSD among all active-duty US military personnel was 3.84 (95% CI: 3.81, 3.87)
cases per 1000 person-years. The adjusted average annual percentage increase in the incidence rate of PTSD prior to the initiation of Operation Iraqi Freedom (OIF) was a modest 5.02% (95% CI: 1.85, 8.29%). Following the initiation of OIF, the average annual percentage increase in the rate of PTSD was 43.03% (95% CI: 40.55, 45.56%). Compared to the baseline period between 1999 and 2002, the incidence rate of PTSD in 2008 was nearly 7 times higher (RR = 6.85, 95% CI: 6.49, 7.24). Significant increases in the incidence rate of PTSD were observed following the initiation of OIF regardless of sex, age, race, marital status, military rank, or branch of military service. Notably, the rate of PTSD among females was 6-7 times higher prior to OIF, but there was no difference by gender by 2008.; Conclusions: Overall, these data quantify the significant increase in the incidence rate of PTSD following the initiation of combat operations in Iraq and Afghanistan within the active-duty military population during the study period.

See also

Characteristics of younger women Veterans with service connected disabilities. Under Veterans Health & Welfare.


Does deployment-related military sexual assault interact with combat exposure to predict posttraumatic stress disorder in female veterans? Under Sexual Trauma.

The efficacy of 90-minute versus 60-minute sessions of prolonged exposure for posttraumatic stress disorder: Design of a randomized controlled trial in active duty military personnel. Under Psychiatry.

Experiential avoidance as a mediator of the association between posttraumatic stress disorder symptoms and social support: A longitudinal analysis. Under Veterans Health & Welfare.

Hypersexual Behavior as a Symptom of PTSD: Using Cognitive Processing Therapy in a Veteran with Military Sexual Trauma-Related PTSD. Under Sexual Trauma.


OEF/OIF/OND Veterans Seeking PTSD Treatment: Perceptions of Partner Involvement in Trauma-Focused Treatment. Under Veterans Health & Welfare.


Sticking it out in trauma-focused treatment for PTSD: It takes a village. Under Veterans’ Health & Welfare.

Stress inoculation training outcomes among veterans with PTSD and TBI. Under Psychology.

Functional concerns and treatment priorities among veterans receiving VHA Primary Care Behavioral Health services

Source
Families, Systems, & Health 2019 37 (1) 68-73

Abstract
Introduction: The Primary Care–Mental Health Integration program is a component of the Veterans Health Administration’s patient-centered medical home, which emphasizes comprehensive, patient-centered care. One model of primary care–mental health integration, known as Primary Care Behavioral Health (PCBH), positions trained behavioral health providers as members of the primary care team. Whereas patient perspectives are essential to effective patient-centered care, little empirical information exists regarding patients’ goals and priorities for addressing their biopsychosocial concerns in PCBH. Method: A regional mail survey of Veterans Health Administration patients was used. We collected data from 281 veterans (27% response rate) who received PCBH services in a northeastern region. Results: Respondents identified difficulty with sleep (80%), low energy/amotivation (78%), and managing stress (72%) as the most prevalent individual concerns, although the majority endorsed concerns in multiple domains of functioning. Overwhelmingly, patients who endorsed any biopsychosocial problem area reported that they did (53–93%) or would like to (56–81%) address that concern with a behavioral health provider. Respondents most frequently identified anger as a top priority for future care, followed by stress management, energy/motivation, and sleep disturbance. Whereas sample means signaled neutral or better quality of life in most individual domains, total Quality of Life Inventory scores suggested very low (32%) to average (30%) overall quality-of-life ratings for most participants. Discussion: In addition to symptom-focused PCBH assessments, providers should gather biopsychosocial data to identify and monitor functional and quality-of-life concerns and evaluate patient preferences in addressing these concerns over the course of clinical care.


Source
Translational Behavioral Medicine 2019 9 (2) 266-273

Abstract
Integrated primary care services have grown in popularity in recent years and demonstrated significant benefits to the patient experience, patient health, and health
care operations. However, broader systems-level factors for health care organizations, such as utilization, access, and cost, have been understudied. The current study reviews the results of quality improvement project conducted by the U.S. Air Force, which has practiced integrated primary care behavioral health for over 20 years. This study focuses on exploring how shifting the access point for behavioral from specialty mental health clinics to primary care, along with the use of technicians in patient care, can improve a range of health outcomes. Retrospective data analysis was conducted on an internal Air Force quality improvement project implemented at three military treatment facilities from October 2014 to September 2015. Positive preliminary support for these innovations was seen in the form of expanded patient populations, decreased time to first appointment, increased patient encounters, and decreased purchased community care compared with non-participating sites. Incorporation of behavioral health technicians further increased number of patient encounters while maintaining high levels of patient satisfaction across diverse clinical settings; in fact, patients preferred appointments with both technicians and behavioral health providers, compared with appointments with behavioral health providers only. These findings encourage further systematic review of systems-level factors in primary care behavioral health and adoption of the use of provider extenders in primary care behavioral health clinics.

2019-122 0183

Primary Care in American Samoa: How Nurse Practitioners Created a Bridge Across an Ocean

Source
Military Medicine 2019 184 (3) 72-77
Author(s)

Abstract
The article discusses the potential clinical teaching opportunities which can help the next generation of the military primary care providers in American Samoa to serve effectively in remote areas. Topics mention including the schools of nursing, Doctor of Nursing Practice (DNP) program and category of Advanced Practice Nursing.

2019-122 0184

Problem recognition and treatment beliefs relate to mental health utilization among veteran primary care patients

Source
Psychological Services 2019 ( )
Author(s)
Johnson,E.M. and Possemato,K.

Abstract
Mental health concerns are prevalent among primary care patients, but many do not utilize services for these conditions. This study aims to conduct a comprehensive assessment of barriers and facilitators to mental health care utilization among veteran primary care patients with common mental health concerns. We
hypothesized that beliefs and knowledge about mental illness and mental health care would be more strongly associated with recent mental health care utilization than stigma, help-seeking behaviors, or logistical barriers. Veterans (n = 116) enrolled in primary care with current symptoms of depression (58%), posttraumatic stress disorder (37%), and/or hazardous alcohol use (50%) who either recently used mental health services (47%) or had no recent mental health treatment utilization (53%) completed a telephone-based screening, medical records review, and mail survey of 10 measures of barriers and facilitators to mental health treatment utilization. Recognition of problems as a cause for concern, odds ratio = 5.95, 95% confidence interval 2.36, 15.01], and beliefs about psychotherapy, odds ratio = 2.53, 95% confidence interval 1.39, 4.60], emerged as stronger correlates of recent mental health care utilization than stigma, self-efficacy, and external barriers to treatment. Results suggest the use of specific theories, measures, and interventions that focus on patient recognition of problems and beliefs about treatment over those that focus on other treatment barriers and facilitators.

See also

**Painful Scalp Nodules on an Active-Duty Sailor.** Under Dermatology.
Aborted transition between two dichotomous cultures as seen through dialogical self-theory

Source
Journal of Constructivist Psychology 2019 ( )

Author(s)
Grimell, J.

Abstract
The purpose of this article is to further advance the understanding of self-identity work amid transition from military to civilian life, with emphasis on the complexities between and within the military and civilian cultural I-positions of a dialogical self. An analysis of a longitudinal case study of an aborted transition leads to the hypothesis that a culturally dominant military I-position that sustains a cultural dichotomy may hinder dialogical advancement toward reintegration into civilian life. The insights from this article can be used to better understand self-identity issues amid transition and may also have relevance for non-military persons who are exposed to cultural transitions.

Accelerating Psychological Health Research Findings into Clinical Practice Through the Practice-Based Implementation Network Model

Source
Military Medicine 2019 184 ( ) 409-417

Author(s)
Creason, A.H., Ruscio, A.C., et al.

Abstract
The benefits of new clinical research developments often take years to reach patients. As such, the Departments of Defense (DoD) and Veterans Affairs built the Practice-Based Implementation (PBI) Network as an infrastructure to facilitate more rapid translation of psychological health (PH) research into clinical practice changes to improve the quality of care for military and Veteran patients. To regularly identify research findings appropriate for enterprise implementation, the DoD PBI Network developed a model aligned with the Consolidated Framework for Implementation Research to select and pilot PH practice change. Within this model, practice change pilots were selected following a survey of field clinicians, a public call for proposals, annual meeting of implementation science subject matter experts, and final pilot selection by PH strategic leaders. These components facilitated commitment and engagement from Military Health System PH leadership, as well as clinicians, leading to increased stakeholder buy-in and efficiency with selecting and piloting PH practice change. The DoD PBI Network model has been refined for future PH research translation pilots. It serves as a first operational model for annual implementation of...
Adapting CBT to treat depression in armed forces veterans: Qualitative study

Source
Behavioural and Cognitive Psychotherapy 2019 ( )

Author(s)
Farrand, P., Mullan, E., et al.

Abstract
Background: The principles of the Armed Forces Covenant state that Armed Forces Veterans should be at no disadvantage resulting from their service compared with a general adult population. However, despite being at increased risk of experiencing common mental health difficulties, evidence indicates that 82% of Armed Forces Veterans receive no treatment, compared with 63% of the general adult population.

Aim: To gain a better appreciation of factors that inform the type of adaptations to cognitive behavioural therapy (CBT) interventions for depression and mainstream service promotion materials to enhance acceptability for Armed Forces Veterans.

Method: This is a qualitative study employing a focus group of 12 participants to examine the main impacts of depression on Armed Forces Veterans alongside attitudes towards terminology and visual imagery. Thematic analysis was used to identify themes and sub-themes with rigour established through two researchers independently developing thematic maps to inform a final agreed thematic map.

Results: A behavioural activation intervention supporting re-engagement with activities to overcome depression had good levels of acceptability when adapted to reflect an Armed Forces culture. Preferences regarding terminology commonly used within CBT adapted for Armed Forces Veterans were identified. Concerns were expressed with respect to using imagery that emphasized physical rather than mental health difficulties.

Conclusions: There is the need to consider the Armed Forces community as a specific institutional culture when developing CBT approaches with potential to enhance engagement, completion and recovery rates. Results have potential to inform the practice of CBT with Armed Forces Veterans and future research.

Adopting a multidisciplinary approach to maximising performance during military visual search tasks

Source
Journal of the Royal Army Medical Corps 2019 165 (2) 120-123

Author(s)
Cornes, K.R., Boardman, M., et al.

Abstract
During the conflicts in Afghanistan and Iraq, many UK military personnel were killed or injured by improvised explosive devices (IEDs). Insurgents sought to develop new
ways of concealing and detonating IEDs, and UK forces invested significantly in finding increasingly effective methods of detecting and avoiding them. Between 2010 and 2014 the UK’s Defence Science and Technology Laboratory’s Human and Social Sciences Group (HSSG) was asked to investigate the factors that might affect the performance of specialist search teams in the identification of IEDs. They sought to ascertain ways to improve effectiveness and maximise safety through training, human factors advice on equipment design, and recommendations on changes to tactics techniques and procedures. This paper provides a short summary of some of the research conducted that underpinned the advice and recommendations that were provided. The research conducted by HSSG, in collaboration with industry and academia, helped ensure that search teams had the best possible training, advice and equipment.

2019-122 0189

The association of disordered eating and sexual health with relationship satisfaction in female service members/veterans

Source
Journal of Family Psychology 2019 33 (2) 176-182

Author(s)

Abstract
Low relationship satisfaction is associated with mental health disorders in service members/veterans (SM/Vs), yet eating disordered behavior (EDB) and sexual function and satisfaction in SM/Vs are understudied. Those with EDB may experience bodily discomfort that may be associated with low relationship satisfaction because of avoidance of physical contact and intimacy, suggesting that sexual satisfaction and function may modify the association of EDB and relationship satisfaction. As the majority of female SM/Vs are partnered, it is imperative to study the association of sexual function and satisfaction with EDB and relationship satisfaction. Partnered female SM/Vs (N = 479) completed an online survey assessing demographic characteristics (e.g., relationship duration, deployment history), EDB, sexual satisfaction and function, and relationship satisfaction measures. Thirty-three percent, 20%, and 58% of the sample reported scores consistent with relational distress, probable eating disorder, and sexual dysfunction, respectively. After adjusting for covariates, EBD was negatively associated with relationship satisfaction with a small-to-medium effect size. Sexual satisfaction and function had a significant indirect effect on the association of EDB and relationship satisfaction, suggesting that sexual satisfaction and function accounted for some of the variance between these 2 variables. Screening for EDB, sexual satisfaction, and sexual function among partnered female SM/Vs may provide critical insight into mechanisms of relational distress.
Close quarters: Counseling aboard the Training Ship Golden Bear

Source
Psychological Services 2019 ( )

Author(s)
Currie,E.E. and Wallace,I.J.

Abstract
The mental health practice setting of the maritime training cruise provides an uncommon combination of opportunities and challenges from college and maritime military counseling. This article addresses the opportunities available in a clinical role that allows the clinician to be an active member of the community they serve and promote mental health among the next generation of maritime workers. The challenges addressed include promoting mental health in a setting in which emotional expression and mental health treatment are stigmatized, accompanied by disincentives for help-seeking behavior, as well as the potential risks of multiple relationships and limited confidentiality.

Conceptualizing Acceptance in Post deployment Soldiers

Source
Journal of Psychopathology & Behavioral Assessment 2019 41 (1) 112-122

Author(s)
Johnson,D.P., Salters-Pedneault,K., et al.

Abstract
While research on the role of acceptance in psychological well-being and treatment of posttraumatic distress is promising, significant challenges remain in developing a workable conceptualization of acceptance. The current study contributes to a more measurable and functional conceptualization of acceptance in post deployment soldiers using a latent variable approach. Participants were a large sample of active duty service members who had recently returned from deployment (n = 1, 524). Exploratory factor analysis identified substantial common variance among several facets of acceptance-related measures, including nonjudgmental awareness, acceptance of internal experiences, and not using worry and experiential avoidance to control internal experiences. These results, confirmed with CFA, suggest that acceptance in post deployment adjustment may be best conceptualized as a combination of awareness, nonjudgment of experience, and the tendency to refrain from using strategies such as worry to avoid feelings and emotions. Additionally, results of structural regression indicated that the latent variable of acceptance was negatively associated with measures of post deployment maladjustment. These results are discussed in the context of current conceptualizations of acceptance and related constructs, and the burgeoning literature supporting the development and implementation of acceptance-based interventions for potentially traumatized populations.
Daily strengths use and employee well-being: The moderating role of personality

Source
Journal of Occupational and Organizational Psychology 2019 92 (1) 144-168
Author(s)
Bakker, A.B., Hetland, J., et al.

Abstract
This study combines strengths use and personality theories to develop a multilevel model of employee well-being. We hypothesized that individuals would experience higher well-being on the days they use their strengths. In addition, we predicted that Neuroticism, Extraversion, and their blend would bolster this main effect. A total of 87 Norwegian naval cadets filled out a general survey and then completed a diary questionnaire for 30 consecutive days (total N = 2610). Results of multilevel modelling showed that daily strengths use was positively related to daily positive affect and work engagement, after controlling for previous levels of the dependent variables. In addition, we found evidence for the predicted three-way interaction effects. These findings contribute to character strengths and personality theories by showing how blends of personality traits modify the effects of daily strengths use behaviours. Practitioner points: 1. Employees who use their strengths at work build their own positive affect and work engagement. 2. Personality influences how successful employees are in using strengths; strengths use works best for those high in Extraversion and low in Neuroticism. 3. Organizations and managers should facilitate employee strengths use, because when employees use their strong points, they are more dedicated and energized during work.

Defence Clinical Psychology Service: an overview of clinical psychology in the UK Ministry of Defence

Source
Journal of the Royal Army Medical Corps 2019 165 (2) 71-73
Author(s)
Norris, R. and McCauley, M.

Abstract
The Defence Clinical Psychology Service (DCPS) is the professional clinical psychology service and community of clinical psychology practice within UK Ministry of Defence (MoD). The DCPS provides professional clinical care, consultation and research in support of the UK Armed Forces. Regulated by the Health and Care Professions Council, DCPS psychologists are employed as Crown (Civil) Servants within the MoD. Serving as assets of Joint Forces Command within the Defence Primary Healthcare organisation, the professional leadership for such personnel is provided by the office of the Defence Consultant Advisor (DCA) for clinical psychology. The following paper offers an overview of the history, service context, training and mission of the DCPS. Areas for future development are also considered.
Dispatches from the editor: military psychology, a force multiplier.

Source
Journal of the Royal Army Medical Corps 2019 165 (2) 63-64
Author(s)
McCauley, M., and Breeze, J.,

Abstract
There is a fundamental and essential association between the military and the profession of psychology. The understanding and promotion of human behaviour is a core priority within the study, use and promulgation of armed force. Military psychology reflects that application of psychological science towards the optimisation of personnel and systems. The utilisation of this profession is intrinsic to the through-life and deployment cycle of all tri-service personnel, including selection and recruitment, training and resiliency, well-being and healthcare, fitness and suitability for service determinations, human factors effectiveness, leadership and command success, and the generation of scientific data across all such domains. The Journal of the Royal Army Medical Corps (JRAMC) promotes both current expertise and the emerging advances within military healthcare. Few specialties have had as much relevance, impact and influence as military psychology, and this special issue highlights the history, development and the current scope of the discipline, along with its enduring contributions to the UK Armed Forces.

2019-122 0195

Emotion-regulation knowledge predicts perceived stress early but not later in soldiers’ careers

Source
Journal of Workplace Behavioral Health 2019 ( )
Author(s)
Schall, M. and Schütz, A.

Abstract
Although emotion-regulation competencies have been found to help people overcome negative experiences, such benefits may depend on the context. In the present study, the authors examined whether knowledge about effective emotion regulation would be associated with lower perceived stress in a population with extremely high job demands. The authors studied 492 German soldiers. Results showed that soldiers with higher emotion-regulation knowledge reported lower levels of perceived stress, which was partly due to a greater tendency to use effective emotion-regulation strategies such as reappraisal instead of suppression. When the authors distinguished career stages, however, the authors found that emotion-regulation knowledge was a significant predictor of perceived stress for soldiers in early but not in later career stages. The authors interpret this finding in terms of the context-dependency of emotion-regulation effectiveness. Especially young soldiers can benefit from higher emotion-regulation knowledge possibly due to the fact that they have fewer job resources overall than their senior colleagues.

2019-122 0196
Factors associated with the use of anxiolytic drugs among military firefighters

Source
Revista Brasileira De Epidemiologia = Brazilian Journal of Epidemiology 2019 22

Author(s)

Abstract
Introduction: Use of anxiolytic drugs is an option for treating psychological symptoms. However, even if their use is controlled, there are risks of dependence, intoxication and cognitive alterations. Uncontrolled use among workers worsens these problems.; Objectives: Identify the prevalence of anxiolytic use and to know the factors associated with consumption in military firefighters.; Method: Cross-sectional survey of 711 firefighters from Belo Horizonte, Minas Gerais, Brazil, was conducted through self-reporting. Multinomial logistic regression was used to investigate associations between sociodemographic characteristics, living, working and health conditions and anxiolytic consumption in a controlled or uncontrolled manner.; Results: Prevalence of anxiolytic use was 9.9%. For 7.5% of firefighters the consumption occurred without indication and/or specialized therapeutic control. Controlled use was only associated with symptoms compatible with Common Mental Disorder (OR = 23.6; 95%CI 6.54 - 85.11). Uncontrolled use was associated with length of service (OR = 2.57; 95%CI 1.03 - 6.40), smoking (OR = 3.22; 95%CI 1.50 - 6.91) and symptomatology compatible with Common Mental Disorder (OR = 4.02; 95%CI 2.17 - 7.45).; Conclusion: The high prevalence of consumption indicates alert to occupational health programs.

2019-122 0197  ✔ Editor’s Choice

Foreward to the special issue of the Journal of the Royal Army Medical Corps on military psychology from the Surgeon General.

Source
Journal of the Royal Army Medical Corps 2019 165 (2) 65-65

Author(s)
Bricknell,M.,.

Abstract
It is a pleasure to provide a foreward to this Special Edition of the Journal of the Royal Army Medical Corps on the contribution of psychology to mental health in the UK Armed Forces. This publication reflects the importance placed on mental health across Defence and the outstanding contribution that our psychologists, both uniformed and civilian, bring to the readiness and capabilities of the British military. Throughout recent campaigns in Iraq, Afghanistan and beyond, our psychologists have been a critical profession within our multidisciplinary mental health team. They have made significant contributions in addressing the mental healthcare needs of service personnel, while enhancing and optimising operational fitness and wellbeing. This special edition acknowledges this contribution and also the role of the subspecialty groups within the psychology profession.

2019-122 0198  ✔ Editor’s Choice

DefMed March & April 2019
From the Royal Navy to the Defence Clinical Psychology Service: personal reflections of a ‘Jenny Wren' who became a clinical psychologist.

Source
Journal of the Royal Army Medical Corps 2019 165 (2) 137-138
Author(s)
Hunte,D.,

Abstract
This seminal publication of the JRMC illustrates the significant role that psychologists hold across Britain’s military. While some of these psychologists serve as uniformed assets, many operate as crown servants within the UK’s Ministry of Defence (MoD). Importantly, a significant number of these crown servants have prior uniformed service in a branch of Her Majesty’s (HM) Armed Forces (AF). I wish to offer some insight to the values of combining experience as a uniformed service member with duties as a crown servant in the UK AF’s Defence Clinical Psychology Service (DCPS).

Further evidence for score reliability and validity of the anxiety depression distress inventory-27 scale

Source
Military Psychology 2019 ( )
Author(s)
Fang,Q., McNaughton-Cassill,M., et al.

Abstract
We conducted several analyses with data from undergraduate students (N = 309) and active duty US Air Force Security Forces personnel (N = 273) to examine the utility of scores on the Anxiety Depression Distress Inventory-27 (ADDI-27). The three specific dimensions of the ADDI-27 include Positive Affect, Somatic Anxiety, and General Distress, each composed of nine relevant and representative items. Internal consistency reliability estimates for scores on the scales were strong across the study groups (coefficient-α values ≥ .80). Results of analyses using differential item functioning showed that the groups interpreted the contents of the ADDI-27 items similarly. At the scale-level analyses, the undergraduate student sample reported higher somatic and general distress symptoms compared to the Air Force sample. Evidence for concurrent validity was adequate. Examples of the concurrent measures were the meaning in life, mental health functioning, and sources of social support self-report instruments. Taken together, results support the use of the ADDI-27 for assessing clusters of somatic anxiety, depression, and general distress in the current study samples.
Here, there and everywhere: psychologists and the training of British Army officers at the Royal Military Academy Sandhurst.

Source
Journal of the Royal Army Medical Corps 2019 165 (2) 109-112

Author(s)
Rennie, A.M.,.

Abstract
The Department of Communication and Applied Behavioural Science is one of the three departments in the academic faculty at the Royal Military Academy Sandhurst. The aim of the Department is to equip officer cadets with the skills, knowledge and personal qualities in order for them to develop their own potential, as both individuals and leaders in the British Army. The members of the Department have a range of backgrounds, with most having served in various capacities across UK Defence, both in uniformed and/or civilian crown servant contexts. Several members of the faculty are qualified psychologists, while others have related academic and professional backgrounds. The academic and applied discipline of psychology is the fundamental thread that runs through the various courses and projects delivered by the Department. This paper provides a brief overview of the activities undertaken by the Department, with a specific focus on the psychology components of the academic and applied activities. Although mainly serving in academic teaching roles, this paper illustrates the work of the psychologists outside the classroom, such as via field exercises and deployments overseas. It also touches on the importance of the outreach undertaken by the psychologists in the Department, which supports their ongoing research.

History of military psychology.

Source
Journal of the Royal Army Medical Corps 2019 165 (2) 68-70

Author(s)
Hughes, J.H., and McCauley, M.,.

Abstract
Military psychology is a specialist discipline within applied psychology. It entails the application of psychological science to military operations, systems and personnel. The specialty was formally founded during World War I in the UK and the USA, and it was integral to many early concepts and interventions for psychological and neuropsychological trauma. It also established a fundamental basis for the psychological assessment and selection of military personnel. During and after World War II, military psychology continued to make significant contributions to aviation psychology, cognitive testing, rehabilitation psychology and many models of psychotherapy. Military psychology now consists of several subspecialties, including clinical, research and occupational psychology, with the latter often referred to in the USA as industrial/organisational psychology. This article will provide an overview of the origins, history and current composition of military psychology in the UK, with select international illustrations also being offered.
Intimate partner cohesion and military unit cohesion: Different types of interpersonal relationships each uniquely predict soldier wellbeing

Source
Military Psychology 2019 ( )

Author(s)
Layman,P.G., Sanford,K., et al.

Abstract
Although research on military populations has found that measures of personal wellbeing are correlated with both intimate partner cohesion and military unit cohesion, it is not clear how these correlations should be interpreted. Based on Relationship Regulation Theory, it was expected that each type of interpersonal relationship would have independent effects, that each would uniquely predict outcomes, and that effects would remain significant after controlling for person-level traits and experiences, such as trait resilience and exposure to combat. A sample of 273 active-duty military personnel completed self-report measures of cohesion in two types of interpersonal relationships (intimate relationships and military unit relationships), two control variables (trait resilience and combat exposure), and three outcome variables (well-being, negative emotionality, and trauma-related stress). Results indicated that cohesion in the two types of relationships were minimally related to each other, but both correlated with outcome variables. Effects for each type of interpersonal relationship remained significant after controlling for the other type and controlling for trait resilience and combat exposure. The results suggest that the effects of interpersonal cohesion are best understood as reflecting experiences in specific types of relationships rather than general characteristics of people in those relationships.

Intimate partner violence among postsecondary students with military experience

Source
Traumatology 2019 25 (1) 58-65

Author(s)

Abstract
The purpose of this study was to explore intimate partner violence (IPV) among student service members and veterans within postsecondary educational settings. Secondary data for the present cross-sectional study were retrieved from the 2011–2014 National College Health Assessment on a nationally representative sample of college students (n = 114,816). Fisher’s exact test (Upton, 1992) was used to determine differences in 3 types of IPV (emotional abuse, physical abuse, and sexual violence) between students with and without military experience (ME). Logistic regression was conducted to determine (a) risk factors for IPV and (b) associations between IPV and certain mental, physical, and behavioral health outcomes among students with ME. Although—in terms of descriptive statistics—self-reported emotional abuse (10.700% vs. 9.000%) and physical abuse (23.200% vs. 20.500%) were higher among students with ME, self-reported sexual violence was more prevalent among students with no ME (8.300% vs. 10.200%). Risk factors for IPV among students with ME included identifying as transgender, identifying as heterosexual, being a graduate student, identifying as an ‘other’ race, and being
married. The odds of self-reported mental and physical health problems, as well as unhealthy behaviors (such as binge drinking and suicide attempts), were higher among students with ME who had experienced IPV. The emotional, behavioral, and psychological risks evident from our study substantiate the critical need for higher education professionals to place more emphasis on IPV and its consequences on students’ success.

2019-122 0204

Is it in your face? Exploring the effects of sexual dimorphism on perception of leadership potential

Source
Military Psychology (American Psychological Association) 2019 31 (2) 107-116
Author(s)

Abstract
Perceptions of a leader in a work environment is important from 2 perspectives: the leader themselves and more importantly the external observer. But what information does the observer use when making these judgments of leadership potential? Many studies on role congruity have demonstrated that gender stereotyping and perceived leadership ability is strongly tied to gender role incongruity. The role of facial appearance has been associated with leadership status and potential and becomes essentially relevant in military settings. Thus, the manner in which an individual's face is perceived and evaluated may impact perceptions of his or her leadership ability and subsequent success. The present study seeks to extend research on how sex and gender characteristics of an individual's face may possibly influence the perception of leadership abilities in a military service academy. Findings indicated that participants preferred individuals with gender congruent faces, which may reflect a preference for physical prowess and abilities.

2019-122 0205  Editor’s Choice

Leadership in 21st century military healthcare: what did clinical psychologists ever do for us?

Source
Journal of the Royal Army Medical Corps 2019 165 (2) 74-79
Author(s)
Norris,R., and Renwick,S.,

Abstract
Psychology is integral to the concepts and practice of leadership. Leadership models often have their roots in psychological paradigms, making it intrinsically easy for psychologists to grasp and apply them alongside clinical models. Psychologists’ ‘second-order’ skills have been used to good effect in the changing landscape of military mental healthcare: modelling adaptive responses to change, understanding the non-conscious aspects of relationships in hierarchical organisations, working with systems, the ability to diagnose situational requirements and act accordingly, drawing on a range of psychological theories and leadership styles. The clinical psychologist as a professional who can help others ‘reframe’ a situation or experience is key to their leadership role within healthcare settings, ‘enabling others to achieve shared
purpose in the face of uncertainty’. The contribution that clinical psychology has made to leadership in Defence over the past 20 years will be illustrated by personal accounts from ‘experts by experience’.

2019-122 0206  ✔ Editor’s Choice

Military psychological trauma and therapy: a review of EMDR treatment and supervision in the UK Ministry of Defence.

Source
Journal of the Royal Army Medical Corps 2019 165 (2) 90-93

Author(s)
Frappell-Cooke, W., and McCauley, M.,

Abstract
Psychological injury has been associated with military service, and this can result in a variety of mental health symptoms and disorders. A range of barriers to help-seeking have been identified in the military and mental health services have sought to address such factors through effective and efficient care and consultation. The use of eye movement desensitisation and reprocessing forms part of a repertoire of trauma-focused therapies within the UK’s Armed Forces. This article will outline the application of this approach within the British military, along with the role of specialist clinical supervision in treating those affected by operational trauma.

2019-122 0207  ✔ Editor’s Choice

Military psychologists and cultural competence: exploring implications for the manifestation and treatment of psychological trauma in the British armed forces.

Source
Journal of the Royal Army Medical Corps 2019 (pagination) ate of Pubaton: 17 Mar 2019

Author(s)
SturgeonClegg I. and McCauley, M.,

Abstract
This paper considers the manifestation and treatment of psychological trauma in the military. The article describes how military psychologists conceptualise psychological trauma within the culture of the Armed Forces (AF), which is reflected in the process of acquiring what has been referred to as cultural competency. Psychologists in this context acquire an understanding of the manner in which the psychological and organisational systems and culture of the military affect the presentation of psychological trauma, including post-traumatic stress disorder (PTSD). The paper outlines core psychological features of military life, including some of the ways in which the AF functions effectively as an adaptable fighting force. This highlights, for example, the potential for stigma within and between military personnel who experience mental health difficulties. The article proceeds to examine aspects of help-seeking in military mental healthcare, how symptoms can present at different stages in a deployment process, and the consequences that such problems can cause for military conduct and performance. Psychological care in the military is structured within an occupational mental health ethos, in which psychologists fulfil a range of clinical, organisational and leadership roles. These dynamics are explored
Military psychologists and cultural competence: exploring implications for the manifestation and treatment of psychological trauma in the British armed forces.

Source
Journal of the Royal Army Medical Corps 2019 165 (2) 80-86

Author(s)
Sturgeon-Clegg, I., and McCauley, N.,

Abstract
This paper considers the manifestation and treatment of psychological trauma in the military. The article describes how military psychologists conceptualise psychological trauma within the culture of the Armed Forces (AF), which is reflected in the process of acquiring what has been referred to as cultural competency. Psychologists in this context acquire an understanding of the manner in which the psychological and organisational systems and culture of the military affect the presentation of psychological trauma, including post-traumatic stress disorder (PTSD). The paper outlines core psychological features of military life, including some of the ways in which the AF functions effectively as an adaptable fighting force. This highlights, for example, the potential for stigma within and between military personnel who experience mental health difficulties. The article proceeds to examine aspects of help-seeking in military mental healthcare, how symptoms can present at different stages in a deployment process, and the consequences that such problems can cause for military conduct and performance. Psychological care in the military is structured within an occupational mental health ethos, in which psychologists fulfil a range of clinical, organisational and leadership roles. These dynamics are explored with examples of care pathways and clarity on evidence-based interventions for trauma and PTSD in those experiencing military-related psychological injuries. Two vignettes are then offered to illustrate how some of these interventions can be used psychotherapeutically in addressing symptoms pertaining to hyperarousal, hypervigilance, guilt and shame.
Mindfulness training offered in-person and in a virtual world—weekly self-reports of stress, energy, pain, and sleepiness among US military active duty and veteran personnel

Source
Mindfulness 2019 ( )

Author(s)
Rice, V.J., Liu, B., et al.

Abstract
Objectives: The purpose of this paper is to present research findings on the effects of mindfulness meditation training on four weekly self-report measures among three groups: those receiving training delivered in-person (M-IP) or in a virtual world (M-VW), and a waitlist control group (WLC).

Methods: Participants (n = 191) were US military active duty service members and veterans. The M-IP and M-VW groups reported their stress, energy, pain, and sleepiness before/after each mindfulness training class, while the control group answered the same questions once a week for the 8-week duration of training.

Results: The M-IP and M-VW groups showed greater reductions in stress over the 8 weeks than the control group (1.70, 0.80, and 0.30 points, respectively; p = .028). Meaningful improvements (> 20%) pre-to post-training were seen for stress, pain, and sleepiness in the M-IP group, for pain only in the VW group, and for none in the WLC group. Those experiencing high levels of stress or pain before training experienced reductions in their stress or pain post mindfulness training, while those with lower initial levels did not (p < .001). Within class improvements were seen for both intervention groups; however, improvements were greater for those attending M-IP for energy, pain, and sleepiness (p < .034).

Conclusions: In-person mindfulness training yielded statistically and meaningfully superior results; however, both IP and VW delivery methods were effective in reducing stress among healthy US military active duty and veteran participants. Mindfulness was particularly helpful for those experiencing initially high levels of stress or pain.

Neuropsychology and clinical health psychology in the UK Ministry of Defence.

Source
Journal of the Royal Army Medical Corps 2019 165 (2) 87-89

Author(s)
Sturgeon-Clegg, I., and Hurn, H.,

Abstract
Neuropsychological testing has been used in a wide range of applications across military settings, including the selection of personnel to engage in covert operations, battlefield assessment and rehabilitation following blast exposure, traumatic brain injury, other neurological conditions and assessment of malingering. Over recent decades, military psychologists have helped to shape the advances in assessing and remediating the psychological sequela that is associated with operationally related neurological and other physical injuries. This paper will present an overview of some of the neuropsychological and related services within the UK Armed Forces, which are provided to service personnel with traumatic brain and other physical injuries.
Novel adaptations of mindfulness in the UK Armed Forces during peacetime.

Source
Journal of the Royal Army Medical Corps 2019 165 (2) 102-105
Author(s)
Bowen, C.,

Abstract
Mindfulness approaches to promoting resilience and mental fitness within the UK Armed Forces have very recently emerged against a backdrop of studies from abroad, leading to a plethora of initiatives. These studies have used biological and cognitive markers of sustained attention and the human stress response, before and after training, in the period prior to deployment and made assertions of effectiveness on this basis. Progress has similarly been made in applying versions of mindfulness meditation to veteran patient groups with several difficult-to-treat conditions, to combat high dropout from services when little patient choice is offered. In short, a case has been made for offering mindfulness interventions as a further treatment option in combination with other approaches to maximise engagement with mental health services. Meanwhile, within the mindfulness literature more and more focus has been placed on ways to improve treatment fidelity and enhance teacher competency, and investment in teacher training is seen as essential for successful outcomes in any controlled trial.

Occupational psychology in the UK Ministry of Defence.

Source
Journal of the Royal Army Medical Corps 2019 165 (2) 124-127
Author(s)
Harvey, J.,

Abstract
Psychologists first became prominent within the Armed Forces largely as a result of their contributions to military systems, operations and personnel during the First and Second World Wars. In the early years of the 20th century, as psychology was becoming a profession in its own right, its association with the military arose within the emerging concept of ‘shell shock’ during World War I and supporting selection activities in World War II. There are approximately 25 occupational psychologists currently employed within the Ministry of Defence (MoD), operating across all branches of the MoD, within the department of the Chief of Defence Personnel, the UK Defence Academy and a small number at the Defence Science and Technology Laboratory. The aim of this paper is to discuss the history and current application of occupational psychology within the UK MoD.
Preface to the special edition on military psychology.

Source
Journal of the Royal Army Medical Corps 2019 165 (2) 66-67
Author(s)
Yule,W.,

Abstract
As the Great War came to an end in November 1918, there was a growing interest in the psychological impact of war service on military personnel. Two medically qualified pioneers of British military psychology, Dr Charles Myers and Dr WHR Rivers, had already developed groundbreaking psychological approaches to assessing and treating service personnel affected by ‘shell shock’, commonly seen as a precursor to post-traumatic stress disorder (PTSD). These vanguard clinicians were also instrumental in founding the British Psychological Society, thus formalising the enduring link between the British military and the discipline of psychology. Over the past century, the roles played by psychologists in the military have developed and expanded enormously.

Preparing to serve as a uniformed clinical psychologist in the British Army: a personal reflection.

Source
Journal of the Royal Army Medical Corps 2019 165 (2) 136-136
Author(s)
Collins,R.N.,

Abstract
This special issue on military psychology offers an outstanding opportunity to communicate the breadth and depth of the discipline to anyone with an interest in military healthcare. It is with this in mind that I wish to offer some observations on my journey towards qualifying as a uniformed clinical psychologist in the British Army. I have always had great respect for the British Army and admired the heritage of the Royal Military Academy Sandhurst (RMAS). My personal connection to the military began when my brother, Sergeant Thomas Collins, joined the British Army in 2009. Learning about his experiences and researching the area, I developed an understanding of the sense of belonging that military life can engender and the wonderful opportunities that it can provide, such as international travel.
Psychology, risk, health and deployed military operations.

Source
Journal of the Royal Army Medical Corps 2019 165 (2) 116-119

Author(s)
Verrall,N.,

Abstract
This article will focus on a study by the UK Defence Science and Technology Laboratory (Dstl) which investigated the risk propensity and health behaviours of UK army personnel deployed to Iraq in 2007 as part of Op TELIC. The study addressed the concept of impulsive sensation seeking and how this interacted with health behaviours associated with alcohol, smoking, driving and sex at predeployment, during deployment and postdeployment, as well as perceptions of risk and psychological well-being. There is also a description of other deployment-related risk and health research and analysis undertaken by Dstl as part of a wider discussion on the nature of both risk and health on deployed operations.

Role of research psychology in defence and security.

Source
Journal of the Royal Army Medical Corps 2019 165 (2) 113-115

Author(s)
Butcher,F.,

Abstract
The following article provides an overview of the research psychology capabilities within MOD's Defence Science Technology Laboratory (Dstl). An explanation is provided of the role of Dstl psychologists and the way they work to deliver impacting applied scientific research to address 'real world' defence and security challenges. Three short case studies are provided to illustrate the range of work they delivered.

UK Armed Forces Continuous Attitude Survey: a short history and description of a key strategic information tool.

Source
Journal of the Royal Army Medical Corps 2019 165 (2) 133-135

Author(s)
Elliott-Mabey,N., and Davison,H.,

Abstract
The tri-Serviceman Armed Forces Continuous Attitude Survey, commonly known as AFCAS, was introduced in 2007 to coherently assess and monitor the attitudes of Regular Service personnel in key policy and management areas and is used by groups internal and external to the Ministry of Defence. It is a statistically valid and robust survey which is annually distributed to almost 28,000 regular serving personnel. AFCAS data have been used to inform the development and evaluation of a wide range of personnel policies, including remuneration, accommodation, flexible working, career management and training. AFCAS allows for the tracking of attitudes
over time, as well as the analysis of differences between respondent cohorts. AFCAS is well regarded as it is a one-stop shop survey for strategic personnel issues. This article describes the purpose, content, conduct and use of the survey to inform Armed Forces personnel policy.

2019-122 0218

Psychological Strategies During Military Training Are Linked to Resilience in US Navy Explosive Ordnance Disposal Operators

Source
Journal of Special Operations Medicine: A Peer Reviewed Journal for SOF Medical Professionals 2019 19 (1) 61-65

Author(s)
Taylor, M.K., Rolo, C., et al.

Abstract
Purpose: We describe the psychological strategies (PS) used by a specialized military population, US Navy explosive ordnance disposal (EOD), during training and military operations. We also aim to establish the relationship between PS and resilience.; Methods: The Test of Performance Strategies was adapted to the military environment and subsequently was administered to 58 EOD Operators in conjunction with the 10-item Connor- Davidson Resilience Scale. Differences between high- and low-resilience Operators for PS were evaluated with discriminant models.; Results: The PS of EOD Operators were comparable to those of Olympic athletes described in our prior study. The most frequently used strategies during training and military operations were goal setting and emotional control. Discriminant analysis indicated an overall difference between high- and low-resilience Operators with respect to the six training subscales (ρ < .05), with goal setting, emotional control, and attentional control contributing most to the discriminant function.; Conclusion: EOD Operators’ use of PS was comparable to that of elite athletes. We provide evidence that more-resilient EOD Operators differ from their less resilient counterparts in the strategies they use. These findings have implications for mental preparation strategies used during military training and operations.

2019-122 0219

The relationship between weight stigma, weight bias internalization, and physical health in military personnel with or at high-risk of overweight/obesity

Source
Body Image 2019 28 ( ) 25-33

Author(s)

Abstract
Perceived weight stigma is associated with adverse health indices, such as elevated cortisol, lipid/glucose dysregulation, and poorer self-rated health. This relationship may be particularly relevant for military personnel, given the cultural emphasis on fitness and weight/shape. Therefore, we investigated the relationship between weight stigma and physical health in 117 active duty personnel (66.7% male; 56.4% non-Hispanic White; age: 30.8 ± 7.4 years; BMI: 29.5 ± 2.5 kg/m2). Participants reported weight stigma (general and military-specific), weight bias internalization, and the
presence (≥1; n = 55) or absence (n = 62) of medical conditions. Logistic regressions were conducted examining the ability of weight stigma (general or military-specific) and weight bias internalization to predict the presence or absence of medical conditions. General weight stigma was not significantly associated with the presence of a medical condition (p > .05). However, individuals with military-specific weight stigma scores twice that of their peers were over three times more likely (p = .04) to report a medical condition. Weight bias internalization was not significant in any model (ps > .20). Longitudinal studies should prospectively examine the relationship between weight stigma in the military setting and health among service members.

2019-122 0220

Relationships of deployment and combat experiences to post deployment negative health conditions among Army National Guard soldiers

Source
Military Psychology (American Psychological Association) 2019 31 (2) 128-137

Author(s)
Griffith, J.

Abstract
An interest of researchers and practitioners has been postdeployment adjustment of returned soldiers, though the primary focus has been investigating the prevalence of psychiatric conditions. Less attention has been paid to nonclinical conditions, which still have posed significant adjustment problems for soldiers, in particular, for reserve soldiers who revert back to civilian life, family, and employment. The present study examined the occurrence of postdeployment problems among returned Army National Guard soldiers (N = 4,567 in 50 company-sized units). Survey items reliably indicated 7 problem areas. Highest prevalence of problems was being angry (35.9%) and being unable to sleep (43.3%), followed by alcohol abuse (25.1% reported 5 or more drinks in 1 day). Longer deployment lengths were associated with troubled relationships and aggression toward the significant other adult and children in the household. More deployments were associated with aggression toward household children. Self-reported general combat trauma and having killed or wounded someone were associated with all problem areas. Findings are discussed relative to how combat exposure likely alters soldiers' perceptions and behaviors, including feelings of loneliness and isolation, and risk-taking behaviors of alcohol abuse and aggression toward others.
The role of community context and psychological well-being for physical health: A dyadic study of military couples

Source
Military Psychology 2019 ( )

Author(s)
O'Neal, C.W., Lucier-Greer, M., et al.

Abstract
Drawing from the social organizational theory of community action and change (SOAC) within a systemic biopsychosocial perspective, associations between community context (military community connections and satisfaction with military life), psychological well-being (depressive symptoms, anxiety, and self-efficacy), and physical health were examined for a sample of active duty service members and their civilian spouses (N = 236 couples) using an actor partner interdependence framework. Service members with higher levels of military community connections reported better psychological well-being. When civilian spouses were more satisfied with military life, both partners reported better psychological well-being. In turn, both spouses’ psychological well-being was related to their own reports of physical health. Statistically significant indirect effects were found between community contexts and spouses’ physical health. Enhancing community connections may be an important leverage point for supporting health and family readiness.

Sex differences in mental health symptoms and substance use and their association with moral injury in veterans

Source
Psychological Trauma: Theory, Research, Practice and Policy 2019 11 (3) 337-344

Author(s)

Abstract
Objective: This study examines potential sex differences in 3 types of experiences (i.e., atrocities of war, cognitive and emotional changes from combat, and leadership failure or betrayal) that may result in moral injury (i.e., guilt, shame, inability to forgive one's self, inability to forgive others, and withdrawn behavior associated with these three types of experiences). In addition, we examine whether moral injury results in different associations with mental health and substance use outcomes for female versus male veterans. We expected more symptoms of depression and anxiety for women and more symptoms of hazardous alcohol use and drug abuse for men. Also, we examined sex as a moderator between moral injury and outcomes, expecting stronger relationships between moral injury and symptoms of depression and anxiety among women and stronger associations between moral injury and alcohol use and drug abuse symptoms for men.; Method: Participants (n = 256; 60.9% n = 156] males) were a community sample of recent-era military personnel who completed a measure of morally injurious experiences (MIEs) and associated moral injury.; Results: After correcting for Type I error rate, sex was not associated with mental health or substance use. Further, no Sex × Moral Injury interactions were present; however, moral injury significantly positively predicted all negative mental health symptoms (depression, anxiety, suicidality, and posttraumatic stress disorder PTSD) and hazardous alcohol use, but not drug abuse symptoms.; Conclusions: Results
reveal the need for improved screening and treatment of moral injury and integrated treatments that may assess moral injury and associated disorders.

Sources of Stress and Psychological Health Outcomes Among U.S. Air Force Total Force Distributed Common Ground System Operators

Source
Military Medicine 2019 184 ( ) 451-460

Author(s)
Chappelle,W.L., Prince,L.R., et al.

Abstract
U.S. Air Force Distributed Common Ground Station (DCGS) intelligence (Intel) operators sustain 24/7 battlefield situational awareness and facilitate precision-strike operations. DCGS operations are global, synergistic, Total Force (TF) endeavors by active duty, Air National Guard (ANG) and Reserve units, providing combatant commanders with critical real-time intelligence and shaping operational and tactical decisions. Continual surveillance of this community’s psychological health is important to its military leaders. This study re-examines the most frequently reported occupational stressors, as well as the prevalence of occupational burnout (i.e., high-emotional exhaustion and cynicism, and low professional efficacy), and psychological distress within this population. Active duty (n = 1717), ANG (n = 139), and Reserve (n = 173) Intel operators participated in a comprehensive, online, occupational health assessment. Results reveal that occupational stressors contributing to elevated rates of distress, regardless of TF status (i.e., low manning, long work hours, excessive workload, and organizational communication concerns) are consistent with previous research. The prevalence of high-emotional exhaustion (AD: 29%/ANG: 25%/RES: 14%) and psychological distress (AD: 19%/ANG: 17%/RES: 5%) are above estimates for other military communities. These findings combined with demographic and occupational risk factors lay the foundation for improving psychological health within this Total Force community.

Stress inoculation training outcomes among veterans with PTSD and TBI

Source
Psychological Trauma: Theory, Research, Practice, and Policy 2019 ( )

Author(s)

Abstract
Objective: Stress inoculation training (SIT) is a cognitive-behavioral treatment that has demonstrated potential as a nontrauma based intervention for veterans with posttraumatic stress disorder (PTSD). The purpose of this study was to explore the efficacy of a novel 3-phase group formulation of SIT applied to a naturalistic population of veterans with PTSD and traumatic brain injury (TBI). The goals were to reduce symptoms of PTSD and depression, improve perceived functioning, and increase treatment initiation among veterans who were reticent to initiate established evidence-based and trauma-focused therapies. Method: A program development and evaluation archival analysis of 65 veterans engaged in SIT over an 18-month period
at an outpatient VA PTSD clinic was conducted. Participants completed baseline self-report measures of PTSD and depression symptoms, substance use, and perceived performance. Results: Paired samples t tests were used to evaluate pre- to posttreatment gains and demonstrated significant reductions in PTSD (PTSD Checklist, d = 0.66) and depression symptoms (Beck Depression Inventory, d = 0.67), increases in aspects of perceived stress tolerance and performance in multiple life domains, as well as improvements in both social and occupational functioning (Situational Adaptation to Stress Scale, d = 1.26). Eighty-eight percent of the intent-to-treat sample followed through with the recommended follow-up treatment. Conclusions: The results of this study provide preliminary support for the use of this SIT protocol in reducing symptoms of PTSD and depression, improving performance, and increasing rates of treatment initiation in evidence-based and trauma-focused treatments. (PsycINFO Database Record (c) 2019 APA, all rights reserved); Clinical Impact Statement: A novel group form of Stress Inoculation Training (SIT) was applied to 65 Veterans with PTSD and TBI. Moderate reductions in PTSD and depression symptoms, and increased performance was observed. SIT may offer a new avenue for treatment.

2019-122 0225


Source
Psychological Medicine 2019 49 (5) 811-818

Author(s)
Engelbrecht A., Burdett H., et al.

Abstract
BACKGROUND: UK veterans suffering from a psychological or psychiatric illness as a consequence of service in the Second World War were entitled to a war pension. Their case files, which include regular medical assessments, are a valuable resource to investigate the nature, distribution and duration of symptoms.

2019-122 0226

To what extent is psychological resilience protective or ameliorative: Exploring the effects of deployment on the mental health of combat medics

Source
Psychological Services 2019 ( )

Author(s)

Abstract
Exposure to a major traumatic stressor increases the odds of negative mental health and maladaptive behavioral outcomes not only for victims but also for 1st responders and health care professionals who are exposed to the aftermath. This study investigates the extent to which psychological resilience acts as either a Protective (i.e., vaccine-like) or an Ameliorative (i.e., antibiotic-like) factor to reduce the deleterious mental health outcomes associated with exposure to a major stressor. To do so, this pilot study focused on the understudied population of military combat medics, who are exposed to both stressors associated with direct combat and with
providing intense battlefield trauma care. Military combat medics who were identified as having deployed to Iraq or Afghanistan shortly after baseline measurements of posttraumatic stress disorder, depression, and aggressive behavioral tendencies and returned from deployment prior to the follow-up assessment (protective model) were compared to those who returned from deployment in Iraq or Afghanistan shortly before the baseline measurements and were not deployed again prior to the follow-up assessments (ameliorative model). Data were collected on combat experiences to equate the stressor for these 2 samples, and a propensity score matching technique was used to ensure that the 2 samples were similar. The findings provide support for both the protective and the ameliorative models of psychological resilience. Results are discussed in terms of the potential benefits of resilience in mental health programs.

Trust in military leader: Scale development and validation

Source
Military Psychology 2019

Author(s)
Yeşilbaş,I. and Çetin,Ş.

Abstract
The purpose of this study was to develop an original Trust in Military Leader Scale that can be used in Turkish military context. To this end, we first reviewed the literature to develop a conceptual framework. Next, an item pool was formed and afterwards, an initial scale was formed and evaluated. Semistructured interviews were carried out with 124 officers and noncommissioned officers for item generation. The pilot study involved 2,731 and the final study involved 2,308 participants, all of whom were military personnel. Data obtained through quantitative and qualitative methods were analyzed using such techniques as content analysis, descriptive analysis, consistency analysis, correlational analysis, and exploratory and confirmatory factor analysis. Exploratory factor analysis yielded an 18-item scale with 4 factors: competence, benevolence, integrity, and fairness. In the next phase, the scale was analyzed with respect to content, criterion, and construct validity. To test predictive validity, the scale was used to find how much trust in military leader predicted organizational commitment and organizational citizenship behavior. Finally, a valid and reliable scale that can be used in measuring subordinates’ trust in the military leader was developed.

See also

Cognitive behavioral therapy for insomnia among active duty military personnel. Under Sleep Research.


Correlates of Depression in U.S. Military Service Members with a History of Mild Traumatic Brain Injury. Under TBI.
Expressions of emotional distress in active duty military personnel with mild traumatic brain injury: A qualitative content analysis. Under TBI.


Relationship between depression and risk behaviors in a US Military population with HIV infection. Under Sexual Health.

The relationship between self-efficacy, readiness to change, and audit risk levels in a sample of active duty emergency department patients. Under Addictive Disorders.

Strength and Temporal Variance of the Default Mode Network to Investigate Chronic Mild Traumatic Brain Injury in Service Members with Psychological Trauma. Under TBI.
Administrative Military Discharge and Suicidal Ideation Among Post-9/11 Veterans

Source
American Journal of Preventive Medicine 2019 ( )

Author(s)

Abstract
Introduction: From 2005 to 2016, the Veteran suicide rate increased 25.9%. Reducing this rate is a top priority for the Department of Veterans Affairs. In 2017, a policy change expanded emergent mental health services to include previously ineligible Veterans discharged under other than honorable conditions. To date, research examining the relationship between military discharge type and suicide risk has been limited.; Methods: This study aimed to examine the association between discharge type (honorable versus administrative) and active suicide ideation among Veterans participating in the Survey of Experiences of Returning Veterans (N=850, data collection 2012-2015 and data analysis 2017-2018) using logistic regression. Stratified analyses explored whether gender, time since military separation, or recent mental health service use moderated this relationship.; Results: The prevalence of suicide ideation was significantly higher (p<0.01) among Veterans reporting administrative discharge (23.1%, 95% CI=12.8, 33.3 vs 10.6%, 95% CI=8.4, 12.8). However, after accounting for lifetime suicide attempt history, combat experiences, posttraumatic stress disorder symptoms, depression, and drug dependence, discharge was no longer associated with suicide ideation. Recent mental health service use and time since separation significantly modified this relationship. The relationship was only significant among Veterans not using mental health services (OR=4.8, 95% CI=1.3, 18.2) and among transitioning Veterans <2 years from separation (OR=3.6, 95% CI=1.4, 9.2).; Conclusions: These findings suggest that recognized risk factors for suicide, such as a history of mental health conditions, account for the increased prevalence of suicide ideation among Veterans with administrative discharges and that mental health services may have the potential to mitigate such risk in this high-risk Veteran population.

Assessment of a Risk Index for Suicide Attempts Among US Army Soldiers With Suicide Ideation: Analysis of Data From the Army Study to Assess Risk and Resilience in Servicemembers (Army STARRS).

Source
JAMA Network Open 2019 2 (3) e190766

Author(s)

Abstract
Importance: The Department of Veterans Affairs recently began requiring annual suicide ideation (SI) screening of all patients and additional structured questions for patients reporting SI. Related changes are under consideration at the Department of Defense. These changes will presumably lead to higher SI detection, which will require hiring additional clinical staff and/or developing a clinical decision support system to focus in-depth suicide risk assessments on patients considered high risk.
Development and Implementation of U.S. Army Guidelines for Managing Soldiers at Risk of Suicide

Source
Military Medicine 2019 184 ( ) 426-431

Author(s)
Hoyt,T. and Repke,D.M.

Abstract
Objectives: Despite significant efforts in suicide prevention over the past several years, suicide rates in the U.S. Army remain largely unchanged. This paper describes a collaborative effort between line-unit leaders, medical personnel, and installation services to synchronize suicide risk identification and communication between these disparate entities.; Methods: Under the direction of the Installation Director of Psychological Health at Joint Base Lewis-McChord, a Behavioral Health Process Action Team was chartered to identify best practice and formulate policy for identifying and managing service members at risk for suicide.; Results: Compliance with the new policy reached 100% within 6 months of implementation, as measured by peer review of records. This installation policy was subsequently identified as a best practice and adopted Army-wide as the standard of practice.; Discussion: Knowledge transfer of research findings into policy and practice is crucial for suicide prevention. The current policy shows good integration of current research with practice in military settings.; Conclusions: Combined efforts in crafting policy for risk identification and communication resulted in a policy that was acceptable and feasible from the perspective of commanders and clinicians. Synchronization efforts between commanders, clinicians, and support services are crucial to ensure effective intervention to prevent suicide behavior.

The efficacy of 90-minute versus 60-minute sessions of prolonged exposure for posttraumatic stress disorder: Design of a randomized controlled trial in active duty military personnel

Source
Psychological Trauma: Theory, Research, Practice, and Policy 2019 11 (3) 307-313

Author(s)

Abstract
Objective: Posttraumatic stress disorder (PTSD) can have devastating effects on multiple aspects of functioning. Thus, it is imperative to increase access to evidence-based treatment for PTSD. Prolonged Exposure therapy (PE) has extensive empirical support and is one of the first-line PTSD treatments included in civilian, veteran, and military clinical practice guidelines. However, the standard 90-min PE session format can constitute a significant barrier to its adoption in routine clinical care settings, which typically schedule 60-min appointment sessions. If the length of PE sessions could be reduced from 90 to 60 min without compromising treatment efficacy and efficiency, this would remove a major barrier to PE adoption. Method: This paper describes the rationale and methods of a randomized controlled noninferiority trial comparing 90-min versus 60-min PE sessions (including 40- vs.
20-min imaginal exposures, respectively) among 160 active duty military personnel with PTSD. The aims of this study are to: (1) examine the efficacy and efficiency (i.e., rate of symptom improvement) of 90- versus 60-min PE; (2) assess change in psychophysiological markers of treatment response across conditions; and (3) test mechanisms of change underlying the efficacy of PE. Results/Conclusions: The results of this study will inform dissemination efforts in military, veteran, and civilian sectors. Further, identifying mechanisms of therapeuic change will answer important theoretical questions about how PE works, in order to refine and increase the efficacy and efficiency of PE to better meet the needs of individuals with PTSD. (PsycINFO Database Record (c) 2019 APA, all rights reserved); Clinical Impact Statement—Prolonged exposure (PE) therapy is an evidence-based treatment for posttraumatic stress disorder (PTSD) with established efficacy. However, psychotherapy providers often do not use PE with their PTSD patients because PE sessions are 90 min, and most psychotherapy appointments are 60 min. We describe a study that will test whether PE is as effective when delivered in 60-min as compared with the usual 90-min sessions. We also test whether PTSD patients need more 60-min sessions to recover compared with 90-min sessions. Psychotherapy providers who treat PTSD may be more likely to use PE if it can be delivered in 60-min sessions.

2019-122 0232

Fidelity to Best Practices of Psychiatric Assessments in Army Behavioral Health Settings

Source
Journal of Psychiatric Practice 2019 25 (2) 103-117

Author(s)

Abstract
While civilian and military psychiatric clinical practice guidelines (CPGs) exist for psychiatric assessments, data are lacking on providers’ adherence to these criteria. This study evaluated the use of psychiatric CPGs’ assessment criteria by Army behavioral health providers (BHPs). In a weighted cross-sectional survey, 348 BHPs were evaluated on their assessment of a systematically selected patient on 15 total domains recommended by the Departments of Veterans Affairs and Defense CPGs for substance use disorders, posttraumatic stress disorder, and major depressive disorder. The proportion of BHPs providing high-quality assessment and the association between high-quality assessment and BHP and patient characteristics were examined. Using the weighted sample, 80% of BHPs provided a high-quality assessment. BHPs who saw ≥20 patients per week were significantly more likely to provide high-quality assessments compared with BHPs who saw <20 patients per week odds ratio (OR)=1.72, 95% confidence interval (CI)=1.01-2.92]. Patients diagnosed with generalized anxiety disorder adjusted OR (AOR)=0.42, 95% CI=0.18-0.96] or whose BHPs did not assess patients' current overall physical health (AOR=0.26, 95% CI=0.07-0.97) or lifetime duration of treatment for mental health (AOR=0.03, 95% CI=0.01-0.20) were less likely to receive high-quality assessments. A majority of Army BHPs are conducting high-quality assessments for the 3 most common mental disorders in military populations. If recommendations to increase fidelity to assessment could be implemented, more patients could receive optimized care.
Genetic predictor of current suicidal ideation in US service members deployed to Iraq and Afghanistan

Source
Journal of Psychiatric Research 2019 113 ( ) 65-71
Author(s)

Abstract
Objective: Suicide is one of the ten leading causes of death in United States and the suicide rate in the military population has increased since the start of the Iraq and Afghanistan wars. However, few biomarkers for current suicidal ideation (CSI) have been identified. The current study examined the association of four candidate genes with CSI in active duty US Army Special Operations Command and National Guard units (n = 3,889) who served in Iraq and Afghanistan between November 2009 and July 2014.; Methods: Current PTSD symptoms and CSI were assessed using the PTSD Checklist (PCL) and PHQ-9, respectively. Traumatic events were assessed using items from the Life Events Checklist (LEC) that met the DSM-IV PTSD criteria of a traumatic stressor. All genotypes of saliva DNA were discriminated using the TaqMan 5'-exonuclease assay.; Results: The associations between CSI and brain-derived neurotrophic factor (BDNF), FK506 binding protein (FKBP5), catechol-O-methyltransferase (COMT), or S100A10 (p11) were examined. We found CSI was associated with BDNF (OR = 1.5, 95% CI = 1.5-1.8, P = 0.0002), but not FKBP5, COMT and p11. Female soldiers reported CSI more often than males (χ² = 7.403, p = 0.0065), although gender did not affect CSI severity. In addition, associations were found between CSI and depression, PTSD, and BDNF, but not traumatic events. The BDNF Val66Met contributed to the severity of CSI even after adjusting to PTSD, depression and LEC.; Conclusions: The associations of BDNF with CSI and its severity suggest that BDNF may be a predictor of suicidal risk and present an opportunity to develop laboratory tools with clinical implications in suicide prevention and treatment.

Loss of moral high-ground: The transgender ban, a military psychiatrist’s perspective and call to action

Source
Journal of Gay & Lesbian Mental Health 2019 ( )
Author(s)
Wise,J.E.

Abstract
Joseph E. Wise, MD, was on the Walter Reed Military Hospital Transgender Review Board from 2016–2017. He is a former US Army Psychiatrist, and an Iraq War Combat Veteran, psychoanalyst, and Certified Group Psychotherapist. He is the coeditor of Gay Mental Healthcare Providers and Patients in the Military, published by Springer (2018). In this first installment of the Perspectives series for JGLMH, Dr. Wise criticizes the recent reinstatement of a transgender service ban in the US military and uses his personal experience conducting reviews of transgender service members’ fitness for duty to illustrate the harm such a policy can cause to them, as well as the ethical conflict it creates for military medical personnel.
Male psychosexual therapy in the UK military. ✔ Editor's Choice

Source
Journal of the Royal Army Medical Corps 2019 165 (2) 94-97

Author(s)
Clifford, C., and McCauley, M.,

Abstract
Military personnel can experience psychosexual difficulties for a variety of reasons. Problems can arise because of psychological trauma, physical injury, consequences arising from pharmacological and surgical complications and social or emotional concerns relating to intrapersonal and interpersonal relationship dynamics. Such individuals might seek to minimise or avoid resolving their pertinent difficulties, while others can experience cultural, personal or organisational barriers to accessing professional help. This paper offers an overview of the development of a national specialist psychosexual therapy service (PST), commenting specifically on the service delivery for male military personnel. It will also consider factors which may support progress in treatment and reflect upon the importance of considering psychosexual functioning in relationships as part of the broader service-life context, which is especially relevant to military personnel.

Nicotine Dependence and Pre-Enlistment Suicidal Behavior Among U.S. Army Soldiers

Source
American Journal of Preventive Medicine 2019 56 (3) 420-428

Author(s)
Campbell-Sills, L., Kessler, R.C., et al.

Abstract
Introduction: Identification of modifiable risk factors for suicidal behaviors is a priority for the U.S. Army. This study investigated associations of nicotine dependence with suicidal behaviors among incoming soldiers.; Methods: Lifetime DSM-IV nicotine dependence, mental disorders, suicidal behaviors, and their ages of onset were retrospectively assessed in the Army Study to Assess Risk and Resilience in Servicemembers (Army STARRS) New Soldier Study. Discrete-time survival analysis of person-year data from 30,436 soldiers was performed to evaluate associations of nicotine dependence with subsequent suicidal ideation, plans, and attempts. Among respondents with lifetime ideation (n=4,060), models tested associations of nicotine dependence with progression from ideation to first onset of plan, from plan to first attempt, and, among ideators without plans, from ideation to first unplanned attempt. A hierarchy of models incorporated increasing controls for other risk factors. Data were collected in 2011-2012 and analyzed in 2017-2018.; Results: In models controlling for sociodemographic characteristics, nicotine dependence was associated with onset of all suicidal behaviors (AORs, 2.07-4.08, p<0.001) and with each type of progression of suicidal behavior (AORs, 1.48-2.44, p<0.005). After adjusting for childhood adversities and mental disorders, nicotine dependence remained associated with onset of ideation (AOR=1.27, 95% CI=1.10, 1.46, p=0.001) and attempt (AOR=1.83, 95% CI=1.41, 2.37, p<0.001); and with progression from
ideation to unplanned attempt (AOR=2.03, 95% CI=1.17, 1.74, p<0.001).
Conclusions: Nicotine dependence exhibited associations with onset of suicidal ideation and suicide attempt-and with progression from ideation to unplanned attempt-that were independent of other measured risk factors. Awareness of associations of nicotine dependence with suicidal behaviors may inform risk assessment, facilitate targeting of prevention efforts, and provide further impetus for reducing nicotine dependence.

2019-122 0237

Preferences for family involvement among veterans in treatment for schizophrenia

Source
Psychiatric Rehabilitation Journal 2019 ( )

Author(s)

Abstract
Objective: Examine preferences for family involvement in psychiatric care in a large, representative sample of veterans in treatment for schizophrenia. Method: Veterans with schizophrenia or schizoaffective disorder (N = 801) completed an assessment that included questions about demographic and clinical characteristics, status of family support, and preference for family involvement in their psychiatric care. Open-ended items were independently coded by two raters and categorized; Cohen’s kappa was calculated for each category. Results: Among the 801 participants, 496 (61.9%) indicated that they had a family member who provided them with regular support; 304 (37.9%) had no family member who provided support; and 1 did not respond. Among the 304 without support, 272 (89.4%) had a living family member. Of the 496 participants who had a supportive family member, 135 (27.2%) wanted their family member involved in their care. Of the 272 participants who did not have a supportive family member, but had living family, 57 (21.0%) wanted their family involved. Barriers to involvement included concerns about privacy and burden. Preferred method of involvement included contact with the patient’s psychiatrist and education about the illness. Conclusions and Implications for Practice: Preferences indicated by this large representative sample of individuals in care for schizophrenia indicate that a majority have supportive family and a substantial minority want family involved in their psychiatric care. Clinicians can address concerns about privacy and burden and deliver preferred services by phone or mail, overcoming anticipated barriers. Desire for family support groups was limited but present.

2019-122 0238

Preliminary validation of the peri-traumatic dissociation trauma drawing assessment (PDTDA): The case of military trauma.
Source
Arts in Psychotherapy 2019
Author(s)

Abstract
The Peri-Traumatic Dissociative Traumatic Drawing Assessment (PDTDA) is an art-based assessment technique developed to evaluate peri-traumatic dissociation subsequent to traumatic events, based on the trauma resolution and time perception literature. To validate the PDTDA, associations between six drawing feature scales; namely, the participants' peri-traumatic dissociation, persistent dissociation, post-traumatic stress symptoms and history of traumatic events were assessed in a sample of 49 Israeli adults who experienced military trauma. Bivariate correlation analyses indicated that peri-traumatic dissociation negatively correlated with the presence of a boundary line between the event and coping, but positively correlated with new distress symbols. A history of traumatic events negatively correlated with new resource symbols, whereas post-traumatic stress symptoms positively correlated with new distress symbols. The clinical implications are discussed considering these preliminary findings.

Suicide and the standardized mortality ratio among Republic of Korea Armed Forces personnel, 2011-2016

Source
Annals of Epidemiology 2019 31 ( ) 45-48.e1
Author(s)
Park,J., Choi,K., et al.

Abstract
Purpose: This study examined the number of suicides in the Republic of Korea (ROK) Armed Forces and compared the relative suicide risk of military personnel with that in the general population.; Methods: Age-, sex-, and calendar year-adjusted standardized mortality ratios (SMRs) and 95% confidence intervals were calculated to compare the number of suicides between the ROK Armed Forces and the general population.; Results: Between 2011 and 2016, there were 405 suicides by ROK Armed Forces Personnel. The ROK Armed Forces had significantly fewer suicides than expected compared with the general population (SMR = 0.46, 95% confidence interval 0.41~0.50, based on 405 deaths). This was evident for both rank groups (soldiers and officers). In addition, a significant decrease was observed in the soldier group when comparing the SMR in 2016 with the previous 5-year average.; Conclusions: Overall, during the period 2011-2016, the ROK Armed Forces had fewer suicides than expected when compared with the general population.

Suicide in the Military: Understanding Rates and Risk Factors Across the United States' Armed Forces
Abstract
This paper presents data from the United States Department of Defense Suicide Event Report System for years 2012-2015 to detail descriptive, longitudinal rate data and risk factor profiles associated with military suicide. The annual findings were aggregated from all U.S. military suicide deaths and suicide attempts. Data elements included the most common method of suicide (firearms), most common behavioral health diagnoses (substance abuse/dependence), common life stressors (failed intimate-partner relationships), and an individual's history of operational deployment. Age- and sex-adjusted rates for the Services were compared with rates for the U.S. adult population. Results showed that the current reporting period (2015) is similar to patterns that have been observed over the preceding years and to patterns reported in the overall U.S. adult population. Suicide rates remain elevated but stable for both the Active and Reserve Components of the Military Services compared to historical levels observed prior to 2003. Finally, we discuss common errors and misinterpretations that can occur when analyzing surveillance data.

See also


Internal consistency and factor structure of a brief scale assessing sensitivity to blood, injury, and mutilation. Under PTSD.

Pain and sleep problems predict quality of life for veterans with serious mental illness. Under Veterans Health & Welfare.

Posttraumatic Stress Disorder and Neurocognitive Impairment in a U.S. Military Cohort of Persons Living with HIV. Under PTSD.


Understanding women veterans’ experiences with and management of weight gain from medications for serious mental illness: A qualitative study. Under Women’s Health & Welfare.


Source
Tobacco Control 2019 28 (2) 189-194

Author(s)

Abstract
Introduction: Active duty military personnel have higher cigarette and smokeless tobacco use rates than civilian populations. Although US Airmen (called Airmen regardless of gender or rank) are required to be tobacco-free during initial training, many resume use once this period ends, perhaps as a result of easy access to cheap tobacco products.; Methods: Between July and September 2016, we collected tobacco product, price and promotion information by visiting on-base (n=28) and off-base (n=80) tobacco retailers near the eight technical training bases where approximately 99% of Airmen attend training. We conducted mixed linear effects models to examine on-base versus off-base differences.; Results: Cigarette packs were 11%-12% cheaper at on-base retailers compared with off-base retailers. Newport Menthol and Marlboro Red cigarette packs were $0.87 and $0.80 lower on-base (p<0.001) while the cheapest pack available was $0.54 lower on-base (p<0.01). Copenhagen smokeless tobacco was also significantly cheaper on-base (B=-0.65, p<0.01). Interior price promotions were more common on-base.; Conclusions: Retail stores located on Air Force bases sell cigarettes and smokeless tobacco products at prices well below those in nearby off-base retailers: the vast majority of these retailers feature interior price promotions for these products. Federal policies regulating prices of on-base tobacco sales, if implemented more effectively, have the potential to protect the health of Airmen by helping them remain tobacco-free after technical training.

Grief in Veterans: An Unexplored Consequence of War

Source
American Journal of Public Health 2019 109 (3) 394-395

Author(s)
Lubens,P. and Silver,R.C.

Abstract
The author discusses grief among U.S. veterans of war. Topics include the increasing rate of suicide among U.S. veterans, which exceeds the combat death rate and the civilian suicide rate, the limited research on grief among military personnel who lost comrades in war versus associations between combat exposure and PTSD, depression and alcohol abuse, and grief research on civilians which indicates varied responses and the importance of social support and social networks on grief severity.

Marching on the Road to Quality: Army Public Health Experience Adopting NACCHO’s Roadmap to a Culture of Quality Framework

Source
Abstract
The US Army Public Health Center (APHC) adopted the National Association of County and City Health Officials’ (NACCHO) Roadmap to a Culture of Quality (CoQ) Improvement framework to define its current culture and adapted the NACCHO’s Organizational CoQ Self-Assessment Tool for applicability to a federal agency and workforce. More than 500 Civilian and Military personnel completed the self-assessment in October 2017. The results indicated that the APHC was categorized in the third of six total phases of the NACCHO’s Roadmap to a CoQ (Phase 3: Informal or Ad Hoc QI Activities), which generated 13 transitional strategies to advance the APHC toward a CoQ. The APHC demonstrated that a federal public health organization can use and apply results from currently available self-assessment tools and frameworks related to a CoQ. By doing so, the APHC is optimizing its ability to ensure America's Soldiers and the Army Family receive essential and effective public health services. This is an open-access article distributed under the terms of the Creative Commons Attribution-Non Commercial-No Derivatives License 4.0 (CCBY-NC-ND), where it is permissible to download and share the work provided it is properly cited. The work cannot be changed in any way or used commercially without permission from the journal.

See also

Enhanced Survival in Mice Exposed to Ionizing Radiation by Combination of Gamma-Tocotrienol and Simvastatin

Source
Military Medicine 2019 184 ( ) 644-651

Author(s)
Pathak,R., Kumar,V.P., et al.

Abstract
Ionizing radiation exposure is a major concern for active military service members, as well as civilian population. Considering that the exposure is not predictable, it is imperative that strategies to counteract radiation damage must be discovered. Recent in vitro studies performed in our laboratory demonstrated that the vitamin E analog gamma-tocotrienol (GT3) in combination with cholesterol-lowering drugs (Statins), synergistically induced endothelial thrombomodulin, an anticoagulant with radio-protective efficacy. It was hypothesized that the combination of treatment with both GT3 along with Statins would provide better radiation protection in vivo than each drug individually. CD2F1 mice were injected subcutaneously with either vehicle or single dose of GT3 (200 mg/kg body weight) 24 hours before irradiation followed by oral or subcutaneous administration of various doses of simvastatin (25, 50, and 100 mg/kg body weight) before exposure to lethal doses (11.5 and 12 Gy) of Cobalt-60 (60Co) gamma-irradiation. The combined treatment group exhibited enhanced radiation lethality protection substantially, accelerated white blood cell recovery, and augmented restoration of bone marrow cellularity when compared to the animals treated with either drug exclusively. This information clearly suggests that combined treatment could be used as a safeguard for military personnel from exposure to harmful ionizing radiation.
The Role of CT Angiography in Evaluating Lower Extremity Trauma: 157 Patient Case Series at a Military Treatment Facility

Source
Military Medicine 2019 ( )

Author(s)

Abstract
Introduction: Physical exam and angiography have important roles in the diagnosis of traumatic lower extremity vascular injury with similar reported high rates of sensitivity and specificity. It has been previously shown that CTA is not universally indicated in the setting of acute lower extremity trauma when a reliable physical examination is obtained. As such, the purpose of this study was to determine if obtaining a CTA following physical examination altered the clinical care of patients following high-energy lower extremity trauma and the generalizability to the military population.

Materials and Methods: Retrospective review of all patients who underwent lower extremity CTA during the initial trauma evaluation at a Level 1 Trauma Center from 2007 to 2014.

Results: One hundred and fifty-seven patients met inclusion criteria. One hundred and seventeen patient's initial physical exam excluded limb ischemia with 67 vascular injuries on CTA (9 underwent angiogram in the OR) with no reperfusions required. 40 patients had hard signs of ischemia or ABI's <0.90, 29 had injuries on CTA, and fifteen underwent a vascular reperfusion procedure for acute vascular injury. Ten of 15 reperfusions required no further angiography after CTA. The sensitivity and negative predictive value of physical exam for needed reperfusion were both 100%. There were no instances of missed vascular injury or readmission and 53 patients were discharged directly from the emergency room after a negative CTA.

Conclusions: This study suggests that physical exam alone achieves a high sensitivity for vascular injury in lower extremity trauma. Physical exam excluded all lower extremity ischemia without the need for advanced imaging. While CTA was useful to confirm and localize the source of acute vascular injury, the majority of vascular injuries identified on CTA did not affect immediate clinical care and lead to additional unnecessary procedures. However, in patients with suspected vascular injury, a negative CTA was also used as rationale for immediate discharge from the emergency department without further clinical observation. When applied to the deployed military setting the results of this study support the use of physical exam to accurately diagnose limb threatening ischemia at the time of injury or Role 1 facilities with CTA reserved for diagnosing the level of the vascular injury and for potential patient clearance prior to prolonged evacuation.
3D Tibia Reconstruction Using 2D Computed Tomography Images

Source
Military Medicine 2019 184 ( ) 621-626

Author(s)
Iyoho, A.E., Young, J.M., et al.

Abstract
Objective: Skeletal stress fracture of the lower limbs remains a significant problem for the military. The objective of this study was to develop a subject-specific 3D reconstruction of the tibia using only a few CT images for the prediction of peak stresses and locations.; Methods: Full bilateral tibial CT scans were recorded for 63 healthy college male participants. A 3D finite element (FE) model of the tibia for each subject was generated from standard CT cross-section data (i.e., 4%, 14%, 38%, and 66% of the tibial length) via a transformation matrix. The final reconstructed FE models were used to calculate peak stress and location on the tibia due to a simulated walking load (3,700 N) and compared to the raw models.; Results: The density-weighted, spatially-normalized errors between the raw and reconstructed CT models were small. The mean percent difference between the raw and reconstructed models for peak stress (0.62%) and location (-0.88%) was negligible.; Conclusions: Subject-specific tibia models can provide even great insights into the mechanisms of stress fracture injury, which are common in military and athletic settings. Rapid development of 3D tibia models allows for the future work of determining peak stress-related injury correlates to stress fracture outcomes.

Adopting a multidisciplinary approach to maximising performance during military visual search tasks.

Source
Journal of the Royal Army Medical Corps 2019 165 (2) 120-123

Author(s)

Abstract
During the conflicts in Afghanistan and Iraq, many UK military personnel were killed or injured by improvised explosive devices (IEDs). Insurgents sought to develop new ways of concealing and detonating IEDs, and UK forces invested significantly in finding increasingly effective methods of detecting and avoiding them. Between 2010 and 2014 the UK's Defence Science and Technology Laboratory's Human and Social Sciences Group (HSSG) was asked to investigate the factors that might affect the performance of specialist search teams in the identification of IEDs. They sought to ascertain ways to improve effectiveness and maximise safety through training, human factors advice on equipment design, and recommendations on changes to tactics techniques and procedures. This paper provides a short summary of some of the research conducted that underpinned the advice and recommendations that were provided. The research conducted by HSSG, in collaboration with industry and academia, helped ensure that search teams had the best possible training, advice and equipment.
Environment at the time of injury determines injury patterns in pelvic blast.

Source
Journal of the Royal Army Medical Corps 2019 165 (1) 15-17

Author(s)
Webster, C.E., and Clasper, J.,

Abstract
The use of explosives by terrorists, or during armed conflict, remains a major global threat. Increasingly, these events occur in the civilian domain, and can potentially lead to injury and loss of life, on a very large scale. The environment at the time of detonation is known to result in different injury patterns in casualties exposed to blast, which is highly relevant to injury mitigation analyses. We describe differences in pelvic injury patterns in relation to different environments, from casualties that presented to the deployed UK military hospitals in Iraq and Afghanistan. A casualty on foot when injured typically sustains an unstable pelvic fracture pattern, which is commonly the cause of death. These casualties die from blood loss, meaning treatment in these should focus on early pelvic haemorrhage control. In contrast, casualties injured in vehicle present a different pattern, possibly caused by direct loading via the seat, which does not result in pelvic instability. Fatalities in this cohort are from injuries to other body regions, in particular the head and the torso and who may require urgent neurosurgery or thoracotomy as life-saving interventions. A different strategy is therefore required for mounted and dismounted casualties in order to increase survivors.

Evaluation of a Novel Fibrin Sealant Patch in Hemorrhage Control After Vascular or Hepatic Injury.

Source
Military Medicine 2019 184 (3-4) e290-e296

Author(s)
Baker, J.E., and Goodman, M.D.,

Abstract
Introduction Acute hemorrhage remains the leading cause of death in potentially survivable injuries. The use of topical hemostatic agents has increased over the last two decades with the evolution of damage control surgery. By 2008, the military widely adopted Combat Gauze as the hemostatic dressing of choice for compressible hemorrhage. The goal of this study was to compare the performance of a novel fibrin sealant patch to Combat Gauze in two clinically relevant models of hemorrhage.

Materials and Methods
Yorkshire swine underwent unilateral femoral artery puncture or a grade V liver laceration with timed free bleeding then received either the fibrin patch or Combat Gauze packing with 3 minutes of standardized pressure. Animals were then resuscitated to maintain a mean arterial pressure of 60 mmHg for 4 hours. Hemostasis, blood loss, resuscitation volume, survival, vessel patency, and hematologic parameters were evaluated. Results Hemostasis was equivalent in both groups after hepatic and vascular injury. Survival was 80% in the fibrin patch vascular injury group and 100% in all other groups. Hematologic parameters were not significantly different between treatment groups. Femoral artery patency was
80% in both groups after vascular injury. With simulated ambulation after vessel injury, 60% of the Combat Gauze group and 80% of the fibrin patch group remained hemostatic (p > 0.05). In simulated re-exploration with packing removal, all animals rebled after hemostatic product removal. Conclusion There was no significant difference in hemostasis between a novel fibrin patch and Combat Gauze after extremity arterial or hepatic injury. This novel fibrin patch may have a clinical advantage over the Combat Gauze, as it can be left in the body, thereby limiting the potential need for reoperation.

2019-122 0250

Evaluation of the Military Functional Assessment Program for Return-to-Duty Decision Making: A Longitudinal Study

Source
Military Medicine 2019 184 ( ) 160-167
Author(s)
Kelley,A.M. and Showers,M.

Abstract
Following concussion, return-to-duty decisions are made by medical providers and leaders using informal assessment, review of symptom resolution, and clinical assessments. In an effort to provide military-specific tasks for use in the decision making regarding return-to-duty, a battery developed from the set of basic soldier skills, the Military Functional Assessment Program (MFAP), was evaluated for construct validity using clinical assessment outcomes as well as the relationships between MFAP performance and indicators of long-term performance and satisfaction. A total of 48 participants were enrolled in the study providing baseline and post-treatment clinical assessment, and MFAP performance data. Twenty participants provided follow-up data at 6-month post-MFAP. Correlational analyses suggest significant relationships between MFAP performance ratings and clinical measures of vestibular and cognitive functions and psychological well-being. These findings are consistent with those from previous research on construct validity of the MFAP tasks. Performance on one MFAP task related to perceptions of performance and overall MFAP ratings related to satisfaction reported at 6 months. These findings provide preliminary, however limited, support for these tasks being indicative of the motivation and mental state of the program participant.

Source
Military Medicine 2019 184 ( ) 521-528

Author(s)

Abstract
The survival rate of those injured in combat in overseas contingency operations is higher than in previous conflicts. There is a need to assess the long-term psychosocial and quality of life outcomes of those injured in combat, yet surveying this population presents inherent challenges. As part of a large-scale, longitudinal examination of patient-reported outcomes of service members injured on deployment, the present manuscript evaluated the effectiveness of three postal strategies on response rates: (1) mailing a study prenotification postcard, (2) mailing the survey invitation in a larger envelope, and (3) including a small cash preincentive ($2). Evaluation of these strategies yielded mixed results in this population. Neither the prenotification postcard nor inclusion of a $2 cash preincentive significantly increased response rates. However, use of a larger envelope to mail the survey invitation significantly increased the response rate by 53.1%. Researchers interested in collecting patient-reported outcomes among military populations, including those with combat-related injuries, may find that increasing the visibility of recruitment materials is more effective for improving response rates than attempting to cognitively prime or offer prospective participants preincentives.

Guidelines for conducting epidemiological studies of blast injury.

Source
Journal of the Royal Army Medical Corps 2019 165 (1) 41-44

Author(s)
Bieler,D., and Cernak,I.,

Abstract
Blast injuries are often caused by more than one mechanism, do not occur in isolation, and typically elicit a secondary multi-system response. Research efforts often do not separate blast injuries caused by blast waves from those caused by blunt force trauma and other mechanisms. 15 experts from nine different NATO nations developed in the HFM Research Task Group (RTG; HFM-234 (RTG)) ‘Environmental Toxicology of Blast Exposures: Injury Metrics, Modelling, Methods and Standards’ Guidelines for Conducting Epidemiological Studies of Blast Injury. This paper describes these guidelines, which are intended to provide blast injury researchers and clinicians with a basic set of recommendations for blast injury epidemiological study design and data collection that need to be considered and described when conducting prospective longitudinal studies of blast injury.
Guidelines for reproducing blast exposures in the laboratory.

Source
Journal of the Royal Army Medical Corps 2019 165 (1) 10-14
Author(s)
Josey, T., and Ouellet, S.,

Abstract
Discussions at a NATO Health Factors and Medicine Symposium 207 (HFM-SYM-207) revealed the importance of a systematic approach to understanding blast injuries much like the well-established approach used to solve the classical toxicology problem where the aetiology of the injury requires an understanding of the dose, mechanism of delivery of the dosage and dose–response endpoints.1 To address the above recommendation and to develop a specific NATO activity devoted to the toxicology of blast exposure, a proposal titled ‘Environmental Toxicology of Blast Exposures: Injury Metrics, Modeling, Methods and Standards’ was approved which resulted in the establishment of a NATO HFM Research Task Group (RTG; HFM-234 (RTG)) with the following deliverables.

2019-122 0254

Guidelines for using animal models in blast injury research.

Source
Journal of the Royal Army Medical Corps 2019 165 (1) 38-40
Author(s)
Watts, S., and Kirkman, E.,

Abstract
Blast injury is a very complex phenomenon and frequently results in multiple injuries. One method to investigate the consequences of blast injuries is with the use of living systems (animal models). The use of animals allows the examination and evaluation of injury mechanisms in a more controlled manner, allowing variables such as primary or secondary blast injury for example, to be isolated and manipulated as required. To ensure a degree of standardisation across the blast research community a set of guidelines which helps researchers navigate challenges of modelling blast injuries in animals is required. This paper describes the guidelines for Using Animal Models in Blast Injury Research developed by the NATO Health Factors and Medicine (HFM) Research Task Group 234.
Nebulised recombinant activated factor VII (rFVIIa) does not attenuate the haemorrhagic effects of blast lung injury.

Source
Journal of the Royal Army Medical Corps 2019 165 (1) 51-56

Author(s)
Smith, J.E., and Watts, S.,

Abstract
Introduction Primary blast lung injury causes intrapulmonary haemorrhage. A number of case reports have suggested the efficacy of recombinant activated factor VII (rFVIIa) in the treatment of diffuse alveolar haemorrhage from a range of medical causes, but its efficacy in blast lung is unknown. The aim of this study was to investigate whether nebulised rFVIIa attenuates the haemorrhagic effects of blast lung injury in an animal model. Methods Terminally anaesthetised rabbits subjected to blast lung injury were randomised to receive either rFVIIa or placebo via a nebuliser. The primary outcome was the level of blood iron–transferrin complex, a marker of the extent of blast lung injury, analysed using low temperature electron paramagnetic resonance spectroscopy. Results Blast exposure led to a significant fall in iron-bound transferrin in both groups of animals (p<0.001), which remained depressed during the study. There were no significant differences in iron–transferrin between the rFVIIa and placebo treatment groups over the duration of the study (p=0.081), and there was no trend towards elevated iron–transferrin in the rFVIIa-treated group once drug treatment had started. There was suggestive evidence of systemic absorption of rFVIIa given via the inhaled route. Conclusion A single dose of nebulised rFVIIa did not attenuate pulmonary haemorrhage in a rabbit model of blast lung injury. As there was some evidence of systemic absorption, the inhaled route does not avoid the concern about potential thromboembolic complications from administration of rFVIIa.

Pilot Study of a Novel Swine Model for Controlling Junctional Hemorrhage Using the iTClamp in Conjunction With Hemostatic Agents

Source
Military Medicine 2019 184 ( ) 367-373

Author(s)
Stuart, S.M., Zarow, G., et al.

Abstract
Exsanguinating hemorrhage is a primary cause of battlefield death. The iTClamp is a relatively new device (FDA approval in 2013) that takes a different approach to hemorrhage control by applying mechanism wound closure. However, no previous studies have explored the feasibility of utilizing the iTClamp in conjunction with hemostatic packing. To fill this important gap in the literature, a novel swine model was developed, and a total of 12 trials were performed using QuikClot Combat Gauze or XSTAT sponges in conjunction with the iTClamp to treat arterial injuries through 5 cm or 10 cm skin incisions in the groin, axilla, or neck. First-attempt application success rate, application time, and blood loss were recorded. Hemostasis was achieved on all wounds, though reapplication was required in one Combat Gauze and three XSTAT applications. Application averaged ~50% slower for Combat Gauze (M = 41 seconds, 95%CI: 22-32 seconds) than for XSTAT (M = 27 seconds, 95%CI: 35-47 seconds). XSTAT application was faster than Combat Gauze for each
wound location and size. The 10 cm wounds took ~10 seconds (36%) longer to close (M = 27 seconds, 95%CI: 35-47 seconds) than the 5 cm wounds (M = 27 seconds, 95%CI: 35-47 seconds). Blood loss was similar for Combat Gauze (M = 51 mL, 95%CI: 25-76 mL) and XSTAT (M = 60 mL, 95%CI: 30-90 mL). Blood loss was roughly twice as great for 10 cm wounds (M = 73 mL, 95%CI: 47-100 mL) than for 5 cm wounds (M = 38 mL, 95%CI: 18-57 mL). This pilot study supports the feasibility of a novel model for testing the iTClamp in conjunction with hemostatic packing towards controlling junctional hemorrhage.

2019-122 0257

Prominent Injury Types in Vehicle Underbody Blast

Source
Military Medicine 2019 184 ( ) 261-264

Author(s)

Abstract
Background: To fully understand the injury mechanisms during an underbody blast (UBB) event with military vehicles and develop new testing standards specific to military vehicles, one must understand the injuries sustained by the occupants.;

Methods: Injury data from Service Members (SM) involved in UBB theater events that occurred from 2010 to 2014 were analyzed. Analysis included the investigation of prominent skeletal and visceral torso injuries. Results were categorized by killed-in-action (n = 132 SM) and wounded-in-action (n = 1,887 SM); Results: Over 90% (553/606 SM) of casualties in UBB events with Abbreviated Injury Scale (AIS) 2+ injury sustained at least one skeletal fracture, when excluding concussion. The most frequent skeletal injuries from UBB were foot fractures (13% of injuries) for wounded-in-action and tibia/fibula fractures (10% of injuries) for killed-in-action. Only 1% (11/1037 SM) of all casualties with AIS 2+ injuries had visceral torso injuries without also sustaining skeletal fractures. In these few casualties, the coded injuries were likely due to trauma from a loading path other than direct UBB loading.; Conclusion: Skeletal fractures are the most frequent AIS 2+ injury resulting from UBB events. Visceral torso injuries are infrequent in individuals that survive and they generally occur in conjunction with skeletal injuries.

2019-122 0258

Protection of the lung from blast overpressure by stress wave decouplers, buffer plates or sandwich panels.

Source
Journal of the Royal Army Medical Corps 2019 165 (1) 22-26

Author(s)
Sedman,A., and Hepper,A.,

Abstract
Introduction This paper outlines aspects of UK Ministry of Defence’s research and development of blast overpressure protection technologies appropriate for use in body armour, with the aim of both propagating new knowledge and updating existing information. Methods Two simple models are introduced not only to focus the description of the mechanism by which the lungs can be protected, but also to provide a bridge between fields of research that may hold the key to further advances
in protection technology and related body armour. Results Protection can be provided to the lungs by decoupling the stress wave transmission into the thorax by managing the blast energy imparted through the protection system. Conclusions It is proposed that the utility of the existing ‘simple decoupler’ blast overpressure protection is reviewed in light of recent developments in the treatment of those sustaining both overpressure and fragment injuries. It is anticipated that further advances in protection technology may be generated by those working in other fields on the analogous technologies of ‘buffer plates’ and ‘sandwich panels’.

2019-122 0259

Section 718 (Telemedicine): Virtual Health Outcomes From Regional Health Command Europe

Source
Military Medicine 2019 184 ( ) 48-56
Author(s)

Abstract
Background: Section 718 of the Fiscal Year 2017 (FY17) National Defense Authorization Act (NDAA) outlines many reportable telemedicine outcomes. While the Military Health System Data Repository (MDR) and the Management and Reporting Tool M2 provide some telemedicine analyses, there are many outcomes that neither the MDR nor M2 provide. Understanding patient and provider attitudes towards telehealth and specialty-specific usage may assist initial or ongoing telehealth lines of effort within Defense Health Agency Medical Treatment Facilities (DHA MTFs).; Methods: A retrospective descriptive analysis of synchronous virtual health (VH) encounters and results from three internally developed telehealth surveys for calendar year (CY) 2016 was conducted.; Results: Three thousand seven hundred and seventy-eight synchronous VH visits for 2,962 unique patients were completed by 142 providers located within 27 distinct specialty clinics. 89.8% of patients were adults and 75.9% were Active Duty. Skill type I and II medical providers conducted 1,827 new consultations, 1,187 follow-up visits, and 371 readiness exams. Overall, specialty-specific VH use ranged from less than 1% to 39.9%. Patient satisfaction was 98% while provider satisfaction ranged from 91% to 93%. Additionally, significant intangible savings were recognized.; Conclusion: Regional medical centers conducting synchronous VH will require both internal and external data sources to report Section 718 outcomes required by Congress. As the anticipated demand for direct provider-to-patient telehealth increases, understanding these outcomes may aid initial and ongoing efforts in other military treatment facilities conducting synchronous VH.

See also


Capsule Commentary on Katzman et al., Army and Navy ECHO Pain Telementoring Improves Clinician Opioid Prescribing for Military Patients: An Observational Cohort Study. Under Analgesics.


Enhanced Survival in Mice Exposed to Ionizing Radiation by Combination of Gamma-Tocotrienol and Simvastatin. Under Radiobiology.

Environmental toxicology of blast exposures: injury metrics, modelling, methods and standards. Under Toxicology.


Serving All Who Served: Piloting an Online Tool to Support Cultural Competency with LGBT U.S. Military Veterans in Long-Term Care. Under Veterans Health & Welfare.
Lung injury risk assessment during blast exposure

Source
Journal of Biomechanics 2019 86 ( ) 210-217

Author(s)

Abstract
Blast pulmonary trauma are common consequences of modern war and terrorism action. To better protect soldiers from that threat, the injury risk level when protected and unprotected must be assessed. Knowing from the literature that a possible amplification of the blast threat would be provided by some thoracic protective systems, the objective is to propose an original approach to correlate a measurable parameter on a manikin with a pulmonary risk level. Using a manikin whose response is correlated with the proposed tolerance limits should help in the evaluation of thoracic protective system regarding injury outcomes. A database including lung injury data from large mammals have been created, allowing the definition of iso-impulse tolerance limits from no lung injury to severe ones (∼60% of ecchymosis). As the use of this metric is not sufficient to evaluate the performance of protective systems on a manikin, the iso-impulse tolerance limits were associated with the thoracic response of post-mortem swine under blast loading. It was found that the lung injury threshold in terms of incident impulse is 58.3 kPa·ms, corresponding to a chest wall peak of acceleration/velocity/displacement of 7350 m/s², 3.7 m/s and 6.4 mm respectively. Lung injuries are considered as severe (30-60% of ecchymosis) when the incident impulse exceed 232.8 kPa·ms, leading to a chest wall peak of acceleration/velocity/displacement of 79.7 km/s², 14.7 m/s and 30.1 mm respectively. The defined lung tolerance limits are valid for a 50 kg swine (unprotected) exposed side-on to the blast threat and against a wall.

See also

Nebulised recombinant activated factor VII (rFVIIa) does not attenuate the haemorrhagic effects of blast lung injury. Under Research & Technology.

Outbreak of Acute Respiratory Illness Associated with Adenovirus Type 4 at the U.S. Naval Academy, 2016. Under Health Surveillance.

The Immediate Effect of Taping and Counterforce Brace on Pain and Grip Strength in Patients with Tennis Elbow.

Source
Journal of Archives in Military Medicine 2019 7 (1)
Author(s)
Shamsoddini, A.,

Abstract
Background: Tennis elbow (TE) is a common strain injury or microtrauma that causes sore and tender around the outside of the elbow. Using orthotic devices is one way for rehabilitating this condition. Objectives: The aim of this study was to investigate the immediate effects of taping technique (TT) and counterforce brace (CB) on hand grip strength and pain in the patients with tennis elbow. Methods: In an experimental study with pre-test and post-test stages, 29 subjects with TT on their dominant arm were recruited and randomly divided into two groups: TT group (15 subjects) and CB group (14 subjects). The outcomes of the measurement consisted of pain in the lateral aspect of the elbow, as well as grip strength of hand before and 30 minutes after application of TT in one group and CB in another group. The visual analog scale (VAS) was used to assess pain and dynamometer was also utilized to evaluate grip strength. Results: Following elbow taping, the pain was significantly lower than CB group (P = 0.004). However, grip strength with P = 0.06 showed no significant difference between the two groups. The results revealed a significant difference between after and before interventions, with increases in hand grip strength and wrist extension muscle force in TT and CB groups. Conclusions: According to these findings, the improvement of grip strength was not different between the two methods. However, it seems that TT was more effective than CB in the reduction of pain of lateral aspect related to the elbow in these patients.

A Nontraditional Role as a Physical Therapist in the Quality of Life Plus Program (QL+).

Source
Journal of Special Operations Medicine 2019 19 (1) 31-33
Author(s)
Springer, B.,

Abstract
Physical therapists have the unique ability to work in a variety of settings geared toward helping people have the best quality of life possible. The following program is described by a physical therapist who is a board-certified, clinical specialist in sports and orthopedic physical therapy, is retired from the US Army, and now serves as the director of operations for The Quality of Life Plus Program (QL+).
2019-122 0263

**Scapular winging on Exercise Cambrian Patrol: three soldiers in three days - an occupational risk?**

**Source**  
Journal of the Royal Army Medical Corps 2019 ( )

**Author(s)**  
Green,S., Hodgson,H., et al.

**Abstract**  
Exercise CAMBRIAN PATROL is an internationally recognised, arduous patrolling exercise held annually in Mid-South Wales. The 2017 iteration of the exercise generated three uncommon shoulder injuries in three consecutive days, all of which were thought to have a similar aetiology. This article presents a case series of three instances of scapular winging in soldiers carrying heavy weight. We review the relevant anatomy and pathophysiology of long thoracic nerve injury and discuss management strategies of scapular winging. Occupational health considerations are reviewed, with respect to carrying large amounts of weight over distance and difficult terrain within the armed forces, along with discussion of a novel weight distribution system (VIRTUS) which has recently been brought into service by the British Army.

2019-122 0264

**The Wounded Warrior Recovery Project: A Longitudinal Examination of Patient-Reported Outcomes Among Deployment-Injured Military Personnel**

**Source**  
Military Medicine 2019 184 (3) 84-89

**Author(s)**  

**Abstract**  
The article discusses the longitudinal research regarding the injured U.S. service members. Topics mention including several service members who are wounded during the Overseas Contingency Operations (OCOs) in Afghanistan and Iraq, Wounded Warrior Recovery Project (WWRP) and patient-reported outcomes and measures.

**See also**  
Effects of Oral Chondroitin Sulfate on Osteoarthritis-Related Pain and Joint Structural Changes Systematic Review and Meta-Analysis.

Source
Journal of Special Operations Medicine 2019 19 (1) 113-124
Author(s)
Knapik, J.J., and Pope, R.,

Abstract
Osteoarthritis (OA) is a disorder involving the deterioration of articular cartilage and underlying bone and is associated with symptoms of pain and disability. In military personnel, the incidence of OA has increased between 2000 and 2012 and was the first or second leading cause of medical separations in this period. It has been suggested that consumption of chondroitin sulfate (CS) may reduce the pain and joint deterioration associated with OA. This article reports on a systematic review and meta-analysis of the effectiveness of CS on reducing OA-related pain and joint deterioration. PubMed and Ovid Embase databases and other sources were searched to find randomized, double-blind, placebo-controlled trials on the effects of orally consumed CS on pain and/or joint structure. The outcome measure was the standardized mean difference (SMD) which was the improvement in the placebo groups minus the improvement in the CS groups divided by the pooled standard deviation. There were 18 trials meeting the review criteria for pain with SMD –0.41, 95% confidence interval (95% CI) –0.57 to –0.25 (negative SMD favors CS). Six studies met the review criteria for joint space narrowing with SMD –0.30, 95% CI –0.61 to +0.00. Two studies meet the review criteria for cartilage volume with SMD –0.11, 95% CI –0.48 to +0.26. Larger dosages (1200mg/d) had greater pain reduction efficacy than lower dosages (≤1000mg/d). These data suggest that CS has small to moderate effectiveness in reducing OA-related pain but minimal effects on joint space narrowing and no effect on cartilage volume. It is important that clinicians recommend pharmaceutical-grade CS to their patients due to the variability in the amount of CS in dietary supplements purporting to contain CS.

Risk of post-traumatic knee osteoarthritis after knee injury in military service members

Source
Musculoskeletal Care 2019 17 (1) 113-119
Author(s)

Abstract
Purpose: The aims of the present study were: (a) to identify the incidence of osteoarthritis (OA) after a traumatic knee injury; (b) identify the risk of post-traumatic osteoarthritis (PTOA) based on the type of injury; and (c) identify the time from injury
to OA diagnosis.; Patients and Methods: The Expeditionary Medical Encounter Database, containing healthcare utilization for all deployment injuries sustained by military service members, was queried for traumatic knee injuries between 2001 and 2016. Subsequent diagnosis of knee OA was identified, defined as PTOA. Time to knee PTOA diagnosis was determined and logistic regression was used to obtain odds ratios (ORs) (95% confidence interval CI) between knee injury type and development of PTOA.; Results: A total of 345 (9.57%) of the 3,605 subjects were diagnosed with PTOA. The median time to diagnosis was 4.10 years. Four primary diagnoses remained significantly associated with PTOA after adjusting for age and injury severity score: fracture (adjusted OR aOR = 1.36; 95% CI 1.02, 1.82), sprain (aOR = 1.59; 95% CI 1.23, 2.06), dislocation (aOR = 3.70; 95% CI 2.09, 6.55) and derangement (aOR = 2.38; 95% CI 1.33, 4.28). Subjects were significantly less likely to develop PTOA after a soft-tissue injury (aOR = 0.44; 95% CI 0.41, 0.75).; Conclusions: A substantial number of individuals with a traumatic knee injury developed early PTOA (9.6%). Certain knee injuries have a greater association with PTOA. Future studies should implement longer surveillance periods and identify other healthcare variables associated with the risk of developing PTOA, to include appropriate and timely interventions.
Assessing the Burden of Chlamydia and Gonorrhea for Deployed and Active Duty Personnel Assigned Outside the USA

Source
Military Medicine 2019 184 ( ) 21-27
Author(s)
Rossi, K.R. and Nowak, G.

Abstract
Sexually transmitted infections (STIs) have posed a threat to military service members throughout history, but limited evidence describes current sexually transmitted infection burden for personnel in-theater and stationed abroad. This study assessed chlamydia and gonorrhea rates by unit of country assignment and evaluated the demographic profile of affected personnel during deployment. Chlamydia and gonorrhea cases among active duty personnel were identified from laboratory results and ambulatory encounter records in the Military Health System from fiscal years October 2006 through September 2015; these were linked to personnel and deployment records to ascertain demographic characteristics, unit of country assignment, and if the case was captured during a period of deployment. Case rates were higher for chlamydia (1,321.7 per 100,000) than gonorrhea (222.7 per 100,000). Approximately 2% of both chlamydia and gonorrhea cases were identified during deployment, with significant differences by service, sex, and age. Elevated rates were identified in several countries of unit assignment outside the USA, warranting further assessment to better understand implications of screening programs or increased morbidity. Pertinent limitations for this study potentially underestimate STI cases during deployment, due to incomplete capture of records from shipboard and in-theater facilities.

HIV/aids prevention practices among military personnel in northwest Ethiopia

Source
AIDS Care 2019 ( )
Author(s)

Abstract
The spread of HIV/AIDS is a major public health problem in military personnel in Africa. However, the epidemiological evidence regarding HIV/AIDS prevention practices among military personnel in Ethiopia remains unclear. The aim of this study was to investigate HIV/AIDS prevention practices among military personnel in Northwest Ethiopia. A cross-sectional study among military personnel (n = 410) was conducted in Northwest Ethiopia in 2015. Data were collected using a pre-tested questionnaire. Multivariable logistic regression model was fitted to ascertain factors influencing participation in HIV/AIDS prevention programs. About one-fourth (24.6%) of the military personnel had multiple sexual partners, of whom 24.7% failed to use condoms regularly when having sex with non-regular sexual partners. Majority of the sample (n = 355, 86.6%) participated in HIV/AIDS prevention programs. Military
personnel who had multiple sexual partners were 6.3 times more likely to report history of non-participation in HIV/AIDS prevention programs (AOR = 6.3, CI95 = 3.5–11.54). A considerable proportion of military personnel had multiple sexual partners with lower levels of condom utilization with non-regular sexual partners. The study further demonstrated misconceptions about HIV/AIDS in Ethiopian military personnel, which reduce their likelihood of participation in HIV/AIDS prevention programs. Health authorities need to strengthen and accelerate HIV/AIDS prevention programs focusing towards military personnel.

2019-122 0269

**Prevalence and risk factors of Chlamydia trachomatis genital infection among military personnel of the Armed Forces of Serbia: a cross-sectional study.**

**Source**
Vojnosanitetski Pregled 2019 76 (2) 168-174

**Author(s)**
Jadranin,Ž., and Ristanović,E.,

**Abstract**
Background/Aim. Chlamydia trachomatis infection (CTI) is an increasing public health problem worldwide and is the most frequent sexually transmitted infection. Studies conducted in many armed forces worldwide showed that CTI is common within military population and generate significant healthcare costs. The aim of this study was to estimate the prevalence of CTI among members of the Serbian Armed Forces (SAF) and to determine risk factors for this infection. Methods. The study was designed as a cross-sectional survey and consisted of completing a questionnaire and chlamydial testing. The questionnaire was divided into two question groups: one was about demographic/service related characteristics and the other was about behavioral patterns/habits. Chlamydia trachomatis real time polymerase chain reaction (Real-TM PCR) was used for detection of pathogen genome specific sequence in the male urethral swabs and in the female endocervical swabs. All data collected were used to compare military personnel with and without CTI. Risk factors independently associated with CTI were identified by the stepwise multivariate logistic regression analysis (MLRA) of variables selected by the univariate logistic regression analysis (ULRA), with a limit for entering and removing variables from the model at 0.05. Results. The overall prevalence of CTI was 55 of 356 respondents (15.4%; 95% CI 0.5–2.7%). The ULRA identified that CTI was significantly associated with several characteristics: number of sexual partners during previous year (p = 0.008), knowledge about symptoms of CTI (p = 0.035), tattooing (p = 0.035) and married or in stable relationship (p = 0.022). The MLRA revealed that number of different sexual partners during last year was independent risk factor of CTI (p = 0.026; OR : 0.344; 95% CI: 0.13–0.88). Conclusion. CTI is significant problem in male and female military personnel in the SAF. The number of different sexual partners during previous year was independently associated with CTI. These finding indicates that screening for CTI should be undertaken in the SAF, to reduce rates of CTI in the SAF and to prevent morbidity due to this infection.
2019-122 0270

**Relationship between depression and risk behaviors in a US Military population with HIV infection**

**Source**
AIDS Care 2019 ( ) 1-5

**Author(s)**
Carney,B., White,J., et al.

**Abstract**
This study evaluated the relationships between depression trajectories, depression diagnosis and sexual risk behaviors in the US Military HIV Natural History Study. Risk behavior survey data, a coded diagnosis of depression, available Center for Epidemiological Studies Depression measures, and self-reported depressive symptoms (n = 662) were utilized. Latent class analysis created 3 classes of depression trajectories, namely, low depression (LD, n = 378), recent-onset depression (ROD, n = 170), and high depression (HD, n = 114) trajectories. Overall, participants with clinically diagnosed depression were less likely to report often using condoms with new sexual partners in the past 3 months than those who have never been diagnosed with depression (OR 0.15, 95% CI 0.49-2.53). Participants with ROD (OR 0.52, 95% CI 0.28-0.97) and HD (OR 0.48, 95% CI 0.24-0.96) trajectories were less likely to report often using condoms with new sexual partners in the past 3 months than those with LD trajectories. Moreover, those with either ROD (OR 2.13, 95% CI 1.19-3.80) or HD (OR 2.74, 95% CI 1.43-5.24) trajectories were more likely to have had sex with ≥2 new sexual partners in the last 3 months than those with LD trajectories. Continued efforts targeting HIV-infected persons with mental health disorders are warranted to reduce sexual risk behaviors.

2019-122 0271

**Sexual Behaviors and Health Practices Among Student Service Members and Veterans**

**Source**
Archives of Sexual Behavior 2019 ( )

**Author(s)**

**Abstract**
The purpose of the study was to determine whether veteran students and non-veteran students differed in their sexual behaviors and health practices and, furthermore, whether or not those differences were gender specific. Demographic characteristics of the study sample were explored by calculating frequencies and percentages by military service status. Research questions were explored with maximum likelihood multiple logistic regression. Results showed that student veterans were more likely than non-veteran students to have sex with multiple partners, with males and transgender students more likely than females to report multiple sexual partners. Student veterans were more likely than non-veterans to perform a self-examination for either breast cancer or testicular cancer, with transgender students more likely than females to report having engaged in a self-examination. Student veterans were also more likely than non-veterans to have been vaccinated against HPV or Hepatitis B, with male students more likely than females
to have been vaccinated. Furthermore, transgender student veterans were less likely than female veterans to have been vaccinated. Finally, male student veterans were more likely than female veterans to report an STI-related doctor visit, with transgender student veterans more likely than female veterans to report an STI-related doctor visit. College campuses are increasingly implementing student veteran-specific programs and services; however, little if any research specifically has explored ways in which safety and health can be promoted within university settings. We recommend that institutions of higher education make concerted efforts to promote safety and health among its student veteran population.

Sexually transmitted infections, active component, U.S. Armed Forces, 2010-2018

Source
Msmr 2019 26 (3) 2-10
Author(s)
Stahlman,S. and Oetting,A.A.

Abstract
This report summarizes incidence rates of the 5 most common sexually transmitted infections (STIs) among active component service members of the U.S. Armed Forces during 2010-2018. Infections with chlamydia were the most common, followed in decreasing order of frequency by infections with genital human papillomavirus (HPV), gonorrhea, genital herpes simplex virus (HSV), and syphilis. Compared to men, women had higher rates of all STIs except for syphilis. In general, compared to their respective counterparts, younger service members, non-Hispanic blacks, soldiers, and enlisted members had higher incidence rates of STIs. During the latter half of the surveillance period, the incidence of chlamydia and gonorrhea increased among both male and female service members. Rates of syphilis increased for male service members but remained relatively stable among female service members. In contrast, the incidence of genital HPV and HSV decreased among both male and female service members. Similarities to and differences from the findings of the last MSMR update on STIs are discussed.

See also
SEXUAL TRAUMA

2019-122 0273

Does deployment-related military sexual assault interact with combat exposure to predict posttraumatic stress disorder in female veterans?

Source
Traumatology 2019 25 (1) 66-71

Author(s)
Gross,G.M., Cunningham,K.C., et al.

Abstract
The objective of the present research was to expand upon previous findings indicating that military sexual trauma interacts with combat exposure to predict posttraumatic stress disorder (PTSD) among female Iraq/Afghanistan-era veterans. In total, 330 female veterans completed self-report measures of combat experiences, military sexual assault (MSA) experiences, and PTSD symptoms as well as structured diagnostic interviews for PTSD. A significant strength of the present research was the use of PTSD diagnosis as an outcome measure. Consistent with previous research, both combat exposure and MSA were significant predictors of PTSD symptoms (linear regression) and PTSD diagnoses (logistic regression). Specifically, participants who experienced deployment-related MSA had approximately 6 times the odds of developing PTSD compared with those who had not experienced deployment-related MSA, over and above the effects of combat exposure. Contrary to expectations, the hypothesized interaction between MSA and combat exposure was not significant in any of the models. The low base rate of MSA may have limited power to find a significant interaction; however, these findings are also consistent with other recent studies that have failed to find support for the hypothesized interaction. Thus, whereas the majority of available evidence indicates that MSA increases risk for PTSD among veterans over and above the effects of combat, there is presently only limited support for the hypothesized MSA × Combat interaction. These findings highlight the continued need for prevention and treatment of MSA to improve veterans' long-term mental health and well-being.

2019-122 0274

GAY AND GRAY IX: TURNING RED, WHITE AND BLUE: HOW A HISTORY OF MILITARY SEXUAL TRAUMA IMPACTS THE LIVES OF OLDER LGBT VETERANS: Session 111

Source
American Journal of Geriatric Psychiatry 2019 27 S10-S11

Author(s)
Lane,C., Sewell,D.D., et al.

Abstract
As the general population of older adults in the US continues to rapidly increase so is the population of older Veterans who belong to a gender or sexual minority. A subset of these older LGBT veterans experienced victimization while serving in the military inspired by their LGBT status some of these veterans even now are still experiencing the consequences of this trauma. The overarching goal of this session is to help mental health providers provide the best care possible for older veterans who were
Traumatized during their period of military service as a result of being LGBT. The session will cover the following areas: the history of LGBT individuals serving in the US Military, the scientific literature on PTSD in later life, three clinical vignettes of older veterans being treated for military sexual trauma and the potentially helpful clinical services currently available through the VA for older military sexual trauma survivors.

2019-122 0275

Hypersexual Behavior as a Symptom of PTSD: Using Cognitive Processing Therapy in a Veteran with Military Sexual Trauma-Related PTSD.

Source
Archives of Sexual Behavior 2019 48 (3) 987-993
Author(s)
Larsen, S.E.

Abstract
Hypersexual behavior is a construct that is well recognized yet vaguely conceptualized, leading to some arguments that it may be comprised of multiple etiologies. Childhood sexual abuse is often acknowledged as a common experience among those with sexually addictive behaviors, yet the intersection between PTSD and sexual addiction has not been fully explored. This case illustrates the use of Cognitive Processing Therapy, an empirically supported treatment for PTSD, as a means to treat both PTSD symptoms and hypersexual behaviors in a veteran who had experienced military sexual trauma. Treatment led to a meaningful decrease in both types of symptoms, even in the absence of a structured treatment approach for sexual addiction. It is argued that differential diagnosis, including functional analysis of hypersexual behaviors, is crucial in treatment planning. Further, attention to trauma and PTSD is important in veterans and others for whom PTSD is part of the etiology of hypersexual behavior; trauma-focused CBT therapies can provide a useful treatment approach in these cases.

2019-122 0276

Perceptions of High-Risk Situations for Sexual Assault: Gender Differences in the U.S. Air Force

Source
Military Medicine 2019 184 ( ) 443-450
Author(s)
Silber Ashley, O., Lane, M.E., et al.

Abstract
This study explored U.S. Air Force service members' perceptions of high-risk situations for sexual assault victimization. Qualitative data were collected from 52 active duty Airmen, including sexual assault survivors and general population officers and enlisted personnel. Participants were recruited through posted flyers, base-wide e-mail messages, and referrals from the Sexual Assault Response Coordinator's office. Content analysis was used to summarize participants' opinions and experiences. High-risk situations for all Airmen included excessive alcohol use, specific physical settings, and situations associated with work assignments. High-risk situations identified frequently by male and female sexual assault survivors and female (but not male) general population Airmen included power imbalance; isolation
in the workplace and social settings; and youth, inexperience, and unfamiliarity with the military environment. Female Airmen identified workplaces with a predominance of men or being one of very few women in a group as a high-risk situation for sexual assault victimization. And female sexual assault survivors identified implicit but unwarranted trust between Airmen as a high-risk situation. This study provides new insight into gender differences in high-risk situations for sexual assault victimization, and the data can help policymakers better prevent sexual assault by appropriately tailoring and timing sexual assault risk reduction training.

See also

**Silence-breaking butterfly effect: Resistance towards the military within #metoo.** Under Women’s Health & Welfare.
Applications of Future Technologies to Detect Skill Decay and Improve Procedural Performance

Source
Military Medicine 2019 184 72-77
Author(s)
Linde, A.S. and Miller, G.T.

Abstract
Medical simulation training has progressed in its use of incorporating various technologies to provide quality training interfaces from novices to experts. The purpose of this paper is to explore modeling, simulation and visualization training technology interfaces to improve precision learning, rigorous, objective assessment, and performance improvement feedback for clinical procedural skill training and sustainment. Technologies to include augmented reality (AR), haptic technology and computer vision will be defined and clarified. It is believed that by exploring the combination of using AR, haptics and computer vision technologies it is possible to develop a fully immersive learning system that can automate mentoring while detecting and measuring gross and fine motor skills. Such a system can be used to predict or delay the onset of skills decay (SD) by capturing rigorous, objective measures, and human performance metrics that can provide feedback to individual performers for skills improvement in real time.

Development of a Methodology for Simulating Complex Head Impacts With the Advanced Combat Helmet

Source
Military Medicine 2019 184 ( ) 237-244
Author(s)
Begonia, M., Rooks, T., et al.

Abstract
Blunt impact assessment of the Advanced Combat Helmet (ACH) is currently based on the linear head response. The current study presents a methodology for testing the ACH under complex loading that generates linear and rotational head motion. Experiments were performed on a guided, free-fall drop tower using an instrumented National Operating Committee for Standards on Athletic Equipment (NOCSAE) head attached to a Hybrid III (HIII) or EuroSID-2 (ES-2) dummy neck and carriage. Rear and lateral impacts occurred at 3.0 m/s with peak linear accelerations (PLA) and peak rotational accelerations (PRA) measured at the NOCSAE head center-of-gravity. Experimental data served as inputs for the Simulated Injury Monitor (SIMon) computational model to estimate brain strain. Rear ACH impacts had 22% and 7% higher PLA and PRA when using the HIII neck versus the ES-2 neck. Lateral ACH impacts had 33% and 35% lower PLA and PRA when using HIII neck versus the ES-2 neck. Computational results showed that total estimated brain strain increased by
25% and 76% under rear and lateral ACH impacts when using the ES-2 neck. This methodology was developed to simulate complex ACH impacts involving the rotational head motion associated with diffuse brain injuries, including concussion, in military environments.

2019-122 0279

**Experimental platforms to study blast injury.**

**Source**  
Journal of the Royal Army Medical Corps 2019 165 (1) 33-37

**Author(s)**  
Nguyen,T., and Pearce,A.P.,

**Abstract**  
Injuries sustained due to attacks from explosive weapons are multiple in number, complex in nature, and not well characterised. Blast may cause damage to the human body by the direct effect of overpressure, penetration by highly energised fragments, and blunt trauma by violent displacements of the body. The ability to reproduce the injuries of such insults in a well-controlled fashion is essential in order to understand fully the unique mechanism by which they occur, and design better treatment and protection strategies to alleviate the resulting poor long-term outcomes. This paper reports a range of experimental platforms that have been developed for different blast injury models, their working mechanism, and main applications. These platforms include the shock tube, split-Hopkinson bars, the gas gun, drop towers and bespoke underbody blast simulators.

2019-122 0280

**A Novel Arterial Line Simulation Model**

**Source**  
Military Medicine 2019 184 ( ) 326-328

**Author(s)**  
Walsh,R., Black,C., et al.

**Abstract**  
With damage control surgery and resuscitation teams, the military is bringing surgical as well as intensive care far forward to areas where mass casualty events are an ever-present threat. One procedure that the team is required to be proficient in is arterial line insertion and transducing. To our knowledge, there are no previously described field arterial line simulation models. We present an arterial line insertion and transducer simulator created using medium resistance Thera-band tubing, saline, Coban, and a SAM splint. Ten deployed members of a damage control surgical team received 30 minutes of instruction on how to properly insert an arterial line and how to set up the transducer equipment. All participants were able to show proficiency in radial artery line insertion and transducer setup despite 8 of the 10 participants having never inserted or setup an arterial line. We describe, to our knowledge, the first arterial line insertion and transducing model utilizing only items found in the deployed environment. This model can be easily made and utilized to train medical personnel of all skill levels to augment the capabilities of medical units in areas where mass casualty events are likely.
Primary blast lung injury simulator: a new computerised model.

Source
Journal of the Royal Army Medical Corps 2019 165 (1) 45-50

Author(s)
Haque,M., and Das,A.,

Abstract
Mathematical modelling and computational simulation are becoming increasingly important tools in many fields of medicine where in vivo studies are expensive, difficult or impractical. This is particularly the case with primary blast lung injury, and in this paper, we give a brief overview of mathematical models before describing how we generated our blast lung injury simulator and describe some early results of its use.

Using Simulation to Address a Training Gap in Battlefield Ocular Trauma: A Lateral Canthotomy and Cantholysis (LCC) Prototype Training System

Source
Military Medicine 2019 184 ( ) 335-341

Author(s)
Sotomayor,T.M., Bailey,M.P., et al.

Abstract
Over the past 15 years of conflict, eye injuries have occurred at a steady rate of 5-10% of combat casualties, attributed to the enemy's use of improvised explosive devices. Many of these injuries result in a compartment syndrome of the orbit, easily decompressed through the use of a simple procedure called a Lateral Canthotomy and Cantholysis (LCC). Current training curricula at the U.S. Army Center for Pre-Hospital Medicine at Fort Sam Houston, Texas incorporates LCC training presented in lectures and taught using cadavers and goats (resources permitting), but lacks a LCC training device for the development of psychomotor skills. Requirements analysis, iterative design and development, and testing were performed for a simulation-based training system that may be used to practice the LCC procedure. Subject matter experts have conducted numerous reviews of the prototype system, where feedback is used to drive subsequent designs. Further work, including formal analysis of training effectiveness, will be performed to validate the training system. This will benefit will benefit military and civilian training programs by training psychomotor skills to enhance competency in the LCC procedure for preserving eyesight.

See also
Comparison of a Novel Trainer to a Traditional Swine Model for Training Providers in Lateral Canthotomy and Cantholysis. Under Ophthalmology.

Cognitive behavioral therapy for insomnia among active duty military personnel

Source
Psychological Services 2019 ( )

Author(s)

Abstract
Insomnia is one of the most frequent sleep complaints among veterans and military personnel. This retrospective study investigated whether cognitive–behavioral therapy for insomnia (CBT-I) improved sleep and reduced insomnia symptoms in an active duty military population. The study consisted of 98 military personnel (mean age = 31.0, SD = 7.4; 70% male) who experienced insomnia and completed CBT-I in a military sleep disorders clinic. Assessments of sleep were completed analyzing pre- and posttreatment variables from the sleep diary, Insomnia Severity Index (ISI), and Epworth Sleepiness Scale (ESS). At baseline, the mean ISI was 16.63 (SD = 4.36) with a total sleep time (TST) of approximately 5.90 hr (SD = 1.32). After CBT-I, the ISI was 14.50 (SD = 5.19) and TST was 5.62 hr (SD = 1.32). There was no significant change over time for patients who received fewer than 4 sessions but change over time was significant for patients who received 4 or more sessions. Over the course of treatment, patients’ overall sleep improved across metrics with 20% achieving clinically meaningful improvement in insomnia symptoms. CBT-I improves insomnia symptoms in some military personnel. However, everyone does not respond successfully to CBT-I treatment.

Effects of a Workplace-Based Sleep Health Program on Sleep in Members of the German Armed Forces

Source

Author(s)
Sauter, C., Kowalski, J.T., et al.

Abstract
Study Objectives: To develop and evaluate a brief manual-based sleep health program within the workplace health promotion of the German Armed Forces.; Methods: The sleep health program comprised four weekly group sessions. Sixty-three members (48 males) were randomly allocated to either a treatment group or a waiting control group matching for age, sex, and baseline Pittsburgh Sleep Quality Index (PSQI). The control group had to wait before participating in the sleep health program until the treatment group finished the intervention. Sleep was assessed by ambulatory polysomnography (PSG) as well as with evening and morning protocols at baseline (t0), directly after the treatment group participated in the sleep health program (t1), and after the control group finished participation (t2). The PSQI, the Insomnia Severity Index (ISI), and the Epworth Sleepiness Scale (ESS) were applied at the same three time points, and during a 3-month follow-up evaluation (t3).; Results: Fifty-seven out of the 63 randomized individuals (42 males, mean age =
40.6 years; complete PSG data: n = 36; complete questionnaire data: n = 39) participated in the sleep health program. Objective wake after sleep onset, sleep efficiency, latency to persistent sleep, self-reported sleep latency, restfulness, PSQI, and ISI scores improved with medium or large effects in both groups. ESS scores decreased with moderate effects in the treatment group only.; Conclusions: The sleep health program had a positive and stable effect on objective and self-reported sleep parameters, and it is suitable as a preventive measure in members of the German Armed Forces.

**2019-122 0285**

**A phenomenological inquiry into the experience of sleep: Perspectives of US military veterans with insomnia and serious mental illness.**

**Source**
Journal of Sleep Research 2019 ( ) e12833

**Author(s)**

**Abstract**
The majority of people with serious mental illness experience insomnia, and insomnia is one of the most frequent reasons for mental health referrals in the Veterans Health Administration. Insomnia also represents a critical obstacle to mental health recovery. Little is known about how military veterans with mental health problems conceptualize their sleep and sleep problems; such information may uncover new avenues for research and treatment. Therefore, the purpose of this study was to explore how veterans with serious mental illness and insomnia experience and understand their sleep, towards the aim of identifying these new avenues. Participants included 20 veterans with insomnia and serious mental illness (i.e. schizophrenia spectrum, bipolar or major depressive disorders, with serious functional impairments). Data were collected via an inductive phenomenological approach using semi-structured interviews. We identified five themes: Sleep to Recharge; Sleep as a Fight; Sleep as Safety or Escape; Sleep as Dangerous; and Military Influence. Participants' relationship with sleep was complex; many associated it with intrusive and troubling hallucinations, paranoia and military experiences, yet at the same time desired sleep for its potential to liberate them from distress. Military mindsets both helped and hindered sleep. These results extend existing models of insomnia development and maintenance and illuminate phenomena previously unidentified in this underserved veteran population. Clinical and theoretical implications are discussed, as well as new research directions for enhancing therapeutic efficacy.
A Review of Environmental Barriers to Obtaining Adequate Sleep in the Military Operational Context

Source
Military Medicine 2019 ( )

Author(s)
Mantua,J., Bessey,A., et al.

Abstract
Introduction: Sleep loss is ubiquitous in military settings, and it can be deleterious to cognitive, physiological, and operational functioning. This is especially true in the military operational context (e.g., training, garrison, combat) where continuous operations prevent adequate time for rest and recuperation. Furthermore, even when servicemembers do have opportunities for sleep, environmental disruptors in the military operational context make it difficult to obtain restorative sleep. Such environmental disruptors are potentially preventable or reversible, yet there is little public awareness of how to minimize or eliminate these sleep disruptors. Therefore, the goal of this review was to outline prominent environmental sleep disruptors, describe how they occur in the military operational context, and also discuss feasible strategies to mitigate these disruptors.; Materials and Methods: We discuss four factors - light, noise, temperature, and air pollution - that have previously been identified as prominent sleep disruptors in non-military settings. Additionally, we extracted publicly-available yearly temperature and pollution data, from the National Oceanic and Atmospheric Association and the Environmental Protection Agency, respectively, for major prominent military installations in the continental US in order to identify the sites at which servicemembers are at the greatest risk for environmental sleep disruptions.; Results: Based on previous literature, we concluded light and noise are the most easily mitigatable sleep-disrupting environmental factors. Air pollution and temperature, on the other hand, are more difficult to mitigate. We also propose that harsh/uncomfortable sleeping surface is a fifth critical, previously unexplored sleep disruptor in the military operational context. Furthermore, we identified several problematic military sites for air pollution for temperature. Specifically, each branch has major installations located in regions with extreme heat (especially the Army), and each branch has at least one major installation in a high air pollution region. These findings show that even when in training or garrison in the US, military servicemembers are at risk for having sleep disruption due to environmental factors.; Conclusions: Environmental disruptors, such as light, noise, temperature, and air pollution, can negatively impact sleep in the military operational context. Simple, feasible steps can be taken to reduce sleep disruptions that are caused by light and noise. Yet there is a need for research and development on tools to mitigate air pollution, extreme temperatures, and inhospitable sleeping surfaces. Leadership at the discussed military bases and training facilities should focus on improving the sleep environment for individuals under their command. Such interventions could ultimately improve warfighter health, wellness, and operational performance, leading to greater warfighter readiness and lethality.
Self-Reported Sleep, Anxiety, and Cognitive Performance in a Sample of U.S. Military Active Duty and Veterans

Source
Military Medicine 2019 184 ( ) 488-497
Author(s)
Rice,V.J.B. and Schroeder,P.J.

Abstract
Unhealthy sleep can interfere with U.S. military service members affective and cognitive functioning, and increase accident and injury risks. This study examined the relationship between U.S. active duty and veterans’ (n = 233) self-reported sleep (Pittsburgh Sleep Quality Index), anxiety (Zung Self-Rating Anxiety Scale), and cognitive performance (Automated Neuropsychological Assessment Metric). Statistical analyses included Pearson product moment correlations and multivariate analysis of variance, with Tukey-b post-hoc tests, with a p < 0.05 significance level. Higher education, abstinence from sleep aids, longer time in active duty service, and being on active duty were correlated with better sleep and lower anxiety. Greater sleep disturbance, poor sleep quality, and sleepiness-related daytime dysfunction were associated with greater anxiety and slower response times, and lower response accuracy. Statistically controlling for anxiety diminished the magnitude and significance of the correlations between sleep and cognitive performance, suggesting that reducing anxiety will improve sleep and diminish cognitive performance effects. These findings suggest the need for addressing both sleep and anxiety for those with diagnosed sleep disorders, as well as using a procedural systems approach to decrease anxiety during missions that demand outstanding cognitive performance.

Sleep deprivation in Air National Guard medical personnel responding to simulated disaster-training exercises

Source
Military Psychology (American Psychological Association) 2019 31 (2) 138-146
Author(s)
James,L., Smart,D., et al.

Abstract
National Guard personnel remain largely unstudied within the sleep research community, despite their unique and important role. In response, the purpose of this study was to investigate the extent of sleep deprivation in National Guard medical personnel from two separate Air Force Bases (AFBs) responding to simulated disaster-training exercises. National Guard medical personnel (N = 77) were fitted with wrist activity monitors (actigraphy) to objectively measure their sleep for 4 days of their civilian time (baseline), followed by a 4-day transition period from civilian to military duty, and a 3-5-day disaster-training exercise. Differences in sleep quantity, quality, and "cognitive effectiveness" were analyzed using generalized linear mixed models. Participants' sleep quantity was significantly reduced from civilian to disaster-training periods, and their cognitive effectiveness also dropped significantly. National Guard medical personnel were sleep-deprived during a simulated disaster-training exercise, which, although a valid proxy for real-world disasters, is likely to be a conservative approximation of the stress and fatigue National Guard personnel experience during crisis response. As such, the need for targeted fatigue-related interventions to safeguard our service members during these critical times is clear.

2019-122 0288
See also

Pain and sleep problems predict quality of life for veterans with serious mental illness. Under Veterans Health & Welfare.
Black/white differences in mortality among veteran and non-veteran males.

Source
Social Science Research 2019 79 ( ) 101-114
Author(s)
Sheehan C.M. and Hayward, M.D.

Abstract
U.S. military veterans are a large and racially heterogeneous population. There are reasons to expect that racial disparities in mortality among veterans are smaller than those for non-veterans. For example, blacks are favorably selected into the military, receive relatively equitable treatment within the military, and after service accrue higher socioeconomic status and receive health and other benefits after service. Using the 1997-2009 National Health Interview Survey (N=99,063) with Linked Mortality Files through the end of 2011 (13,691 deaths), we fit Cox proportional hazard models to estimate whether racial disparities in the risk of death are smaller for veterans than for non-veterans. We find that black/white disparities in mortality are smaller for veterans than for non-veterans, and that this is explained by the elevated socioeconomic resources of black veterans relative to black non-veterans. Leveraging birth cohort differences in military periods, we document that the smaller disparities are concentrated among All-Volunteer era veterans.
Improvised Ground Evacuation Platforms for Austere Special Operations Casualty Transport.

Source

Author(s)

Abstract
There are no established ground medical-evacuation systems within Special Operations Command Africa (SOCAFRICA), given the austere and varied environments. Transporting the injured casualty requires ingenuity and modification of existing vehicles. The Expeditionary Resuscitative Surgical Team (ERST) assigned to SOCAFRICA used four unconventional means for ground evacuation. This is a retrospective review of the various modes of ground transportation used by the ERST-3 during deployment with SOCAFRICA. All hand carried litter and air evacuation platforms were excluded. Over 9 months, four different ground casualty platforms were used after they were modified: (1) Mine-Resistant Ambush-Protected All-Terrain Vehicle (MAT-V; Oshkosh Defense); (2) MRZR-4 ("Razor"; Polaris Industries); (3) nonstandard tactical vehicles, (NSTVs; Toyota HiLux); and (4) John Deere TH 6x4 ("Gator"). Use of all vehicle platforms was initially rehearsed and then they were used on missions for transport of casualties. Each of the four methods of ground evacuation includes a description of the talon litter setup, the necessary modifications, the litter capacity, the strengths and weaknesses, and any summary recommendations for that platform. Understanding and planning for ground casualty evacuation is necessary in the austere environment. Although each modified vehicle was used successfully to transfer the combat casualty with an ERST team member, consideration should be given to acquisition of the MAT-V medical-specific vehicle. Understanding the currently available modes of ground casualty evacuation transport promotes successful transfer of the battlefield casualty to the next echelon of care.
Low-Resource Tactical Combat Casualty Care Training for Peshmerga Units in Remote Areas of Kurdistan.

Source
Journal of Special Operations Medicine : A Peer Reviewed Journal for SOF Medical Professionals 2019 19 (1) 81-87

Author(s)
Taylor D., Murphy J., et al.

Abstract
The Peshmerga are the official military of the autonomous region of Kurdistan, Iraq. There remains a high level of variability across Peshmerga units in medical equipment and training. Presumably, Peshmerga soldiers are dying from preventable causes of death due to combat-related injuries, just as US troops did before the introduction of Tactical Combat Casualty Care (TCCC) training and supplies. This report outlines the efforts of a small US-based collective to provide TCCC training at the TCCC for all combatant’s skill level to Peshmerga forces and develop members of the Peshmerga as trainers.

NATO Military Medical Exercise Vigorous Warrior 2017.

Source
Journal of Special Operations Medicine 2019 19 (1) 28-30

Author(s)
Fazekas,L.M., and Taylor,J.B.,

Abstract
Our intent in presenting this information is to increase the awareness of the Special Operations Forces (SOF) medical community and the overall international medical/military communities about the North Atlantic Treaty Organization (NATO) military medicine’s premiere Vigorous Warrior Exercises organized by NATO Centre of Excellence for Military Medicine (MILMED COE). The Vigorous Warrior medical exercise series is conducted biennially, with four successful iterations since 2011. These international medical exercises engage military medical elements that enhance NATO capabilities and ensure that new NATO medical concepts are being exercised and tested across the full capability-requirement spectrum. The primary aims of these exercises are to provide NATO and partner nations a multipurpose platform to collectively train their medical forces and personnel; test and experiment new concepts and doctrines; medically evaluate national or multinational medical treatment facilities in accordance with NATO doctrine; produce medical lessons identified and lessons learned; and provide the participants with multinational experience to enhance the provision of health care in NATO operations. These exercises directly strengthen partnerships, improve military medical interoperability, and demonstrate the Alliance’s commitment to improving international military collaboration. More than 1,000 medical personnel from 26 NATO and partner nations successfully conducted the joint, multilevel, multinational, medical live exercise Vigorous Warrior 2017 (VW17) throughout three locations in Germany during 4–22 September 2017. This article details the highly successful VW17 and paves the way
for a very bright future for the Alliance.

2019-122 0293

An Unusual Wound Infection Due to Acinetobacter junii on the Island of Oahu.

Source
Journal of Special Operations Medicine 2019 19 (1) 14-15

Author(s)
Griffin, J., and Barnhill, J.,

Abstract
The genus Acinetobacter has long been associated with war wounds. Indeed, A baumannii was responsible for so many infected wounds during Operation Iraqi Freedom that it was given the nickname “Iraqibacter.” Therefore, it is important to monitor the occurrence and spread of Acinetobacter species in military populations and to identify new or unusual sources of infection. A junii is an infrequently reported human pathogen. Here, we report a case of a slow-healing wound infection with A junii in a woman on the island of Oahu. This case highlights the pathogenic potential of this organism and the need for proper wound care when dealing with slow-healing wounds of unknown etiology. It also underscores the need for identifying species of Acinetobacter that are not A baumannii to better understand the epidemiology of slow-healing wound infections.

See also
Unstable Pelvic Fracture Reduction Under Ultrasonographic Control. Under Trauma.
Development of a Mobile Motion Capture (MO2CA) System for Future Military Application

Source
Military Medicine 2019 184 ( ) 65-71

Author(s)
Parks,M., Chien,J.H., et al.

Abstract
State-of-the-art three-dimensional motion analysis systems, which are utilized to predict, diagnose, and treat many musculoskeletal and neurological disorders, are expensive and space consuming. These systems have only been widely used in large research facilities because of their lack of this transportability. Since device portability is a critically important in the military, most small military hospitals are therefore deprived of these systems. The purpose of this study was to develop a mobile motion capture system, MO2CA, to automatically detect the movement of the human body. Twenty healthy young adults participated in this study. Colored tape was attached on the heel, and subjects walked on the treadmill at three different speeds: preferred, fast, and slow. Two motion capture systems were used concurrently: Qualisys (100 Hz) and MO2CA (60 Hz). Four dependent variables were: stride length, stride time, stride length variability, and stride time variability. Paired t-tests, Pearson correlation, and Bland-Altman plots were used to investigate the statistical differences between two systems. No significant differences were found for all dependent variables. Regression and Bland-Altman plots showed strong agreements between the two systems. Our MO2CA shows a potential for real-time tracking of biomechanical changes in gait, which is extremely important for military use.

Effect of carrying different military equipment during a fatigue test on shooting performance

Source
European Journal of Sport Science 2019 19 (2) 186-191

Author(s)

Abstract
This study investigated the effect of a 3-km walking test (3kWT) carrying different military equipment on shooting performance, rating of perceived exertion (RPE), heart rate (HR), and test time. The relative combat wear and backpack weight (as percentage of soldier's body weight %BW]) was reported and, along with HR, its relationship to marksmanship variables was tested. Thirty-nine Spanish Army males walked as fast as possible to complete the 3kWT in the following conditions in a randomized order: unloaded walking; wearing the combat uniform; and carrying the combat uniform plus combat backpack. A shooting test was completed before and after the 3kWT. The HR and RPE were evaluated. The marksmanship variables and HR were analysed using a two-way repeated measures ANOVA, and a repeated ANOVA was also used for 3kWT completion time and HR reserve analysis.
Correlation analyses were performed between the equipment's weight, HR, and marksmanship variables. The results showed that shooting score decreased after the 3kWT in both load conditions (p < 0.001). The 3kWT time, RPE, and HR increased from control to load conditions, and also between load conditions. The HR reserve showed no significant effects between conditions. The %BW of the backpack condition negatively influenced aiming accuracy (r = −0.35; p = 0.04) and cleanliness triggering (r = 0.37; p = 0.03). Correlations between HR and shooting variables were non-significant. In conclusion, wearing the Spanish Army combat wear and backpack resulted in shooting performance degradation. Furthermore, fatigue and RPE increased and this could decrease physical marksmanship and performance capacity in combat situations.

2019-122 0296

Effects of Load Carriage and Step Length Manipulation on Achilles Tendon and Knee Loads

Source
Military Medicine 2019 ( )

Author(s)
Willy,R.W., DeVita,P., et al.

Abstract
Introduction: Longer steps with load carriage is common in shorter Soldiers when matching pace with taller Soldiers whereas shorter steps are hypothesized to reduce risk of injury with load carriage. The effects of load carriage with and without step length manipulation on loading patterns of three commonly injured structures were determined: Achilles tendon, patellofemoral joint (PFJ) and medial tibiofemoral joint (mTFJ).; Materials and Methods: ROTC Cadets (n = 16; 20.1 years ± 2.5) walked with and without load carriage (20-kg). Cadets then altered preferred step lengths ±7.5% with load carriage. Achilles tendon, PFJ and mTFJ loads were estimated via musculoskeletal modeling.; Results: Large increases in peak Achilles tendon load (p < 0.05). Longer steps with load carriage increased PFJ loads the most (p < 0.001, d = 0.68-0.75) with moderate increases in mTFJ forces (p < 0.001, d = 0.48-0.63) with no changes in Achilles tendon loads (p = 0.11-0.20).; Conclusion: A preferred step length is the safest strategy when walking with load carriage. Taking a shorter step is not an effective strategy to reduce loading on the Achilles tendon, PFJ, and mTFJ.

2019-122 0297

Individual Attributes, Values, and Goals of an All-Military Women Antarctic Expedition.

Source
Aerospace Medicine and Human Performance 2019 90 (1) 18-25

Author(s)
Blackadder-Weinstein,J. and Leon,G.R.

Abstract
BACKGROUND: While participation of women in the military has increased, research on performance of female teams engaged in arduous physical activity in isolated, confined, and extreme (ICE) environments remains sparse. METHODS: A team of six British military women completed the Multidimensional Personality Questionnaire-Brief Form, Triarchic Psychopathy Measure, and Personal Values Questionnaire
(PVQ) prior to embarking on an expedition that traversed the Antarctic continent. Questionnaires were completed weekly on the ice; repeat of the PVQ and individual semistructured debriefing interviews were carried out within 9 d post-expedition. RESULTS: Personality findings indicated a generally well-adjusted group with notable individual differences in personality and personal values. Positive affect and camaraderie among teammates was evident throughout, although pace vs. distance in the strategy of the daily trek was a continuing point of tension. Honesty in communication was viewed as key to team effectiveness. A significant post-expedition decline in the tradition value (Pre M = −0.55, SD = 0.99; Post M = −0.82, SD = 1.12) and an increase in the conformity value (Pre M = −0.26, SD = 0.46; Post M = 0.18, SD = 0.27) was found. DISCUSSION: Congruence in personal and team goals among group members engaged in highly challenging activities is crucial for optimal team performance. Presence of two highly dominant individuals has a negative effect on team dynamics. Application of study findings to space exploration is considered.

2019-122 0298

Regular physical exercise before entering military service may protect young adult men from fatigue fractures

Source
BMC Musculoskeletal Disorders 2019 20 (1) 126-126

Author(s)
Pihlajamäki, H., Parviainen, M., et al.

Abstract
Background: Bone stress fractures are overuse injuries commonly encountered in sports and military medicine. Some fatigue fractures lead to morbidity and loss of active, physically-demanding training days. We evaluated the incidence, anatomical location, risk factors, and preventive measures for fatigue fractures in young Finnish male conscripts.; Methods: Five cohorts of 1000 men performing military service, classified according to birth year (1969, 1974, 1979, 1984, 1989), were analysed. Each conscript was followed for his full military service period (180 days for conscripts with rank and file duties, 270 days for those with special training, 362 days for officers and highly trained conscripts). Data, including physical activity level, were collected from a standard pre-information questionnaire and from the garrisons’ healthcare centre medical reports. Risk factor analysis included the conscripts’ service class (A, B), length of military service, age, height, weight, body mass index, smoking, education, previous diseases, injuries, and subjective symptoms, as well as self-reports of physical activity before entering the service using a standard military questionnaire.; Results: Fatigue fractures occurred in 44 (1.1%) of 4029 men, with an incidence of 1.27 (95% confidence interval: 0.92-1.70) per 1000 follow-up months, and mostly (33/44, 75%) occurred at the tibial shaft or metatarsals. Three patients experienced two simultaneous stress fractures in different bones. Most fatigue fractures occurred in the first 3 months of military service. Conscripts with fatigue fractures lost a total of 1359 (range 10-77) active military training days due to exemptions from duty. Conscripts reporting regular (>2 times/week) physical activity before entering the military had significantly fewer (p = 0.017) fatigue fractures. Regular physical activity before entering the service was the only strong explanatory, protective factor in the model IRR = 0.41 (95% CI: 0.20 to 0.85)]. The other measured parameters did not contribute significantly to the incidence of stress fractures.; Conclusion: Regular and recurrent high-intensity physical activity before entering military service seems to be an important preventive measure against developing.
Fatigue fractures. Fatigue fractures should be considered in conscripts seeking medical advice for complaints of musculoskeletal pain, and taken into consideration in planning military and other physical training programs.

2019-122 0299

Two days of calorie deprivation impairs high level cognitive processes, mood, and self-reported exertion during aerobic exercise: A randomized double-blind, placebo-controlled study

Source
Brain and Cognition 2019 132 ( ) 33-40
Author(s)

Abstract
Military personnel and emergency responders perform cognitively-demanding tasks during periods of sustained physical exertion and limited caloric intake. Cognitive function is preserved during short-term caloric restriction, but it is unclear if preservation extends to combined caloric restriction and physical exertion. According to the "reticular-activating hypofrontality" model, vigorous exertion impairs prefrontal cortex activity and associated functions. This double-blind, placebo-controlled, crossover study examined cognitive function during sustained exertion while volunteers were calorically-deprived. Twenty-three volunteers were calorie-depleted for two days on one occasion and fully-fed on another. They completed intermittent bouts of exercise at 40-65% VO2peak while prefrontal cortex-dependent tasks of cognitive control, mood, and perceived exertion were assessed. Calorie deprivation impaired accuracy on the task-switching task of set-shifting (p < .01) and decreased sensitivity on the go/no-go task of response inhibition (p < .05). Calorie deprivation did not affect risk taking on the Rogers risk task. During exercise, calorie deprivation, particularly on day 2, increased perceived exertion (p < .05) and impaired mood states of tension, depression, anger, vigor, fatigue, and confusion (all p < .01). Physical exertion during severe calorie deprivation impairs cognitive control, mood, and self-rated exertion. Reallocation of cerebral metabolic resources from the prefrontal cortex to structures supporting movement may explain these deficits.

See also


Effectiveness of an applied high intensity interval training as a specific operative training. Under Fitness & Physical Performance.

Female Reproductive, Adrenal, and Metabolic Changes during an Antarctic Traverse. Under Endocrinology.
Achieving Mastery of General Surgery Operative Skill in the Army Healthcare System.

Source
Military Medicine 2019 184 (3-4) e279-e284
Author(s)
Plackett,T.P., and Brockmeyer,J.R.,

Abstract
Introduction Operative case volumes for military surgeons are reported to be significantly lower than civilian counterparts. Among the concern that this raises is an inability of military surgeons to achieve mastery of their craft. Material and Methods Annual surgical case reports were obtained from seven Army military treatment facilities (MTF) for 2012–2016. Operative case volume and cumulative operative time were calculated for active duty general surgeons and for individual MTFs. Subgroup analyses were also performed based upon rank. Results were extrapolated to calculate the amount of time it would take to reach a cumulative of 10,000 hours of operative time (the a priori definition for achieving mastery). Results One hundred and two active duty general surgeons operated at the seven MTFs during the study period and met the inclusion criteria. The average surgeon performed 108 ± 68 cases/year. The average surgeon operated 122 ± 82 hours/year. At this rate, it would take over 80 years to reach mastery of surgery. When stratified based upon rank, Majors averaged 113 ± 75 hours/year, Lieutenant Colonels averaged 170 ± 100 hours/year, and Colonels averaged 136 ± 101 hours/year (p < 0.05). When stratified based upon individual MTF, surgeons at the busiest facility averaged 187 ± 103 hours/year and those at the least busy facility averaged 85 ± 56 hours/year (p < 0.05). Conclusions Obtaining mastery of general surgery is a nearly impossible proposition given the current care models at Army MTFs. Alternative staffing and patient care models should be developed if Army surgeons are to be masters at their craft.

Characteristics of Iraqi Patients Treated During Operation Inherent Resolve by a Forward Surgical Team

Source
Military Medicine 2019 184 ( ) 301-305
Author(s)
Hahn,C., Staudt,A.M., et al.

Abstract
Introduction: The combat experience during the re-entry stages of Operation Inherent Resolve was distinct from other recent operations, but there is no published literature regarding these “initial entry operations” experiences among forward surgical teams (FSTs) deployed to Role 2 facilities. A descriptive analysis of patients treated by FSTs may provide valuable information for Role 2 surgical teams preparing to deploy in support of initial entry operations. The purpose of this analysis was to describe injury mechanism, wounding patterns and interventions performed by a small FST in the re-entry phase in Iraq.; Materials and Methods: From July 17, 2015 to January 31, 2016, a split surgical team with two surgeons and an ER physician documented care for all
patients treated by their FST located in Iraq. Given their austere environment, FSTs have limited holding capacity, blood supply, and ability to triage and perform advanced procedures. Patients, who arrived to the Role 2 in asystole, were ineligible for the study. The patient population was Iraqi Security Forces as well as Iraqi civilians. No follow-up data were obtained. Using descriptive statistics, we described the basic demographics, health status, blood utilization, injury severity, and injury pattern of the patient population.; Results: The final study population included 300 Iraqi casualties. The majority of patients (96%) were discharged alive. Many patients were 16 years or older (96%), male (96%), Iraqi soldiers (86%), and injured during battle (96%). Over one-third of patients (35%) had a form of metabolic acidosis, 7% were hypothermic, and 18% were in shock at admission. The median amount of blood products used was 6 (interquartile ranges (IQR) = 2-12) units, while the median red blood cells:fresh frozen plasma ratio was 1.2:1. Six or more units of blood were given to 67 (22%) patients. The top three diagnoses were laceration (n = 197, 21%), penetrating injury (n = 185, 19%), and fracture (n = 174, 18%). A high number of injuries occurred in the extremities/pelvis and buttocks (n = 360, 38%) and in the abdomen and pelvic contents (n = 145, 15%). Over a quarter of patients (26%) had critical injuries (i.e., military injury severity score ≥25).; Conclusions: Given the Role 2 configuration, these results demonstrate FSTs must be capable of managing critically ill patients with markedly limited resources. This management will include general operations in both adult and pediatric patients, resuscitation with a limited blood supply, and patient assessment with minimal to no diagnostic tools. This analysis can inform resident training, pre-deployment training, as well as sustainment training for surgeons after residency.

2019-122 0302

Deployment of the Surgical Life-saving Module (SLM) in 2017: Lessons learned in setting up and training operational surgical units

Source
Injury 2019 ( )

Author(s)
Malgras,B., Aoun,O., et al.

Abstract
Introduction: The military operations carried out by the French armed forces, occasionally require the use of the Surgical Life-saving Module (SLM), to ensure the surgical support of its soldiers. Due to its extreme mobility and capacity of fast deployment, SLM is particularly useful in small-scale military operations, such as Special Forces missions. In 2017, the French SLM was for the first time used to ensure surgical support of allied forces, which were lacking forward surgical capabilities.; Materials and Methods: the SLM is a mobile, heliborne, airborne, surgical structure with parachuting capability onto land or sea, therefore essentially focused on life-saving procedures, also known as "damage control" surgery. Due to the need for mobility and rapid implementation, the SLM is limited to a maximum of 5 interventions or, in terms of injuries, to 1 or 2 seriously injured patients.; Results: Over a period of 2 months, 5 medical teams were successively deployed with the SLM. A total of 157 casualties were treated. The most common injuries were caused by shrapnel (561%), followed by firearms (36%), and blunt trauma (2.5%). Injuries included the limbs (56%), thorax (18%), abdomen (13%), head (11%), and neck (2%). The average ISS was 8.5 (1-25) with 26 patients presenting with an ISS greater than or equal to 15. The average NISS was 10.8 (1-75) with 34 casualties having an NISS equal to or greater than 15. The surgical procedures were broken
down as follows: 126 dressings, 16 laparotomies, 7 thoracotomies, 12 isolated
thoracic drains (without thoracotomy), 1 cervicotomy, 12 amputations, 7 limb splints,
2 limb fasciotomies, 2 external fixators and 1 femoral fracture traction.; Conclusions:
The numerous SLM deployments in larger operations highlighted its ability to adapt
both in terms of equipment and personnel. Continuous management of equipment
logistics, robust personnel training, and appropriate organization of the evacuation
procedures were the key elements for optimizing combat casualty care.
Consequently, the SLM appears to be an operational surgical unit of choice during
deployments.

2019-122 0303

The Occurrence and Detection of Hemodynamically Significant Bleeding Into
the Retroperitoneum in Patients Dying Due To Blunt Traumatic-Haemorrhagic
Shockoriginal Article.

Source
Military Medical Science Letters 2019 88 (1) 2-10
Author(s)
Simek,J., and Smejkal,K.,

Abstract
Background: The occurrence of retroperitoneal bleeding and the manner of detection
was retrospectively evaluated in patients with life-threatening traumatic bleeding.
Methods: The cohort included patients who died in the Trauma Centre of the
University Hospital Hradec Kralove in Czech Republic between 2008 and 2012 due
to traumatic hemorrhagic shock. Findings of retroperitoneal bleeding and the findings
found for life (i.e., CT, FAST, pre-operative findings) were compared. Results: During
the five-year period, deaths due to the post-mortem diagnosis of traumatic
hemorrhagic shock were recorded in 75 patients, 26 of which (35%) were verified by
post-mortem autopsy to have hemodynamically significant bleeding into the
retroperitoneum (HSBR) from 31 sources. HSBR was identified for life in 10 patients
with HSBR (38.5%). Sensitivity was 55% in CT angiography and 36% in laparotomy
without previous CT. The sensitivity of laparotomy with surgical exploration of the
retroperi-toneum was 67%. A predisposing factor for hemodynamically significant
bleeding into the retroperitoneum, which may escape the surgeon’s attention, is high-
energy blunt trauma to the trunk. Conclusions: In the acute stage of treatment of
patients with life-threatening bleeding due to high-energy blunt trauma, the surgeon
has to decide whether the patient’s condition allows CT and whether hematoma of
the retroperitoneum should be revised surgically. However, in the present cohort few
patients with HSBR underwent surgical exploration of the retroperitoneum because
the hematoma was ascribed to the known injury of the pelvis and spine.Level of
evidence: Prognostic study, level III.
Successful Surgical Treatment of Severe Perforating Diametric Craniocerebral Gunshot Wound Sustained during Combat: A Case Report

Source
Military Medicine 2019 ( )

Author(s)
Sirko,A., Kyrpa,I., et al.

Abstract
Many researchers classify perforating diametric craniocerebral gunshot wounds as fatal because mortality exceeds 96% and the majority of patients with such injuries die before hospitalization. A 23-year-old Ukrainian male soldier was admitted to a regional hospital with a severe perforating craniocerebral wound in a comatose state (Glasgow Coma Scale score, 5). Following brain helical computed tomography, the patient underwent primary treatment of the cerebral wound with primary duraplasty and inflow/outflow drainage. After 18 days of treatment in the intensive care unit, he was transferred to a military hospital for further rehabilitation. This report details our unusual case of successful treatment of a perforating diametric craniocerebral gunshot wound.

See also
High-Velocity Ballistic Injuries Inflicted to the Maxillofacial Region. Under Trauma.


Surgical Pathology "Boot Camp": A Military Experience. Under Pathology.
Environmental toxicology of blast exposures: injury metrics, modelling, methods and standards.

Source
Journal of the Royal Army Medical Corps 2019 165 (1) 7-9
Author(s)
Leggieri,M.J., and Bieler,D.,

Abstract
Explosions are one of the most significant sources of casualties in recent North Atlantic Treaty Organization (NATO) operations. Consequently, the primary focus of blast injury research is on the prevention, treatment, rehabilitation and continuum of care for the injured from acute treatment to the return to duty.
Dispatches from the editor: blast injury is everyone’s problem.

**Source**
Journal of the Royal Army Medical Corps 2019 165 (1) 1-2

**Author(s)**
Garner, J., and Breeze, J.,

**Abstract**
It is this invisibility, this ubiquity, that contributes to the mystique of blast injury and its perceived rarity. A senior nurse in the Emergency Department of Stepping Hill Hospital, Stockport, said in the aftermath of the Manchester Concert bombing “We see trauma. We don’t see blast injuries. I have never seen a blast injury in my career before”; likewise an orthopaedic surgeon commented “Short of any military experience, which I don’t have, nothing can prepare you for that scale of injury on each individual patient and collectively as a group of patients.”

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Fatal head and neck injuries in military underbody blast casualties.

**Source**
Journal of the Royal Army Medical Corps 2019 165 (1) 18-21

**Author(s)**
Stewart, S.K., and Pearce, A.P.,

**Abstract**
Introduction Death as a consequence of underbody blast (UBB) can most commonly be attributed to central nervous system injury. UBB may be considered a form of tertiary blast injury but is at a higher rate and somewhat more predictable than injury caused by more classical forms of tertiary injury. Recent studies have focused on the transmission of axial load through the cervical spine with clinically relevant injury caused by resultant compression and flexion. This paper seeks to clarify the pattern of head and neck injuries in fatal UBB incidents using a pragmatic anatomical classification. Methods This retrospective study investigated fatal UBB incidents in UK triservice members during recent operations in Afghanistan and Iraq. Head and neck injuries were classified by anatomical site into: skull vault fractures, parenchymal brain injuries, base of skull fractures, brain stem injuries and cervical spine fractures. Incidence of all injuries and of each injury type in isolation was compared. Results 129 fatalities as a consequence of UBB were identified of whom 94 sustained head or neck injuries. 87 casualties had injuries amenable to analysis. Parenchymal brain injuries (75%) occurred most commonly followed by skull vault (55%) and base of skull fractures (32%). Cervical spine fractures occurred in only 18% of casualties. 62% of casualties had multiple sites of injury with only one casualty sustaining an isolated cervical spine fracture. Conclusion Improvement of UBB survivability requires the understanding of fatal injury mechanisms. Although previous biomechanical studies have concentrated on the effect of axial load transmission and resultant injury to the cervical spine, our work demonstrates that...
cervical spine injuries are of limited clinical relevance for UBB survivability and that research should focus on severe brain injury secondary to direct head impact.

2019-122 0308

**Future Trends in Trauma Care: Through the Lens of the Wounded How Lessons from the Battlefield May Be Used at Home**

**Source**
Anesthesiology Clinics 2019 37 (1) 183-193

**Author(s)**
D'Angelo,M., Welder,M., et al.

**Abstract**
The coordinated terrorist attacks of 2001 thrust the United States and its allies to war. Through an evolving battlefield, the paradigm of large fixed medical facilities advanced to become nimble surgical and resuscitative platforms, able to provide care far forward. Innovations like tactical combat casualty care, evacuation, fresh whole-blood administration, freeze-dried plasma, and forward surgical care military medicine helped reduce combat mortality to its lowest levels in history. Through the account of a young wounded marine wounded in Iraq, this article examines how innovations on the battlefield saved casualties and explores how these techniques may be applied at home.

2019-122 0309

**Hard-Earned Lifesaving Lessons From the Combat Zone**

**Source**
JAMA Surgery 2019 ( )

**Author(s)**
Gavitt,B. and Pritts,T.A.

**Abstract**
Advancements in combat casualty care have resulted in substantial improvements in civilian and military trauma care across the past decade. Within the theater of war, the Joint Trauma System has proven extraordinarily effective at continually implementing changes to improve both prehospital and in-hospital care for wounded warriors. An important challenge of continuous quality improvement is that it can be difficult to determine the effectiveness of individual interventions when additional system-level changes are occurring during the same period. In this issue of *JAMA Surgery*, Howard and colleagues¹ have used data from several Department of Defense databases to tackle this challenge, and their work should be commended.
High-Velocity Ballistic Injuries Inflicted to the Maxillofacial Region

Source
The Journal of Craniofacial Surgery 2019 ( )

Author(s)
Jose,A., Arya,S., et al.

Abstract
Background & Aim: Gun-shot trauma inflicted to the maxillofacial region results in multiple injuries which significantly impacts management and reconstructive options. The authors investigated the efficacy/outcomes of primary management of maxillofacial trauma inflicted in ballistic injuries.; Methods: This is a retrospective descriptive study carried out solely at 15 Corps Dental Unit, a tertiary care military hospital at Srinagar between the year 2016 & 2017. At the time of enrolment age, gender, extent of injury and definitive diagnosis were recorded. Other information such as type of surgery, hospital stay was taken from in-patient hospital record documents. An informed consent was taken from all patients.; Results: A total of 16 patients (all males) with a mean age of 29.6±4.2 years were part of our study. The average time interval between trauma and surgery was 7 to 10 days. There was striking high prevalence of mandibular injuries in 62.5% patients, 18.7% patients having combined maxilla-mandibular defects and 12.5% patients with injuries around the mid-face. Complications such as immediate airway compromise were seen in 50% of the patients who suffered direct airway trauma necessitating tracheostomy. The 43.7% patients suffered nerve injuries at the time of presentation while 56.2% patients suffered scar contracture noted at follow-up of 1 year. One patient suffered a stellate wound with ragged and torn edges and also trauma to the parotid gland. Other salivary gland injuries were also noted in 18.7% patients. Reconstruction using local flaps was done in 3 patients of our series. The mean duration of hospital stay was 43.3±33.5 days. An average follow up ranged from 12±6 months.; Conclusions: Early and appropriate intervention to preserve and stabilise the facial skeleton and reconstruction of the facial soft tissue envelope in high-velocity ballistic injuries is highly effective and yields superior functional and esthetic outcomes.

2019-122 0311

Improving survivability from blast injury: ‘shifting the goalposts’ and the need for interdisciplinary research.

Source
Journal of the Royal Army Medical Corps 2019 165 (1) 5-6

Author(s)
Pearce,A.P., and Clasper,J.,

Abstract
Blast injury is not a new phenomenon, but the nature of warfare has changed; explosive weapons are now the most common mode of battlefield trauma.1 In this issue, McGuire et al demonstrate the incidence of explosive injury in both recent UK operations and those from decades before.2 The need for further understanding of these injuries is apparent and this issue highlights the breadth and depth of blast injury research.
Pre-hospital Resuscitative Endovascular Balloon Occlusion of the Aorta (REBOA) for exsanguinating pelvic haemorrhage

Source
Resuscitation 2019 135 6-13

Author(s)
Lendrum, R., Perkins, Z., Chana, M., Marsden, M., Davenport, R., Grier, G., Sadek, S., Davies, G.,

Abstract
To report the initial experience and outcomes of Resuscitative Endovascular Balloon Occlusion of the Aorta (REBOA) as an adjunct to pre-hospital resuscitation of patients with exsanguinating pelvic haemorrhage. Methods Descriptive case series of consecutive adult patients, treated with pre-hospital Zone III REBOA by a physician-led pre-hospital trauma service, between January 2014 and July 2018. Results REBOA was attempted in 19 trauma patients (13 successful, six failed attempts) and two non-trauma patients (both successful) with exsanguinating pelvic haemorrhage. Trauma patients were severely injured (median ISS 34, IQR: 27–43) and profoundly hypotensive (median systolic blood pressure [SBP] 57, IQR: 40–68 mmHg). REBOA significantly improved blood pressure (Pre-REBOA median SBP 57, IQR: 35–67 mmHg versus Post-REBOA SBP 114, IQR: 86–132 mmHg; Median of differences 66, 95% CI: 25–74 mmHg; P < 0.001). REBOA was associated with significantly lower risk of pre-hospital cardiac arrest (REBOA 0/13 [0%] versus no REBOA 3/6 [50%], P = 0.021) and death from exsanguination (REBOA 0/13 [0%] versus no REBOA 4/6 [67%], P = 0.004), when compared to patients with a failed attempt. Successful REBOA was associated with improved survival (REBOA 8/13 [62%] versus no REBOA 2/6 [33%; P = 0.350). Distal arterial thrombus requiring thrombectomy was common in the REBOA group (10/13, 77%).

The Prehospital Trauma Registry Experience With Intraosseous Access.

Source
Journal of Special Operations Medicine 2019 19 (1) 52-55

Author(s)
Schauer, S.G., and Naylor, J.F.,

Abstract
Background: Peripheral intravenous (IV) cannulation is often difficult to obtain in a patient with hemorrhagic shock, delaying the appropriate resuscitation of critically ill patients. Intraosseous (IO) access is an alternative method. To date, few data exist on use of this procedure by ground forces in Afghanistan. Here, we compare patient characteristics and concomitant interventions among patients undergoing IO access versus those undergoing IV access only. Methods: We obtained data from the Prehospital Trauma Registry (PHTR). When possible, patients were linked to the Department of Defense Trauma Registry for outcome data. To develop the cohorts, we searched for all patients with documented IO or IV access placement. Those with both IO and IV access documented were placed in the IO group. Results: Of the 705 available patients in the PHTR, we identified 55 patients (7.8% of the population) in the IO group and 432 (61.3%) in the IV group. Among patients with documentation of access location, the most common location was the tibia (64.3%; n = 18). Compared
with patients with IV access, those who underwent IO access had higher urgent evacuation rates (90.9% versus 72.4%; p = .01) and air evacuation rates (58.2% versus 14.8%; p < .01). The IO cohort had significantly higher rates of interventions for hypothermia, chest seals, chest tubes, needle decompressions, and tourniquets, but a significantly lower rate of analgesic administration (p ≤ .05). Conclusion: Within the registry, IO placement was relatively low (<10%) and used in casualties who received several other life-saving interventions at a higher rate than casualties who had IV access. Incidentally, lower proportions of analgesic administration were detected in the IO group compared with the IV group, despite higher intervention rates.

2019-122 0314

Prehospital Use of Ketamine: Effectiveness in Critically Ill and Injured Patients

Source
Military Medicine 2019 184 ( ) 542-544

Author(s)
Zietlow,J., Berns,K., et al.

Abstract
Background: The military use of ketamine is well established. The benefits of prehospital civilian use have not been extensively reported.; Methods: A retrospective review was performed of patients with prehospital ketamine use in Mayo One’s air and critical care ground transport.; Results: The medical records were reviewed from 2014 to 2016 to assess the efficacy of Ketamine. During this time frame, 158 (167 instances) patients were treated with ketamine for analgesia (38%), sedation (44%), or procedural (18%) use. The patient population had a mean age of 49 (range: 1-100), with 105 (67%) male patients. Indications included trauma (69%), which was further broken down into blunt (57%), penetrating (4%), and miscellaneous (8%), and medical illness (31%), Mean ketamine dose was 52.6 mg (range: 5-200 mg) via intravenous route. Ketamine was utilized in 61% of patients after other medications were ineffective. Overall success rate was 98%. Mean pain scale before and after ketamine use was 9/10 and 3/10, respectively. Ketamine use increased yearly from 21 (13%) in 2014, 56 (36%) in 2015, and 81 (51%) in 2016.; Conclusion: Prehospital ketamine use is effective alone or in conjunction with other medications for analgesia, sedation, and procedural use in trauma and critically ill patients with minimal hemodynamic and respiratory consequences.

2019-122 0315
Radiofrequency Identification of the ER-REBOA: Confirmation of Placement Without Fluoroscopy.

Source
Military Medicine 2019 184 (3-4) e285-e289
Author(s)
Wessels, L.E., and Wallace, J.D.,

Abstract
Introduction Non-compressible torso hemorrhage accounts for 70% of battlefield deaths. Resuscitative endovascular balloon occlusion of the aorta (REBOA) is an emerging technology used to mitigate massive truncal hemorrhage. Use of REBOA on the battlefield is limited by the need for radiographic guided balloon placement. Radiofrequency identification (RFID) is a simple, portable, real-time technology utilized to detect retained sponges during surgery. We investigated the feasibility of RFID to confirm the placement of ER-REBOA. Materials and Methods This was a single-arm prospective proof-of-concept experimental study approved by the institutional review board at Naval Medical Center San Diego. The ER-REBOA (Prytime Medical Devices, Inc, Boerne, TX, USA) was modified by placement of a RFID tag. The tagged ER-REBOA was placed in zone I or zone III of the aorta in a previously perfused cadaver. Exact location was documented with X-ray. Five blinded individuals used the RF Assure Detection System (Medtronic, Minneapolis, MN, USA) handheld detection wand to predict catheter tip location from the xiphoid process (zone I) or pubic tubercle (zone III). Results In zone I, actual distance (Da) of the catheter tip was 11 cm from the xiphoid process. Mean predicted distance (Dp) from Da was 1.52 cm (95% CI 1.19–1.85). In zone III, Da was 14 cm from the pubic tubercle. Mean Dp from Da was 4.11 cm (95% CI 3.68–4.54). Sensitivity of detection was 100% in both zones. Specificity (Defined as Dp within 2 cm of Da) was 86% in zone I and 16% in zone III. Conclusions Using RFID to confirm the placement of ER-REBOA is feasible with specificity highest in zone I. Future work should focus on refining this technology for the forward-deployed setting.

Thoracic trauma in military settings: a review of current practices and recommendations.

Source
Current Opinion in Anaesthesiology 2019 32 (2) 227-233
Author(s)
Mansky R. and Scher, C.

Abstract
PURPOSE OF REVIEW: To examine current literature on thoracic trauma related to military combat and to explore its relevance to the civilian population. RECENT FINDINGS: Damage control resuscitation (DCR) has improved the management of hemorrhaging trauma patients. Permissive hypotension below 110 mmHg and antifibrinolytic use during DCR is widely accepted, whereas the use of freeze-dried plasma and whole blood is gaining popularity. The Modified Physiologic Triaging Tool can be used for primary triage and it may have applications in civilian trauma systems. Although Tactical Combat Casualty Care protocol recommends the Cric-Key device for surgical cricothyroidotomies, other devices may offer comparable performance. Recommendations for regional anesthesia after blunt trauma are not well defined. Increasing amounts of evidence favor the use of extracorporeal...
membrane oxygenation for refractory hypoxemia and resuscitative endovascular balloon occlusion of the aorta (REBOA) for severe hemorrhage. REBOA outcomes are potentially improved by partial occlusion and small 7 Fr catheters. SUMMARY: The Global War on Terror has provided opportunities to better understand and treat thoracic trauma in military settings. Trauma registries and other data sources have contributed to significant advancements in the management of thoracic trauma in military and civilian populations.

2019-122 0317

Unstable Pelvic Fracture Reduction Under Ultrasonographic Control.

Source
Journal of Special Operations Medicine 2019 19 (1) 16-18

Author(s)
Goudard,Y., and Camus,D.,

Abstract
Managing acute trauma cases in military and low-resource environments usually requires adapted medicosurgical protocols to achieve best medical results with limited technical capacity. We report a case of unstable pelvic fracture that needed ultrasonographic assessment for closed reduction before external stabilization. In our opinion, ultrasonographic control should be considered as a useful technique for unstable pelvic fracture reduction and an alternative to radiographic control.

2019-122 0318

Use of Combat Casualty Care Data to Assess the US Military Trauma System During the Afghanistan and Iraq Conflicts, 2001-2017

Source
JAMA Surgery 2019 ( )

Author(s)
Howard,J.T., Kotwal,R.S., et al.

Abstract
Importance: Although the Afghanistan and Iraq conflicts have the lowest US case-fatality rates in history, no comprehensive assessment of combat casualty care statistics, major interventions, or risk factors has been reported to date after 16 years of conflict.; Objectives: To analyze trends in overall combat casualty statistics, to assess aggregate measures of injury and interventions, and to simulate how mortality rates would have changed had the interventions not occurred.; Design, Setting, and Participants: Retrospective analysis of all available aggregate and weighted individual administrative data compiled from Department of Defense databases on all 56,763 US military casualties injured in battle in Afghanistan and Iraq from October 1, 2001, through December 31, 2017. Casualty outcomes were compared with period-specific ratios of the use of tourniquets, blood transfusions, and transport to a surgical facility within 60 minutes.; Main Outcomes and Measures: Main outcomes were casualty status (alive, killed in action KIA), or died of wounds DOW) and the case-fatality rate (CFR). Regression, simulation, and decomposition analyses were used to assess associations between covariates, interventions, and individual casualty status; estimate casualty transitions (KIA to DOW, KIA to alive, and DOW to alive); and estimate the contribution of interventions to changes in CFR.; Results: In aggregate data for 56,763 casualties, CFR decreased in Afghanistan (20.0% to
8.6%) and Iraq (20.4% to 10.1%) from early stages to later stages of the conflicts. Survival for critically injured casualties (Injury Severity Score, 25-75 critical) increased from 2.2% to 39.9% in Afghanistan and from 8.9% to 32.9% in Iraq. Simulations using data from 23,699 individual casualties showed that without interventions assessed, CFR would likely have been higher in Afghanistan (15.6% estimated vs 8.6% observed) and Iraq (16.3% estimated vs 10.1% observed), equating to 3672 additional deaths (95% CI, 3209-4244 deaths), of which 1623 (44.2%) were associated with the interventions studied: 474 deaths (12.9%) (95% CI, 439-510) associated with the use of tourniquets, 873 (23.8%) (95% CI, 840-910) with blood transfusion, and 275 (7.5%) (95% CI, 259-292) with prehospital transport times.; Conclusions and Relevance: Our analysis suggests that increased use of tourniquets, blood transfusions, and more rapid prehospital transport were associated with 44.2% of total mortality reduction. More critically injured casualties reached surgical care, with increased survival, implying improvements in prehospital and hospital care.

**2019-122 0319**

**Versatility With Far Forward Damage Control Surgery: Successful Resuscitative Thoracotomy in an HH-60 Black Hawk.**

**Source**

**Author(s)**

**Abstract**
The military conflicts of the past 17 years have taught us many lessons, including the evolution of the tiered trauma system with en route resuscitation. The evolution of the conflict has begun to limit the reach of this standard trauma system. Recent evidence suggests that 95% of early deaths resulting from traumatic injuries may be prevented if the patient can undergo damage control surgery within 23 minutes of injury. US Military Surgical Resuscitation Teams have been developed to shorten this time from injury to surgical care, as illustrated by this case report.

See also

**Environment at the time of injury determines injury patterns in pelvic blast.** Under Research & Technology.

Internal consistency and factor structure of a brief scale assessing sensitivity to blood, injury, and mutilation. Under PTSD.


A Military Case Review Method to Determine and Record the Mechanism of Injury (BioTab) from In-Theater Attacks. Under Orthopaedics.

Nebulised recombinant activated factor VII (rFVIIa) does not attenuate the haemorrhagic effects of blast lung injury. Under Research & Technology.


Assessment of Brain Venous Structure in Military TBI Patients using Susceptibility Weighted Imaging and Quantitative Susceptibility Mapping

Source
Journal of Neurotrauma 2019

Author(s)
Liu,W., Yeh,P., et al.

Abstract
Brain venous volume above the lateral ventricle in military patients with traumatic brain injury (TBI) was assessed using two segmentation approaches on susceptibility weighted images (SWI) and quantitative susceptibility maps (QSM). This retrospective study included a total of 147 subjects: 14 patients with severe TBI; 38 patients with moderate TBI, 58 patients with mild TBI (28 with blast-related injuries and 30 with non-blast-related injuries), and 37 control subjects without history of TBI. Using the multiscale vessel enhancement filter on SWI images, patients with severe TBI demonstrated significantly higher segmented venous volumes compared with controls. Using a threshold approach on QSM images, TBI patients with different severities all demonstrated increased segmented volumes compared with control subjects: in the whole brain (severe, p = 0.001; moderate, p = 0.008; mild, p = 0.042, compared with controls), in the left hemisphere (severe, p = 0.01; moderate, p = 0.038, compared with controls), in the right hemisphere (severe, p = 0.001; moderate, p = 0.013; mild, p = 0.027, compared with controls). While segmented volumes on SWI appear to overlay directly on the visualized venous structures, the QSM-derived segments also encompass some perivascular and deep white matter areas. This might represent the damage in the perivascular regions associated with iron deposition or astroglial scarring.

Association of persistent post-concussion symptoms with violence perpetration among substance-using veterans

Source
Psychology of Violence 2019 9 (2) 167-176

Author(s)
Morris,D.H., Spencer,R.J., et al.

Abstract
Objective: Traumatic brain injury (TBI) and persistent post concussion symptoms (PPCS) are associated with increased substance use among veterans. Each factor is independently associated with the perpetration of violence; however, little is known about the associations TBI and PPCS have with violence among substance users. This study examined the distinct associations probable TBI and PPCS have with partner aggression (PA) and non-partner aggression (NPA) in substance-using veterans. Method: Present sample included 810 veterans (6.7% women; Mage = 48.2, SD = 13.3) who completed self-report measures assessing sociodemographic characteristics, past month binge drinking and cocaine use, probable TBI, PPCS, probable posttraumatic stress disorder (PTSD), and chronic pain. Aggression measures included psychological, physical, and injury-related PA and NPA. Results: Bivariate analyses revealed age, probable PTSD, and PPCS were associated with
most forms of PA and NPA, whereas race, cocaine use, pain, and TBI severity were mostly associated with NPA. Multivariate negative binomial regression analyses adjusting for other identified risk factors (e.g., age, probable PTSD, and chronic pain) revealed PPCS, but not TBI, was associated with most forms of PA and NPA.

Conclusions: Findings highlight the importance of PPCS as a risk factor for PA and NPA in substance-using veterans and have important implications concerning the screening of violence risk.

2019-122 0322

Biomechanics of Blast TBI With Time-Resolved Consecutive Primary, Secondary, and Tertiary Loads

Source
Military Medicine 2019 184 ( ) 195-205
Author(s)

Abstract
Blast-induced traumatic brain injury (bTBI) has become a signature casualty of recent military operations. In spite of significant clinical and preclinical TBI research, current understanding of injury mechanisms and short- and long-term outcomes is limited. Mathematical models of bTBI biomechanics may help in better understanding of injury mechanisms and in the development of improved neuroprotective strategies. Until present, bTBI has been analyzed as a single event of a blast pressure wave propagating through the brain. In many bTBI events, the loads on the body and the head are spatially and temporarily distributed, involving the primary intracranial pressure wave, followed by the head rotation and then by head impact on the ground. In such cases, the brain microstructures may experience time/space distributed (consecutive) damage and recovery events. The paper presents a novel multiscale simulation framework that couples the body/brain scale biomechanics with micro-scale mechanobiology to study the effects of micro-damage to neuro-axonal structures. Our results show that the micro-mechanical responses of neuro-axonal structures occur sequentially in time with "damage" and "relaxation" periods in different parts of the brain. A new integrated computational framework is described coupling the brain-scale biomechanics with micro-mechanical damage to axonal and synaptic structures.

2019-122 0323

Correlates of Depression in U.S. Military Service Members With a History of Mild Traumatic Brain Injury

Source
Military Medicine 2019 184 ( ) 148-154
Author(s)
Kennedy,J.E., Lu,L.H., et al.

Abstract
Objectives: Post-traumatic stress disorder (PTSD) and traumatic brain injury (TBI) are identified as signature injuries of the Wars in Iraq and Afghanistan. Statistics have confirmed a high incidence of PTSD among military personnel with mild TBI (mTBI) who served in these conflicts. Although receiving less attention, individuals with a history of mTBI are also at increased risk for depressive disorders. This study examines the incidence and correlates of depression in service members with a
history of mTBI received an average of 4-1/2 years prior to evaluation.; Methods: Retrospective analysis of 184 service members with a history of mTBI extracted from a data repository maintained at a military medical center.; Results: One-third of the sample (34.2%) was clinically diagnosed with a depressive disorder in the month preceding evaluation. Of those with depression, 81% (51 of 63) were also diagnosed with PTSD. Proportionately more women than men had depression. Depression was more common among those who were undergoing a Military Evaluation Board and those who served in more than three combat deployments.; Conclusions: Results confirm chronically elevated the rates of depressive disorders and PTSD comorbidity among service members with a history of mTBI. Depression screening and treatment within the Military Health System should remain a priority for service members reporting a remote history of mTBI. Individuals with chronic PTSD, women, service members undergoing MEB and those who served in greater than three combat deployments are at particular risk.

2019-122 0324

Cortical thinning in military blast compared to non-blast persistent mild traumatic brain injuries

Source
Neuroimage.Clinical 2019 22 ( ) 101793-101793

Author(s)

Abstract
In the military, explosive blasts are a significant cause of mild traumatic brain injuries (mTBIs). The symptoms associated with blast mTBIs causes significant economic burdens and a diminished quality of life for many service members. At present, the distinction of the injury mechanism (blast versus non-blast) may not influence TBI diagnosis. However, using noninvasive imaging, this study reveals significant distinctions between the blast and non-blast TBI mechanisms. A cortical whole-brain thickness analysis was performed using structural high-resolution T1-weighted MRI to identify the effects of blasts in persistent mTBI (pmTBI) subjects. A total of 41 blast pmTBI subjects were individually age- and gender-matched to 41 non-blast pmTBI subjects. Using FreeSurfer, cortical thickness was quantified for the blast group, relative to the non-blast group. Cortical thinning was identified within the blast mTBI group, in two clusters bilaterally. In the left hemisphere, the cluster overlapped with the lateral orbitofrontal, rostral middle frontal, medial orbitofrontal, superior frontal, rostral anterior cingulate and frontal pole cortices (p < 0.02, two-tailed, size = 1680 mm2). In the right hemisphere, the cluster overlapped with the lateral orbitofrontal, rostral middle frontal, medial orbitofrontal, pars orbitalis, pars triangularis and insula cortices (p < 0.002, two-tailed, cluster size = 2453 mm2). Self-report assessments suggest significant differences in the Post-Traumatic Stress Disorder Checklist-Civilian Version (p < 0.05, Bonferroni-corrected) and the Neurobehavioral Symptom Inventory (p < 0.01, uncorrected) between the blast and non-blast mTBI groups. These results suggest that blast may cause a unique injury pattern related to a reduction in cortical thickness within specific brain regions which could affect symptoms. No other study has found cortical thickness difference between blast and non-blast mTBI groups and further replication is needed to confirm these initial observations.

2019-122 0325
Employment Status Among U.S. Military Veterans With Traumatic Brain Injury: Mediation Analyses and the Goal of Tertiary Prevention

Source
Frontiers in Neurology 2019 10 ( ) 190-190
Author(s)
Winter,L., Moriarty,H., et al.

Abstract
For most individuals with traumatic brain injury (TBI), the ability to work is crucial to financial and psychological well-being. TBI produces a wide range of cognitive, physical, emotional, and interpersonal impairments that may undermine the ability to work. Employment is therefore a primary goal of TBI rehabilitation and has been the focus of extensive research. Although this literature has identified predictors of employment outcomes, few studies have examined the mechanisms that underlie these associations. Mediation analysis can identify these mechanisms, provide a more nuanced view of how predictors jointly affect rehabilitation outcomes, and identify predictors that, if treatable conditions, could be useful targets for tertiary prevention. Such efforts are aimed at reducing long-term impairments, disability, or suffering resulting from the injury. The study sample comprised 83 U.S. military veterans with TBI who had participated in a larger rehabilitation study and were interviewed in their homes. Bivariate tests revealed significant associations of employment with pain, cognitive functioning, self-rated health, depressive symptoms and physical functioning; the latter variable was operationalized in two ways—using the Patient Competency Rating Scale and the SF-36V physical functioning subscales. Because these physical functioning measures were highly intercorrelated (r = 0.69, p < 0.0001), separate regression models were conducted. In the hierarchical binary logistic regression models, predictors were entered in order of modifiability, with comorbidities (pain) entered in block 1, physical health/functioning sequelae in block 2, and depressive symptoms in block 3. In the regression using the SF-36V measure of physical functioning, pain’s effect was mediated by the physical functioning/health predictors, with only physical functioning emerging as significant, but this effect was itself mediated by depressive symptoms. In the regression using the PCRS physical-function measure, only depressive symptoms emerged as a mediator of other effects. Findings underscore the central role of depression in the employment status of veterans with TBI, suggesting that negative effects of other problems/limitations could be mitigated by more effective treatment of depression. Thus, for many with chronic TBI who live with vocational limitations, outcomes may improve with lower depression. Findings argue for the wider use of mediation approaches in TBI research as a means of identifying targets for tertiary prevention of poor outcomes.

Expressions of emotional distress in active duty military personnel with mild traumatic brain injury: A qualitative content analysis
Source
Military Psychology (American Psychological Association) 2019 31 (2) 81-90
Author(s)

Abstract
Service members (SMs) who sustain traumatic brain injury (TBI) during deployment have increased risk for mental health issues. Mental health treatment can be challenging in military settings where treatment seeking is often stigmatized. Adequate care relies on accurate interpretations of SMs' verbal accounts of distress, but little is known about how SMs, embedded in a culture that values resilience and self-reliance, relay emotional distress. We performed qualitative analyses of recordings from a telephone-based intervention with 25 SMs who sustained deployment-related mild TBI (mTBI) to elucidate thematic and dialectal patterns. Consistent with our expectations, SMs rarely used explicit depressive terms while discussing their emotional distress. More prevalent was language suggestive of an overarching theme of loss of control, whereby SMs' stress, anxiety, and anger were often attributable to SMs' perceptions that they had incomplete jurisdiction over their own lives. This study may help mental health providers improve engagements with SMs and Veterans, preventing misunderstandings and even improper diagnoses or referrals that could result from a strict reliance on the more customary expressions of distress.

2019-122 0327

Functional Outcome and Mental Health Symptoms in Military Personnel and Veterans Pursuing Postsecondary Education After Traumatic Brain Injury: A VA TBI Model Systems Study

Source
Rehabilitation Research, Policy & Education 2019 33 (1) 41-55
Author(s)

Abstract
Background: TBI is a leading cause of disability among veterans and active duty military personnel, and presents an obstacle to community reintegration. Prior studies examining adult survivors of TBI pursuing postsecondary education have methodological flaws that limit the understanding the scope and severity of sequelae experienced by persons with TBI who attend college. Objective: To describe (a) physical and cognitive functioning, and (b) postconcussion and mental health symptoms in veterans and military personnel (V/M) with traumatic brain injury (TBI) enrolled in postsecondary education programs after discharge from rehabilitation. Method: Cross-sectional study. Participants were recruited from five Veterans Affairs (VA) Polytrauma Rehabilitation Centers, enrolled in the VA TBI Model Systems parent study, and attending school during follow-up (N = 155). Outcome measures included the Functional Independence Measure (FIM), Neurobehavioral Symptom Inventory (NSI), Post-traumatic Stress Disorder (PTSD) Checklist-Civilian version (PCL-C), Patient Health Questionnaire-Depression (PHQ-9), and Generalized Anxiety Disorder Questionnaire (GAD-7). Findings: Participants were mostly male (92.9%) and White (81.4%), with mild (40.0%), moderate (11.5%), severe (34.5%), or very severe TBI (23.0%). Depression, anxiety, PTSD, and postconcussion symptoms were lowest in participants with very severe TBI and highest in those with mild TBI.
There were no significant differences in FIM across TBI severity levels. Conclusion: This study supports the need for rehabilitation counselors, educators, and administrators to prepare future practitioners to deliver tailored services to student V/M with TBI. These services can facilitate successful community reintegration and transition into civilian school settings. Symptom profiling may inform personalized cognitive interventions to enhance these students' academic success.

2019-122 0328

A Mobile Device Dual-Task Paradigm for the Assessment of mTBI

Source
Military Medicine 2019 184 ( ) 174-180

Author(s)

Abstract
Research Objective: Dual-task performance, in which individuals complete two or more activities simultaneously, is impaired following mild traumatic brain injury. The aim of this project was to develop a dual-task paradigm that may be conducive to military utilization in evaluating cognitive-motor function in a standardized and scalable manner by leveraging mobile device technology.; Methods: Fifty healthy young adult civilians (18-24 years) completed four balance stances and a number discrimination task under single- and dual-task conditions. Postural stability was quantified using data gathered from iPad's native accelerometer and gyroscope. Cognitive task difficulty was manipulated by presenting stimuli at 30, 60, or 90 per minute. Performance of cognitive and balance tasks was compared between single- and dual-task trials.; Results: Cognitive performance from single- to dual-task paradigms showed no significant main effect of balance condition or the interaction of condition by frequency. From single- to dual-task conditions, a significant difference in postural control was revealed in only one stance: tandem with eyes closed, in which a slight improvement in postural stability was observed under dual-task conditions.; Conclusion: The optimal dual-task paradigm to evaluate cognitive-motor performance with minimal floor and ceiling effects consists of tandem stance with eyes closed while stimuli are presented at a rate of one per second.

2019-122 0329

Multi-Focal Neuronal Ultrastructural Abnormalities and Synaptic Alterations in Mice after Low-Intensity Blast Exposure
Source
Journal of Neurotrauma 2019 ( )
Author(s)
Konan,L.M., Song,H., et al.

Abstract
Service members during military actions or combat training are exposed frequently to primary blast generated by explosive weaponry. The majority of military-related neurotrauma are classified as mild and designated as "invisible injuries" that are prevalent during current conflicts. While the previous experimental blast injury studies using moderate- to high-intensity exposures focused mainly on gross and microscopic neuropathology, our previous studies have shown that low-intensity blast (LIB) exposures resulted in nanoscale subcellular myelin and mitochondrial damages and subsequent behavioral disorders in the absence of gross or detectable cellular damage. In this study, we used transmission electron microscopy to delineate the LIB effects at the ultrastructural level specifically focusing on the neuron perikaryon, axons, and synapses in the cortex and hippocampus of mice at seven and 30 days post-injury (DPI). We found dysmorphic dark neuronal perikaryon and "cytoplasmic aeration" of dendritic processes, as well as increased microtubular fragmentation of the myelinated axons along with biochemically measured elevated tau/phosphorylated tau/Aβ levels. The number of cortical excitatory synapses decreased along with a compensatory increase of the post-synaptic density (PSD) thickness both at seven and 30 DPI, while the amount of hippocampal CA1 synapses increased with the reduced PSD thickness. In addition, we observed a significant increase in protein levels of PSD95 and synaptophysin mainly at seven DPI indicating potential synaptic reorganization. These results demonstrated that a single LIB exposure can lead to ultrastructural brain injury with accompanying multi-focal neuronal organelle alterations. This pre-clinical study provides key insights into disease pathogenesis related to primary blast exposure.

Plasma tau and amyloid are not reliably related to injury characteristics, neuropsychological performance, or white matter integrity in service members with a history of Traumatic Brain Injury

Source
Journal of Neurotrauma 2019 ( )
Author(s)
Lippa,S.M., Hong-Yeh,P., et al.

Abstract
This aim of this study was to examine the relationship between plasma tau and amyloid beta-42 (Aβ42), neuropsychological functioning, and white matter integrity in U.S. military service members with (n=155) and without (n=42) a history of uncomplicated mild (n=83), complicated mild (n=26), or moderate, severe, or penetrating (n=46) traumatic brain injury (TBI). We hypothesized that higher levels of tau and Aβ42 would be related to reduced neurocognitive performance and white matter integrity. Participants were prospectively enrolled from Walter Reed National Military Medical Center. Participants completed a blood draw, neuropsychological assessment, and diffusion tensor imaging (General Electric 3T) of the whole brain. From 20 neuropsychological test scores, five cognitive domain scores were computed. Measures of fractional anisotropy (FA), mean diffusivity (MD), axial diffusivity (AD), and radial diffusivity (RD) were generated for 18 regions of interest (ROIs). There was no relationship found between the plasma biomarkers and...
neurocognitive performance in any of the three TBI groups (all ps > .05; all R2 changes .15). Future investigation in larger samples of moderate, severe, and penetrating TBI are needed. Other plasma biomarkers, including phosphorylated tau, exosomal tau, and interleukin-10, may be more promising measures to use in the diagnosis, management, and treatment of TBI.

2019-122 0331

Postconcussion symptom reporting is not associated with diffusion tensor imaging findings in the subacute to chronic phase of recovery in military service members following mild traumatic brain injury

Source
Journal of Clinical and Experimental Neuropsychology 2019 ( ) 1-15

Author(s)
Lange, R.T., Yeh, P., et al.

Abstract
Introduction: The purpose of this study was to examine the relation between white matter integrity of the brain and postconcussion symptom reporting following mild traumatic brain injury (MTBI). Method: Participants were 109 U.S. military service members (91.7% male) who had sustained a MTBI (n = 88) or orthopedic injury without TBI (trauma controls, TC, n = 21), enrolled from the Walter Reed National Military Medical Center, Bethesda, Maryland. Participants completed a battery of neurobehavioral symptom measures and underwent diffusion tensor imaging (DTI; General Electric 3T) of the whole brain, on average 44.9 months post injury (SD = 42.3). Measures of fractional anisotropy (FA), mean diffusivity (MD), axial diffusivity (AD), and radial diffusivity (RD) were generated for 18 regions of interest (ROIs). Participants in the MTBI group were divided into two subgroups based on International Classification of Diseases-10th Revision (ICD-10) Category C criteria for postconcussion syndrome (PCS): PCS-present (n = 41) and PCS-absent (n = 47). Results: The PCS-present group had significantly worse scores on all 13 neurobehavioral measures than the PCS-absent group (p < .03). Pairwise comparisons revealed no significant differences for all ROIs when using FA and RD, and only two significant pairwise differences were found between PCS-present and PCS-absent groups when using MD and AD i.e., anterior thalamic radiation and cingulate gyrus (supracallosal) bundle]. Conclusions: Consistent with past research, but not all studies, postconcussion symptom reporting was not associated with white matter integrity in the subacute to chronic phase of recovery following MTBI.

2019-122 0332

A preliminary high-definition fiber tracking study of the executive control network in blast-induced traumatic brain injury
Source
Journal of Neurotrauma 2019 36 (5) 686-701
Author(s)
Ware,A.L., Biekman,B., et al.

Abstract
Blast-induced traumatic brain injury (bTBI) is common in veterans of the Iraq- and Afghanistan-era conflicts. However, the typical subtlety of neural alterations and absence of definitive biomarkers impede clinical detection on conventional imaging. This preliminary study examined the structure and functional correlates of executive control network (ECN) white matter in veterans to investigate the clinical utility of using high-definition fiber tracking (HDFT) to detect chronic bTBI. Demographically similar male veterans (N = 38) with and without bTBI (ages 24 to 50 years) completed standardized neuropsychological testing and magnetic resonance imaging. Quantitative HDFT metrics of subcortical-dorsolateral prefrontal cortex (DLPFC) tracts were derived. Moderate-to-large group effects were observed on HDFT metrics. Relative to comparisons, bTBI demonstrated elevated quantitative anisotropy (QA) and reduced right hemisphere volume of all examined tracts, and reduced fiber count and increased generalized fractional anisotropy in the right DLPFC-putamen tract and DLPFC-thalamus, respectively. The Group × Age interaction effect on DLPFC-caudate tract volume was large; age negatively related to volume in the bTBI group, but not comparison group. Groups performed similarly on the response inhibition measure. Performance (reaction time and commission errors) robustly correlated with HDFT tract metrics (QA and tract volume) in the comparison group, but not bTBI group. Results support anomalous density and integrity of ECN connectivity, particularly of the right DLPFC-putamen pathway, in bTBI. Results also support exacerbated aging in veterans with bTBI. Similar ECN function despite anomalous microstructure could reflect functional compensation in bTBI, although alternate interpretations are explored.

Shared Neuromuscular Performance Traits in Military Personnel with Prior Concussion

Source
Medicine and Science in Sports and Exercise 2019 ( )
Author(s)

Abstract
Concussions are common in military personnel and may result in increased risk of musculoskeletal injury. One plausible explanation for this risk could be that neuromotor deficiencies enhance injury risk following concussion through altered muscular activation/contraction timing.; Purpose: To compare military personnel with at least one concussion during the past 1 month to 2 years (CONCUSSED) to military branch-, age- and Special Operations Forces group- matched controls (CONTROL) on physiological, musculoskeletal and biomechanical performance.; Methods: A total of 48 (24 CONCUSSED, 24 CONTROL) male Air Force and Naval Special Warfare Operators aged 19-34 years participated in the study. Participants self-reported demographics/injury history and completed the following assessments: 1) physiological- body composition, anaerobic power and capacity, aerobic capacity and lactate threshold; 2) musculoskeletal- lower extremity isokinetic strength testing, including time to peak torque; and 3) biomechanical- single-leg jump and landing
task, including landing kinematics of the hip, knee and ankle. A machine learning decision tree algorithm (C5.0) and one-way ANOVA were used to compare the two groups on these outcomes.; Results: Despite non-significant differences using ANOVA, the C5.0 algorithm revealed CONCUSSED demonstrated quicker time to peak knee flexion angle during the single-leg landing task (500 msecs; CONCUSSED: n=18 vs. CONTROL: n=4) and larger knee flexion angle at initial contact (>7.7°; CONCUSSED: n=18 vs. CONTROL: n=2); Conclusion: The findings supported the hypothesis that CONCUSSED military personnel would demonstrate altered neuromuscular control in landing strategies and muscular activation. Future research should assess prospectively neuromuscular changes following concussion and determine if these changes increase risk of subsequent musculoskeletal injuries.

2019-122 0334

Strength and Temporal Variance of the Default Mode Network to Investigate Chronic Mild Traumatic Brain Injury in Service Members with Psychological Trauma

Source
Journal of Experimental Neuroscience 2019 13

Author(s)

Abstract
Background: There is a significant number of military personnel with a history of mild traumatic brain injury (mTBI) who suffer from comorbid posttraumatic stress symptoms (PTS). Although there is evidence of disruptions of the default mode network (DMN) associated with PTS and mTBI, previous studies have only studied static connectivity while ignoring temporal variability of connectivity.; Objective: To assess DMN disrupted or dysregulated neurocircuitry, cognitive functioning, and psychological health of active-duty military with mTBI and PTS.; Method: U.S. Army soldiers with PTS (n = 14), mTBI + PTS (n = 25), and healthy controls (n = 21) voluntarily completed a cognitive and symptom battery. In addition, participants had magnetic resonance imaging (MRI) to assess both static functional connectivity (SFC) and variance of dynamic functional connectivity (vDFC) of the DMN.; Results: Both the PTS and mTBI + PTS groups had significant symptoms, but only the comorbid group had significant decrements in cognitive functioning. Both groups showed less stable and disrupted neural signatures of the DMN, mainly constituting the cingulate-frontal-temporal-parietal attention network. Specifically, the PTS group showed a combination of both reduced contralateral strength and reduced unilateral variability of frontal-cingulate-temporal connectivities, as well as increased variability of frontal-parietal connectivities. The mTBI + PTS group had fewer abnormal connectives than the PTS group, all of which included reduced strength of frontal-temporal regions and reduced variability frontal-cingulate-temporal regions. Greater SFC and vDFC connectivity of the left dorsolateral prefrontal cortex (dPFC) ↔ precuneus was associated with higher cognitive scores and lower symptom scores.; Conclusions: Findings suggest that individuals with PTS and mTBI + PTS have a propensity for accentuated generation of thoughts, feelings, sensations, and/or images while in a resting state. Compared with controls, only the PTS group was associated with accentuated variability of the frontal-parietal attention network. While there were no significant differences in DMN connectivity strength between the mTBI + PTS and PTS groups, variability of connectivity was able to distinguish them;
Symptom Reporting Patterns of US Military Service Members with a History of Concussion According to Duty Status

Source
Archives of Clinical Neuropsychology: The Official Journal of the National Academy of Neuropsychologists 2019 34 (2) 236-242

Author(s)
Lu,L.H., Cooper,D.B., et al.

Abstract
Objective: To compare symptom reporting patterns of service members with a history of concussion based on work status: full duty, limited duty, or in the Medical Evaluation Board (MEB)/disability process.; Methods: Retrospective analysis of 181 service members with a history of concussion (MEB n = 56; limited duty n = 62; full duty n = 63). Neurobehavioral Symptom Inventory (NSI) Validity-10 cutoff (>22) and Mild Brain Injury Atypical Symptoms Scale (mBIAS) cutoffs (≥10 and ≥8) were used to evaluate potential over-reporting of symptoms.; Results: The MEB group displayed significantly higher NSI scores and significantly higher proportion scored above the mBIAS ≥10 cutoff (MEB = 15%; limited duty = 3%; full duty = 5%). Validity-10 cutoff did not distinguish between groups.; Conclusions: MEB but not limited duty status was associated with increased risk of over-reporting symptoms in service members with a history of concussion. Results support the use of screening measures for over-reporting in the MEB/disability samples.

See also
Development of a Methodology for Simulating Complex Head Impacts with the Advanced Combat Helmet. Under Simulation.
Fatal head and neck injuries in military underbody blast casualties. Under Trauma.
Stress inoculation training outcomes among veterans with PTSD and TBI. Under Psychology.

Source
Msmr 2019 26 (3) 20-24
Author(s)
Williams, V.F., Atta, I., et al.

Abstract
Non-provided.

Effect of Urinary Sheath Use on Hydration Status of Fighter Pilots Under Severe Thermal Stress: An Observational Study.

Source
Military Medicine 2019 184 (3-4) e217-e222
Author(s)
Brescon, C., and Pegaz, P.,

Abstract
Introduction Fighter jet pilots may adopt a voluntary hypohydration strategy hours before take-off to avoid urinating in flight. This may favor sortie-induced dehydration and potentially increase flying errors. Since 2015, French pilots have used a urinary sheath (US) that appears to have resolved this problem. However, its effect has never been assessed. Methods Urine specific gravity (USG) before and after sorties, inflight intake (water and food) and loss (sweat and urine), and changes in bodyweight were measured during 44 long (~370 minutes) sorties (22 in 2015 without a US, No-US group, and 22 in 2017 with a US, US group). Results The USG before sorties was lower in the US than No-US group (1.019 ± 0.008 vs 1.028 ± 0.006, p = 0.008) and the proportion of hypohydrated pilots (>1.020) was lower in the US than No-US group (29 vs 90%, p = 0.007). Total loss and intake were higher in the US group (1,793 ± 640 and 927 ± 585 g, respectively) than in the No-US group (1,337 ± 382 and 359 ± 191 g, respectively; p < 0.006). Changes in bodyweight, both absolute (~977 ± 367 g for the No-US and ~866 ± 593 g for the US group) and relative (1.16 ± 0.51% for the No-US and 1.13 ± 0.77% for the US group) during sorties were not altered by wearing a US. Conclusion The use of a US successfully mitigates preflight dehydration, as reflected by decreases in USG, showing that pilots, at least partially, abandon preflight voluntary hypohydration strategies. It also favored water and food intake during flight without enhancing inflight dehydration, shown by the parallel increases in loss (urine and sweat) when wearing a US.
Outcomes of Genitourinary Injury in U.S. Iraq and Afghanistan War Veterans Receiving Care from the Veterans Health Administration.

Source
Military Medicine 2019 184 (3-4) e297-e301

Author(s)
Nnamani, N.S., and Pugh, M.J.,

Abstract
Introduction In the recent conflicts, unprecedented numbers of US service personnel have survived with genitourinary (GU) injury, but few reports have focused on outcomes of these injuries. Outcomes of combat-related GU injury were investigated in wounded US male veterans of Operations Enduring/Iraqi Freedom and New Dawn receiving Veterans Health Administration (VHA) care. Materials and Methods Department of Defense Trauma Registry (DoDTR) data for male service members injured in theater were linked with VHA electronic health records (EHRs) for veterans who received VHA care at least once from October 2001 through September 2011. Abbreviated Injury Scale scores and International Classification of Diseases-9th Revision-Clinical Modification codes were used to identify GU injuries, severity, and outcomes. Wounded veterans with vs. without GU injury were compared. Results A total of 12,923 injured veterans were found in both databases; 591 (4.6%) had a GU injury diagnosis in the DoDTR; 18 (3.0% of 591) had a GU injury diagnosis in VHA EHRs. Of the 591 with GU injury, 179 (30.3%) had at least one severe GU injury. The prevalence of both urinary symptoms (6.3% vs. 3.1%; p < 0.0001) and sexual dysfunction (13.5% vs. 7.1%; p < 0.0001) was higher among those with vs. without GU injury, respectively. Traumatic brain injury prevalence was also higher (48.0% vs. 40.0%; p < 0.0001); post-traumatic stress disorder prevalence was similar between the two groups (51.6% vs. 50.6%). Conclusion We identified an opportunity to improve the diagnosis and coordination of care for veterans with GU injury. Routine screening and better documentation upon transfer from DoD to VHA care should be implemented to alert multi-specialty care teams to provide care for the urinary, sexual, fertility, and psychological health problems of these patients.

Testicular Cancer in an American Special Forces Soldier: A Case Report

Source

Author(s)
Ho, T.T., Rocklein-Kemplin, K., et al.

Abstract
Testicular cancer is the most common solid tumor and the most common cause of cancer mortality in men between 25 and 34 years of age. Limited data exist comparing testicular cancer in military Servicemembers and the general population. Research indicates that Navy, Air Force, and Coast Guard Servicemembers have a higher risk of testicular cancer than do members of the Army or Marines. A military lifestyle including operational tempo and long deployments may contribute to delayed diagnosis and subsequent treatment planning, potentially increasing morbidity and
mortality. We used the National Institutes of Health case-study format recommendations as a framework for this presentation of the case of a 36-year-old US Special Forces Soldier who noticed new testicular masses while deployed in Iraq but did not seek help until 5 months later, upon redeployment home.

2019-122 0340

Vasectomy and vasectomy reversals, active component, U.S. Armed Forces, 2000-2017

Source
Msmr 2019 26 (3) 11-19
Author(s)
Williams,V.F., Ying,S., et al.

Abstract
During 2000-2017, a total of 170,878 active component service members underwent a first-occurring vasectomy, for a crude overall incidence rate of 8.6 cases per 1,000 person-years (p-yrs). The most common operative procedure performed was conventional vasectomy (99.2%), with less than 1% of vasectomies categorized as minimally invasive vasectomy. Among the men who underwent incident vasectomy, 2.2% had another vasectomy performed during the surveillance period. Compared to their respective counterparts, the overall rates of vasectomy were highest among service men aged 30-39 years, non-Hispanic whites, married men, and those in pilot/air crew occupations. Male Air Force members had the highest overall incidence of vasectomy and men in the Marine Corps, the lowest. Crude annual vasectomy rates among service men increased slightly between 2000 and 2017. The largest increases in rates over the 18-year period occurred among service men aged 35-49 years and among men working as pilots/air crew. Among those who underwent vasectomy, 1.8% also had at least 1 vasectomy reversal during the surveillance period. The likelihood of vasectomy reversal decreased with advancing age. Non-Hispanic black and Hispanic service men were more likely than those of other race/ethnicity groups to undergo vasectomy reversals.

See also

Characteristics of younger women Veterans with service connected disabilities

Source
Heliyon 2019 5 (3) e01284-e01284
Author(s)

Abstract
Objectives: There has been an increase in the number of women Veterans with service connected disabilities, which are illnesses or injuries incurred or aggravated during military service. We compared military service and disability characteristics in women and men ≤50 years of age.; Methods: This study included 4,029,672 living Veterans who had at least 1 service connected condition and an active award status as of October 1, 2016. The date of last award as well as demographic, military service, and disability characteristics were obtained from the Veterans Benefits Administration (VBA) VETSNET file.; Results: Among 388,947 women Veterans with service connected conditions, almost 60% (n = 231,364) were ≤50 years of age. Roughly 55% of both women and men ≤50 years had a ≥50% combined rating, although there were differences with respect to individual service connected conditions. Women less often had service connected post-traumatic stress disorder (23% vs 32%), but more often had major depression (15% vs 7%). While traumatic brain disease was more common in men, migraine headache was much more common in women (32% vs 18%). Less than half had a VA outpatient visit in the previous year.; Conclusions: The findings of significant numbers of younger women with service connected PTSD, depression, or migraine headache should be considered within the context of post deployment health. These findings raise questions regarding outreach to women Veterans who have these conditions, but do not use VA health care.

Experiential avoidance as a mediator of the association between posttraumatic stress disorder symptoms and social support: A longitudinal analysis

Source
Psychological Trauma: Theory, Research, Practice, and Policy 2019 11 (3) 353-359
Author(s)

Abstract
Objective: Veterans with posttraumatic stress disorder (PTSD) often experience difficulties with social reintegration after deployment. Experiential avoidance, the tendency to avoid unwanted thoughts, feelings, and bodily sensations (including in response to interactions with others) may be a key factor that explains the association between PTSD symptoms and postdeployment social support. The present study evaluated whether experiential avoidance mediates the association
between PTSD symptoms and perceptions of postdeployment social support.
Method: Veterans (n = 145) who served in support of the conflicts in Iraq and Afghanistan were enrolled in a study evaluating returning veterans' experiences. Participants were evaluated at an initial baseline assessment and 8-months later. Participants completed the lifetime Clinician Administered PTSD Scale and the Acceptance and Action Questionnaire—II at baseline, as well as the Deployment Risk and Resilience Inventory—Post Deployment Social Support Questionnaire at the 8-month assessment. Results: Baseline experiential avoidance mediated the association between lifetime PTSD symptoms and 8-month social support. Conclusions: Experiential avoidance may be an important target for treatment to improve long-term functional recovery and reintegration. (PsycINFO Database Record (c) 2019 APA, all rights reserved); Clinical Impact Statement—Veterans with posttraumatic stress disorder (PTSD) often have low levels of social support. Experiential avoidance appears to be an important mediator that accounts for why some people with PTSD have lower levels of social support than others. Interventions that target experiential avoidance in veterans with PTSD may help to improve their social support and overall social reintegration, but more research in this area is necessary.

2019-122 0343

Healthy workers or less healthy leavers? Mortality in military veterans

Source
Occupational Medicine (Oxford, England) 2019 ( )

Author(s)

Abstract
Background: The 'healthy worker effect' predicts that longer employment is positively associated with reduced mortality, but few studies have examined mortality in military veterans irrespective of exposure to conflict.; Aims: To examine mortality in a large national cohort of Scottish veterans by length of service.; Methods: Retrospective cohort study comparing survival in up to 30-year follow-up among 57 000 veterans and 173 000 people with no record of service, matched for age, sex and area of residence, who were born between 1945 and 1985. We compared antecedent diagnoses in the two groups to provide information on probable risk factors.; Results: By the end of follow-up, 3520 (6%) veterans had died, compared with 10 947 (6%) non-veterans. Cox proportional hazard analysis confirmed no significant difference overall unadjusted or after adjusting for deprivation. On subgroup analysis, those who left prematurely (early service leavers) were at significantly increased risk of death (hazard ratio (HR) 1.16, 95% confidence interval (CI) 1.09-1.24, P < 0.001), although the increase became non-significant after adjusting for socioeconomic status (HR 1.05, 95% CI 0.99-1.12). Longer-serving veterans were at significantly lower risk of death than non-veterans; the risk decreased both with length of service and in more recent birth cohorts. Smoking-related disease was the greatest contributor to increased mortality in early leavers.; Conclusion: Among longer-serving veterans, there was evidence of a HWE partly attributable to selective attrition of early service leavers, but birth cohort analysis suggests improvements over time.
which may also reflect a causal effect of improved in-service health promotion.

2019-122 0344

Impact of Combat Exposure on Mental Health Trajectories in Later Life: Longitudinal Findings From the VA Normative Aging Study.

Source
Psychology and Aging 2019
Author(s)
Lee H., Aldwin C.M., et al.

Abstract
Cross-sectional studies have shown contradictory results concerning the impact of combat exposure on mental health in later life. We examined whether combat exposure influences trajectories of mental health symptoms in older male veterans using longitudinal data collected from 1985 to 1991 in the Veterans Affairs Normative Aging Study (N = 1,105, age range = 40-86 years in 1985). Noncombat veterans showed little systematic change in depressive and anxiety symptoms with age, whereas combat veterans showed U-shaped nonlinear changes, with higher levels in midlife decreasing until the mid-60s and then increasing again in the 70s and 80s. These findings support the notion that military service, and especially combat exposure, is a hidden variable in aging research.

2019-122 0345

Latent profile analysis exploring potential moral injury and posttraumatic stress disorder among military veterans

Source
Journal of Clinical Psychology 2019 75 (3) 499-519
Author(s)
Smigelsky,M.A., Malott,J.D., et al.

Abstract
Objectives: Theoretical support for the moral injury (MI) construct is mounting, yet empirical support has lagged behind. A conceptual model has been proposed, but studies have not yet explored the constellation of symptoms within treatment-seeking Veterans.; Methods: Veterans (N = 212) seeking trauma recovery services completed measures of potential MI symptoms that functioned as indicators in person-centered Latent Profile Analysis. Differences in exposure to potentially morally injurious experiences (pMIEs) were compared across profiles using logistic regression.; Results: Three profiles emerged that varied by symptom severity, levels of trauma-related guilt, and levels of dispositional forgiveness. Exposure to pMIEs predicted membership in a class consistent with proposed MI symptomatology.; Conclusions: Person-centered approaches are useful for identifying a distinct group of veterans whose trauma recovery may benefit from specifically targeting moral emotions, consistent with the emerging construct of MI.
Mental and Physical Health Correlates of Pain Treatment Utilization Among Veterans With Chronic Pain: A Cross-sectional Study.

Source
Military Medicine 2019 184 (3-4) e127-e134

Author(s)
Harding,K., and Day,M.A.,

Abstract
Introduction The annual cost of treatment and lost productivity due to chronic pain is estimated to be $635 billion within the USA. Self-management treatments for chronic pain result in lower health care costs and lower utilization of provider-management treatments, such as hospitalization and medication use. The current study sought to identify and characterize patient factors and health conditions associated with chronic pain treatment utilization to inform ways to improve engagement in self-management pain treatment (e.g., applying heat or ice, exercising, or practicing relaxation). This study predicted (1) greater pain intensity and pain interference would be associated with greater utilization of self-management treatments and (2) this association would be moderated by patient factors (gender and age) and health comorbidities (anxiety, trauma, depression, and sleep disturbance). Materials and Methods Baseline data from a three-arm clinical trial were collected for 127 Veterans seeking treatment for chronic pain. Veterans were recruited via clinician referral and medical record review at the Veterans Affairs Puget Sound Health Care System, Washington, USA. Results Self-management treatments were more utilized than provider-management treatments. Pain intensity and pain interference were not uniquely associated with provider-management or self-management treatment utilization after controlling for demographics and mental health status. Sleep disturbance moderated the relationship between pain interference and provider-management treatment utilization. Depression moderated the relationship between pain intensity and provider-management treatment utilization. Conclusions While study conclusions may not generalize to all Veteran populations, findings suggest that Veterans with chronic pain were more likely to seek provider-management treatments when experiencing high-pain interference and high-sleep disturbance. In addition, Veterans were more likely to seek provider-management treatments when experiencing low-pain intensity and high-depression symptoms.
Moral injury and spiritual struggles in military veterans: A latent profile analysis

Source
Journal of Traumatic Stress 2019 ( )

Author(s)
Currier,J.M., Foster,J.D., et al.

Abstract
War-related traumas can lead to emotional, relational, and spiritual suffering. Drawing on two community samples of war zone veterans from diverse military eras (Study 1, N = 616 and Study 2, N = 300), the purpose of this study was to examine patterns of constellations between outcomes related to moral injury (MI) and common ways in which veterans may struggle with religion or spirituality, defined as divine, morality, meaning, interpersonal, and doubt. Results from latent profile analyses revealed three distinct classes across the samples, based on psychometrically validated instruments: (a) no MI-related outcomes or spiritual struggles (nondistressed group; Study 1 = 72.7%, Study 2 = 75.0%); (b) MI-related outcomes and equivalent or lower degrees of spiritual struggles relative to MI-related outcomes (psychological MI group; Study 1 = 19.2%, Study 2 = 17.0%); and (c) MI-related outcomes and salient struggles with religious faith or spirituality, both within their own profiles and compared to other groups (spiritual MI group; 8.1% and 8.0% in the two samples). When we compared severity of spiritual struggles within MI groups, turmoil with God or a higher power emerged as a defining feature of the spiritual MI group in both samples. In addition, secondary analyses revealed membership in this third group was linked with greater importance of religion or spirituality before military service, χ²(1, N = 616 and 300) = 4.468–8.273. Overall, although more research is needed, these findings highlight the possible utility of differentiating between psychological and spiritual subtypes of MI according to war zone veterans’ religious or spiritual backgrounds.

Moral injury and suicidality among combat-wounded veterans: The moderating effects of social connectedness and self-compassion

Source
Psychological Trauma: Theory, Research, Practice, and Policy 2019 ( )

Author(s)

Abstract
Objective: Among combat veterans, moral injury (i.e., the guilt, shame, inability to forgive one’s self and others, and social withdrawal associated with one’s involvement in events that occurred during war or other missions) is associated with a host of negative mental health symptoms, including suicide. To better inform and tailor prevention and treatment efforts among veterans, the present study examined several potential risk (i.e., overidentification and self-judgment) and protective (i.e., self-kindness, mindfulness, common humanity, and social connectedness) variables that may moderate the association between moral injury and suicidality. Method: Participants were 189 combat wounded veterans (96.8% male; mean age = 43.14 years) who had experienced one or more deployments (defined as 90 days or more). Nearly all participants reported a service-connected disability (n = 176, 93.1%) and
many had received a Purple Heart (n = 163, 86.2%). Results: Within a series of moderation models, we found 3 statistically significant moderation effects. Specifically, the association between self-directed moral injury and suicidality strengthened at higher levels of overidentification, that is, a tendency to overidentify with one’s failings and shortcomings. In addition, the association between other-directed moral injury and suicidality weakened at higher levels of mindfulness and social connectedness. Conclusions: These findings provide insight on risk and protective factors that strengthen (risk factor) or weaken (protective factor) the association between moral injury and suicidality in combat-wounded veterans. Taken together, mindfulness, social connectedness, and overidentification are relevant to understand the increased/decreased vulnerability of veterans to exhibit suicidality when experiencing moral injury. (PsycINFO Database Record (c) 2019 APA, all rights reserved); Clinical Impact Statement—Experiences in combat may violate one’s deeply held belief systems. For some service members, these violations may result in inner conflict. We examined variables that may increase risk for or reduce risk, that is, buffer the association between moral injury and suicidality. High levels of mindfulness and social connectedness reduced the association between moral injury and suicidality, whereas overidentifying, that is, identifying strongly with one’s failures, strengthened the association between moral injury and suicidality. Mindfulness, social connectedness, and overidentification may be variables that mental health professionals should consider when working with veterans who have experienced moral injury and report suicidality.

Moral Injury, Religiosity, and Suicide Risk in U.S. Veterans and Active Duty Military with PTSD Symptoms.

Source
Military Medicine 2019 184 (3-4) e271-e278

Author(s)
Ames,D., and Erickson,Z.,.

Abstract
Introduction There is growing evidence that moral injury (MI) is related to greater suicide risk among Veterans and Active Duty Military (V/ADM). This study examines the relationship between MI and suicide risk and the moderating effect of religiosity on this relationship in V/ADM with post-traumatic stress disorder (PTSD) symptoms. Materials and Methods This was a cross-sectional multi-site study involving 570 V/ADM from across the USA. Inclusion criteria were having served in a combat theater and the presence of PTSD symptoms. Multidimensional measures assessed MI, religiosity, PTSD symptoms, anxiety, and depression. In this secondary data analysis, a suicide risk index was created based on 10 known risk factors. Associations between MI and the suicide risk index were examined, controlling for demographic, religious, and military characteristics, and the moderating effects of religiosity were explored. Results MI overall was correlated strongly with suicide risk (r = 0.54), as were MI subscales (ranging from r = 0.19 for loss of trust to 0.48 for self-condemnation). Controlling for other characteristics had little effect on this relationship (B = 0.016, SE = 0.001, p < 0.0001). Religiosity was unrelated to suicide risk and did not moderate the relationship between suicide risk and MI or any of its subscales. Conclusion MI is strongly and independently associated with risk factors for suicide among V/ADM with PTSD symptoms, and religiosity does not mediate or moderate this relationship. Whether interventions that target MI reduce risk of suicide or suicidal ideation remains unknown and needs further study.
Morally injurious experiences and mental health: The moderating role of self-compassion

Source
Psychological Trauma: Theory, Research, Practice, and Policy 2019
Author(s)

Abstract
Introduction: Military veterans are at heightened risk for developing mental and behavioral health problems. Morally injurious combat experiences have recently gained empirical and clinical attention following the increased rates of mental and behavioral health problems observed in this population. Objective: Extending extant research, the current investigation assessed the relationship between morally injurious experiences and mental and behavioral health outcomes. Furthermore, it examined the potential protective role of self-compassion in these relationships.
Method: Participants were 203 military veterans (M age = 35.08 years, 77.30% male) who completed online questionnaires. Results: Analyses indicated that self-compassion significantly moderated the relationship between exposure to morally injurious experiences and posttraumatic stress disorder, depression severity, and deliberate self-harm versatility. Conclusions: These results highlight the potential clinical utility of self-compassion in military mental health, particularly in the context of morally injurious experiences. (PsycINFO Database Record (c) 2019 APA, all rights reserved); Clinical Impact Statement—Military veterans experience various stressors while deployed, one of which is exposure to events that are perceived as morally transgressive. Exposure to morally transgressive events has been linked to various negative outcomes. The current study examined whether the relation between morally injurious event exposure and negative mental health outcomes would be lower for individuals high in self-compassion. We found that individuals high in self-compassion (vs. low) had significantly fewer of these negative mental health symptoms after exposure to these events, including fewer posttraumatic stress disorder symptoms, depression symptoms, and deliberate self-harm versatility. This study emphasized that self-compassion may be an important consideration in military mental health, and more research is needed to examine the potential clinical utility of self-compassion.

OEF/OIF/OND Veterans Seeking PTSD Treatment: Perceptions of Partner Involvement in Trauma-Focused Treatment.
Introduction Post-traumatic stress disorder (PTSD) has been linked to a variety of adverse mental and physical health outcomes including distressed relationships. Involving romantic partners in PTSD treatment appears to be a promising new avenue for PTSD treatment; however, additional research is necessary to clarify veteran preferences for inclusion of significant others in treatment and relationship characteristics that may influence such preferences. Accordingly, the present study was designed to evaluate Operation Enduring Freedom/Operation Iraqi Freedom/Operation New Dawn (OEF/OIF/OND) veterans’ desire to include romantic partners in trauma-focused care (n = 74) and to explore psychological and relationship variables associated with preference for partner inclusion in PTSD treatment.

Materials and Methods This study surveyed male (N = 74) OEF/OIF/OND combat veterans seeking mental health services at a Veterans Health Administration PTSD treatment program. Relationships between PTSD symptoms, romantic relationship functioning, and interest in including their romantic partner in PTSD treatment were examined.

Results Consistent with previous research, OEF/OIF/OND veterans seeking treatment at a specialty PTSD program report low relationship satisfaction. The majority of participants reported that PTSD symptoms interfere with relationship functioning; specifically, numbing symptoms were a significant predictor of PTSD-related relationship impairment. A minority (26%) of participants reported a desire to include their romantic partner in PTSD treatment. Greater behavioral avoidance and communication difficulties were associated with increased interest in including a romantic partner in PTSD treatment.

Conclusion We confirmed that OEF/OIF/OND veterans seeking PTSD treatment experience PTSD-related problems in romantic relationships, low-relationship satisfaction, and relationship satisfaction was positively associated with perceived communication and problem-solving skills. A minority of veterans were interested in involving significant others in their PTSD treatment; however, in the present study, veterans were not given information about the various ways that a romantic partner might be involved in treatment, and they were not presented with specific conjoint therapies (e.g., Cognitive-Behavioral Conjoint Therapy for PTSD, Strategic Approach Therapy). For veterans with PTSD, relationship distress, and communication difficulties, conjoint psychotherapies may offer a way of increasing engagement in PTSD treatment by parsimoniously addressing multiple treatment targets at once (PTSD symptoms, relationship distress, communication problems) and providing veteran-centered care.

Pain and sleep problems predict quality of life for veterans with serious mental illness
Source
Psychiatric Rehabilitation Journal 2019 ( )
Author(s)
Travaglini,L.E., Cosgrave,J., et al.

Abstract
Purpose: Poor sleep and pain are common in veterans with serious mental illness (SMI), yet it is unclear how these may impact dimensions of quality of life. As such, this study examined independent and additive contributions of sleep and pain difficulties on quality of life (QoL) among a sample of veterans with SMI and insomnia. Method: Participants were 57 veterans with SMI (schizophrenia spectrum, bipolar, or major depressive disorders with significant functional impairment) and at least subthreshold insomnia (Insomnia Severity Index ≥8). Measures assessed sleep quality (Pittsburgh Sleep Quality Index), pain intensity (Pain Numeric Rating Scale PNRS]), pain interference (Short Form 12 Health Survey), and QoL (World Health Organization Quality of Life–BREF). Multivariate multiple regression analyses examined the effects of sleep quality and pain on QoL. Results: Forty-one veterans (71.9%) reported moderate-to-severe pain (PNRS ≥4). Poorer sleep quality was associated with greater pain interference and worse physical, emotional, and environmental QoL. Sleep quality, not pain, explained significant variance in environmental QoL (b = −2.30; 95% confidence interval CI: −4.16, −.43]). Pain interference, not sleep quality, explained significant variance in physical health-related QoL (b = −.23; 95% CI −.38, −.08]). Conclusions: Results reveal the importance of screening for insomnia and chronic pain among veterans with SMI. For these veterans who already struggle with daytime functioning, interventions such as integrated cognitive–behavioral therapy for pain-related insomnia are warranted. Such treatments must account for how sleep disturbance and chronic pain may differentially impact multiple facets of QoL. (PsycINFO Database Record (c) 2019 APA, all rights reserved); Impact and Implications—Given high rates of co-occurrence, there is an urgent need to address pain and sleep concerns in veterans with SMI to improve quality of life and overall recovery. Results show clear relationships between pain, sleep, and quality of life and highlight the importance of measuring and tracking pain interference—not just pain intensity—in research and treatment protocols. Because physical health interventions are increasingly becoming integrated into serious mental illness programming, it is imperative that pain and sleep be addressed within these protocols. Empirical tests of holistic and integrative treatments are the next step in addressing the complex disease burden carried by this historically underserved population.

2019-122 0353

A preliminary review of the Beck Depression Inventory-II (BDI-II) in veterans: Are new norms and cut scores needed?
Abstract
The Beck Depression Inventory-II (BDI-II) is used within the Veterans Health Administration (VHA) to measure depression symptom severity. This naturalistic study aimed to examine VHA-specific BDI-II use and establish normative data and psychometric properties. Initial BDI-II data for 152,260 individual veterans were extracted from preexisting medical records using the VA Informatics and Computing Infrastructure. BDI-II scores were compared against Beck, Steer, and Brown (1996)'s original sample, as well as across veteran subgroups. Exploratory and confirmatory factor analyses were also conducted. Similar to Beck et al.'s (1996) sample, the BDI-II was most frequently administered in outpatient psychiatric VHA settings, although it was also used in inpatient and medical settings. Veterans scored significantly higher on the BDI-II than the original comparison groups. This was true across diagnostic categories. The largest discrepancy was seen between nondepressed veterans and corresponding patients from the original sample (Cohen's d = 1.34). Older veterans endorsed less severe levels of depression symptomatology. Additionally, a 2-factor model similar to Beck et al.'s (1996) original solution provided the best fit to the data. Veterans reported higher levels of somatic-affective symptoms than cognitive symptoms. Although potentially useful, the BDI-II requires further investigation in veterans. Standard cut scores are not recommended for use in this population when evaluating severity of depression. A cut score of 27 or higher best differentiated between veterans with and without mood disorders in the current sample. Treatment providers should also consider using BDI-II factor scores, rather than the total score, to measure depressive symptom change.

Relationships between moral injury syndrome model variables in combat veterans

Abstract
Moral injury is a unique type of trauma characterized by guilt and shame that may develop after acting inconsistently with one’s moral values or observing moral violations by trusted individuals. According to the moral injury syndrome model, exposure to potentially morally injurious events (pMIEs—e.g., killing combatants or civilians) statistically predicts the development of proposed moral injury symptoms. Moral injury’s core symptoms (e.g., guilt and loss of meaning) are further hypothesized to mediate relationships between pMIEs and secondary symptoms (e.g., depression, anxiety, and posttraumatic stress disorder symptoms). To empirically evaluate these propositions, the relationships between exposure to
pMIEs, core symptoms, and secondary symptoms were examined in a community sample of combat veterans (N = 72). pMIE exposure was statistically associated with all proposed moral injury symptoms. Furthermore, the relationships between pMIE exposure and secondary symptoms were all mediated by core symptoms. Results highlight guilt’s centrality in moral injury.

2019-122 0355

Rethinking Violence Prevention in Rural and Underserved Communities: How Veteran Peer Support Groups Help Participants Deal with Sequelae from Violent Traumatic Experiences

Source
The Journal of Rural Health: Official Journal of the American Rural Health Association and the National Rural Health Care Association 2019 ( )

Author(s)

Abstract
Purpose: Access to mental health care and programs that address violence prevention can be a challenge for veterans residing in rural and underserved areas. A growing number of trauma-affected veterans are now returning to rural areas upon completion of military service. The Palo Alto VA Health Care System has piloted a program known as the Peer Support Program (PSP) where certified peer support specialists hold group sessions for their fellow veterans in remote, community-based outpatient clinics.; Methods: A total of 29 peer-support group participants and 1 certified peer specialist were interviewed. Semistructured interviews began with open-ended questions regarding participant firsthand experiences with the support group setting. These were followed by direct questions that addressed the role of the PSP, expectations for the PSP, as well as benefits and limitations of the program. We performed a domain analysis using the Spradley ethnographic method on 325 pages of compiled narrative data focusing on violence-related themes.; Findings: Four key themes emerged, including: 1) Violence in Military Training Not Acceptable in Civilian Life, 2) Peer Support Creates the Trust to Speak Freely, 3) Skills Are Taught to Defuse Violence, and 4) The Veteran Peer Support Specialist Relationship Is Multi-Dimensional.; Conclusions: These emergent themes illustrate how trauma-focused assistance rendered by peer support specialists as part of an interdisciplinary mental health team can be implemented to benefit trauma-affected individuals and their communities in the prevention of future violence.; © 2019 National Rural Health Association.

2019-122 0356

Serving All Who Served: Piloting an Online Tool to Support Cultural Competency with LGBT U.S. Military Veterans in Long-Term Care
Source
Clinical Gerontologist 2019 42 (2) 185-191
Author(s)

Abstract
Objective: Given health disparities between lesbian, gay, bisexual, and transgender (LGBT) and non-LGBT older adults, ensuring that the care provided in long-term care (LTC) settings is both supportive and sensitive to their unique needs and challenges is essential. This has become a matter of increasing priority in the United States Department of Veterans Affairs (VA), which in recent years has stated its mission to "serve all who served," including LGBT Veterans. With this in mind, we piloted an online training tool designed to enhance the LGBT cultural competence of interdisciplinary staff working in geriatric extended care units.; Method: Interdisciplinary LTC staff participated in an online training module that contained information on unique factors that affect the lives of older LGBT Veterans, and provided considerations and strategies to assist staff in working with them.; Results: Following participation in the training, staff showed a significant increase in knowledge about LGBT Veterans, but not in skills or attitudes.; Conclusions: Online-based LGBT cultural-competency training is useful in providing LTC staff with foundational knowledge that can help them work more competently with LGBT residents.; Clinical Implications: LTC facilities can develop brief yet effective cultural competency trainings that increase the visibility of LGBT concerns in order to enhance clinical care.

2019-122 0357

Sticking it out in trauma-focused treatment for PTSD: It takes a village

Source
Journal of Consulting and Clinical Psychology 2019 87 (3) 246-256
Author(s)

Abstract
Objective: One in 3 veterans will dropout from trauma-focused treatments for posttraumatic stress disorder (PTSD). Social environments may be particularly important to influencing treatment retention. We examined the role of 2 support system factors in predicting treatment dropout: social control (direct efforts by loved ones to encourage veterans to participate in treatment and face distress) and symptom accommodation (changes in loved ones’ behavior to reduce veterans’ PTSD-related distress). Method: Veterans and a loved one were surveyed across 4 VA hospitals. All veterans were initiating prolonged exposure therapy or cognitive processing therapy (n = 272 dyads). Dropout was coded through review of VA hospital records. Results: Regression analyses controlled for traditional, individual-focused factors likely to influence treatment dropout. We found that, even after accounting for these factors, veterans who reported their loved ones encouraged them to face distress were twice as likely to remain in PTSD treatment than veterans who denied such encouragement. Conclusions: Clinicians initiating trauma-focused treatments with veterans should routinely assess how open veterans’ support
systems are to encouraging veterans to face their distress. Outreach to support networks is warranted to ensure loved ones back the underlying philosophy of trauma-focused treatments. (PsycINFO Database Record (c) 2019 APA, all rights reserved); What is the public health significance of this article?—Support system factors are especially important to understanding dropout from trauma-focused treatment for PTSD. Specifically, veterans who reported their loved ones encouraged them to face distress were twice as likely to remain in PTSD treatment than veterans who denied such encouragement. Findings persist even after accounting for traditional, individual-level risk factors predicting dropout. Outreach to loved ones to increase their likelihood of encouraging veterans to face their distress may be a viable path for improving retention in trauma-focused treatments for PTSD.

2019-122 0358

Trail-Making Test Part B: Evaluation of the efficiency score for assessing floor-level change in veterans

Source
Archives of Clinical Neuropsychology 2019 34 (2) 243-253

Author(s)

Abstract
Objective: The Trail Making Test—Part B (TMT-B) is a commonly used executive control measure with a known floor effect, limiting the ability to distinguish impairment among individuals unable to complete this task in the standard time limit. Our group previously proposed the TMT-B Efficiency Score (TMT-Be), which captures performance variability among examinees who fail to complete the task. The present study assesses the TMT-Be in a longitudinal clinical sample. Method: Data were collected via record review of veterans who underwent two clinical neuropsychological evaluations. We identified 30 veterans (mean age Visit 1:69 ± 8.7 years) who were unable to complete TMT-B during at least one evaluation (mean days between visits = 615). Two scoring systems were utilized to examine performance variability: TMT-Be and TMT-B Prorated Score (TMT-Bpr). Results: TMT-Be distribution was less skewed, but more platykurtic, compared to TMT-Bpr. TMT-Be and TMT-Bpr were highly correlated. Both metrics correlated with psychomotor speed and another executive task, but not confrontation naming, providing both convergent and discriminant evidence of validity. TMT-Be, but not TMT-Bpr, detected significant decline in performance longitudinally. Age and education were significant predictors of the TMT-Be, but not TMT-Bpr, difference scores. Conclusions: Both metrics captured performance variability in a clinical sample and provided sufficient variance for examining floor-level performance on the TMT-B. TMT-Be appeared to be less prone to creating outliers and more likely to detect change. The results support the utility of the TMT-Be metric in research and clinical settings.

2019-122 0359

Unwanted sexual experiences and retraumatization: Predictors of mental health concerns in veterans

DefMed March & April 2019
Source
Psychological Trauma: Theory, Research, Practice and Policy 2019

Author(s)

Abstract
Objective: Repeated exposure to traumatic events has consistently been shown to negatively impact mental health functioning; however, the role of timing of such events has received less attention. The present study evaluated the role of trauma that has occurred prior to military service, during service, and across both points in contributing to the most common and deleterious mental health concerns experienced by military personnel: posttraumatic stress, depression, suicide ideation, and suicide attempts.; Method: Utah and Idaho National Guard personnel (n = 997) completed online self-report questionnaires of their current posttraumatic stress and depression symptoms, as well as history of potentially traumatic experiences, suicidal thoughts, and actions.; Results: Results indicated that history of trauma across time points is associated with negative outcomes across each of these outcomes, with the exception of suicide attempts. Exploratory analyses further revealed that unwanted or uncomfortable sexual experiences (not sexual assault) is the most robust predictor of negative outcomes, with approximately 2 to 7.5 times increased risk for PTSD, depression, suicide ideation, and suicide attempts.; Conclusions: The present findings suggest that individuals with history of trauma prior to military service are at increased risk for developing clinically significant mental health problems if exposed to additional potentially traumatic experiences. Further, other unwanted sexual experiences appear to be particularly detrimental to mental health functioning. Potential implications for military recruitment and conceptualization of traumatic events are discussed.

Veterans as Students in Higher Education: A Scoping Review

Source
Nursing Education Perspectives 2019

Author(s)
Dyar, K.

Abstract
Aim: The aim of this study was to determine what is known about military veterans as students in higher education and inform nurse educators.; Background: Military veterans are increasingly enrolling in higher education and in nursing programs and may provide a recruitment source for nursing education.; Method: A scoping review of literature published after 2011 was performed to determine characteristics of military veterans as students. Twelve sources were identified.; Results: Military veterans have multiple strengths yet may also experience barriers to success. As a result, veterans may struggle to transition from the rigid military environment to the more relaxed college setting.; Conclusion: Military veterans may provide a recruitment source for the nursing workforce. Gaining knowledge of the strengths and
barriers faced by these students may help nurse educators plan strategies for achieving academic success.

2019-122 0361

What Do Veterans Want? Understanding Veterans’ Preferences for PTSD Treatment Delivery

Source
Military Medicine 2019 ( )

Author(s)

Abstract
Introduction: Home-based delivery of psychotherapy may offer a viable alternative to traditional office-based treatment for post-traumatic stress disorder (PTSD) by overcoming several barriers to care. Little is known about patient perceptions of home-based mental health treatment modalities. This study assessed veterans’ preferences for treatment delivery modalities and how demographic variables and trauma type impact these preferences.

Materials and Methods: Veterans with PTSD (N = 180) participating in a randomized clinical trial completed a clinician-administered PTSD assessment and were asked to identify their modality preference for receiving prolonged exposure: home-based telehealth (HBT), office-based telehealth (OBT), or in-home-in-person (IHIP). Ultimately, modality assignment was randomized, and veterans were not guaranteed their preferred modality. Descriptive statistics were used to examine first choice preference. Chi-square tests determined whether there were significant differences among first choice preferences; additional tests examined if age, sex, and military sexual trauma (MST) history were associated with preferences.

Results: The study includes 135 male veterans and 45 female veterans from all military branches; respondents were 46.30 years old, on average. Veterans were Caucasian (46%), African-American (28%), Asian-American (9%), American Indian or Alaskan Native (3%), Native Hawaiian or Pacific Islander (3%), and 11% identified as another race. Veterans experienced numerous trauma types (e.g., combat, sexual assault), and 29% had experienced MST. Overall, there was no clear preference for one modality: 42% of veterans preferred HBT, 32% preferred IHIP, and 26% preferred OBT. One-sample binomial tests assuming equal proportions were conducted to compare each pair of treatment options. HBT was significantly preferred over OBT (p = 0.01); there were no significant differences between the other pairs. A multinomial regression found that age group significantly predicted veterans’ preferences for HBT compared to OBT (odds ratio OR = 10.02, 95% confidence interval CI: 1.63, 61.76). Older veterans were significantly more likely to request HBT compared to OBT. Veteran characteristics did not differentiate those who preferred IHIP to OBT. Because there were fewer women (n = 45), additional multinomial regressions were conducted on each sex separately. There was no age group effect among the male veterans. However, compared to female Veterans in the younger age group, older female Veterans were significantly more likely to request HBT over OBT (OR = 10.66, 95% CI: 1.68, 67.58, p = 0.012). MST history did not predict treatment preferences in any analysis.

Conclusions: Fewer than 50% of the sample preferred one method, and each modality was preferred by at least a quarter of all participants, suggesting that one treatment modality does not
fit all. Both home-based care options were desirable, highlighting the value of offering a range of options. The use of home-based care can expand access to care, particularly for rural veterans. The current study includes a diverse group of veterans and increases our understanding of how they would like to receive PTSD treatment. The study used a forced choice preference measure and did not examine the strength of preference, which limits conclusions. Future studies should examine the impact of modality preferences on treatment outcomes and engagement.

See also

Adapting CBT to treat depression in armed forces veterans: Qualitative study. Under Psychology.


Association of persistent post-concussion symptoms with violence perpetration among substance-using veterans. Under TBI

Cigarette smoking rates among veterans: Association with rurality and psychiatric disorders. Under Addictive Disorders.

Clinical characteristics of veterans with gambling disorders seeking pain treatment. Under Addictive Disorders.


The development of a brief version of the Posttraumatic Cognitions Inventory PTCI-9). Under PTSD.


Functional concerns and treatment priorities among veterans receiving VHA Primary Care Behavioral Health services. Under Primary Care.


Impact of Tinnitus on Military Service Members. Under Otolaryngology.

Inflammation and PTSD. Under PTSD.

Internal consistency and factor structure of a brief scale assessing sensitivity to blood, injury, and mutilation. Under PTSD.

A Nontraditional Role as a Physical Therapist in the Quality of Life Plus Program (QL+). Under Rehabilitation.
A phenomenological inquiry into the experience of sleep: Perspectives of US military veterans with insomnia and serious mental illness. Under Sleep Research.

Pilot testing a manualized equine-facilitated cognitive processing therapy (EF-CPT) intervention for PTSD in veterans. Under PTSD.

Preferences for family involvement among veterans in treatment for schizophrenia. Under Psychiatry.

Problem recognition and treatment beliefs relate to mental health utilization among veteran primary care patients. Under Primary Care.

A Qualitative Examination of Stay Quit Coach, a Mobile Application for Veteran Smokers with Posttraumatic Stress Disorder. Under Addictive Disorders.

Understanding women veterans’ experiences with and management of weight gain from medications for serious mental illness: A qualitative study. Under Women’s Health & Welfare.
Comparison of Post exercise Cooling Methods in Working Dogs.

Source
Journal of Special Operations Medicine 2019 19 (1) 56-60

Author(s)
Davis, M.S., and Marcellin-Little, D.J.,

Abstract
Background: Overheating is a common form of injury in working dogs. The purpose of this study was to evaluate the relative efficacy of three post exercise cooling methods in dogs with exercise-induced heat stress. Methods: Nine athletically conditioned dogs were exercised at 10kph for 15 minutes on a treadmill in a hot environmental chamber (30°C) three times on separate days. After exercise, the dogs were cooled using one of three methods: natural cooling, cooling on a 4°C cooling mat, and partial immersion in a 30°C water bath for 5 minutes. Results: Time-weighted heat stress was lower for immersion cooling compared with the cooling mat and the control. The mean time required to lower gastrointestinal temperature to 39°C was 16 minutes for immersion cooling, 36 minutes for the cooling mat, and 48 minutes for control cooling. Conclusion: Water immersion decreased post exercise, time-weighted heat stress in dogs and provided the most rapid cooling of the three methods evaluated, even with the water being as warm as the ambient conditions. The cooling mat was superior to cooling using only fans, but not as effective as immersion. The placement of simple water troughs in working-dog training areas, along with specific protocols for their use, is recommended to reduce the occurrence of heat injury in dogs and improve the treatment of overheated dogs.

Concepts of Prehospital Advanced Airway Management in the Operational K9: A Focus on Cricothyrotomy.

Source

Author(s)
Palmer, L.E.

Abstract
Similar to people, airway obstruction is a potentially preventable cause of combat and line of duty death for civilian law enforcement Operational K9s (OpK9) and military working dogs (MWD). Basic (i.e., body positioning, manual maneuvers, bag-valve-mask ventilation) and advanced (i.e., endotracheal intubation, surgical airways) airway techniques are designed to establish a patent airway, oxygenate and ventilate, and protect from aspiration. A surgical airway (cricothyrotomy [CTT] or tracheostomy [TT]) is warranted for difficult airway scenarios in which less invasive
means fail to open an airway (aka "Cannot intubate, cannot oxygenate"). In people, the surgical CTT is the preferred surgical airway procedure; most human prehospital providers are not even trained on the TT. Currently, only the TT is described in the veterinary literature as an emergent surgical airway for MWDs. This article describes the novel approach of instituting the surgical CTT for managing the canine difficult airway. The information provided is applicable to personnel operating within the US Special Operations Command as well as civilian tactical emergency medical services that may have the responsibility of providing medical care to an OpK9 or MWD.
Integrating Prolonged Field Care Into Rough Terrain and Mountain Warfare Training: The Mountain Critical Care Course.

Source
Journal of Special Operations Medicine: A Peer Reviewed Journal for SOF Medical Professionals 2019 19 (1) 66-69

Author(s)

Abstract
Current prolonged field care (PFC) training routinely occurs in simulated physical locations that force providers to continue care until evacuation to definitive care, as based on the staged Ruck-Truck-House-Plane model. As PFC-capable teams move further forward into austere environments in support of the fight, they are in physical locations that do not fit this staged model and may require teams to execute their own casualty evacuation through rough terrain. The physical constraints that come specifically with austere, mountainous terrain can challenge PFC providers to initiate resuscitative interventions and challenge their ability to sustain these interventions during lengthy, dismounted movement over unimproved terrain. In this brief report, we describe our experience with a novel training course designed for PFC-capable medical teams to integrate their level of advanced resuscitative care within a mountainous, rough terrain evacuation-training program. Our goals were to identify training gaps for Special Operations Forces medical units tasked to operate in a cold-weather, mountain environment with limited evacuation resources and the challenges related to maintaining PFC interventions during dismounted casualty movement.

See also
Female Reproductive, Adrenal, and Metabolic Changes during an Antarctic Traverse. Under Endocrinology.

Unstable Pelvic Fracture Reduction Under Ultrasonographic Control. Under Trauma.
Silence-breaking butterfly effect: Resistance towards the military within #metoo

Source
Gender, Work and Organization 2019

Author(s)
Alvinius,A. and Holmberg,A.

Abstract
Systemic violence against women in the military has existed for decades, but they have mostly refrained from public resistance. However, in the context of the #MeToo movement in Sweden, 1768 women published a call for an end to violence and sexual harassment in the military. We analyse this call as a public resistance effort against the military and find that #MeToo is: (i) challenging the norms of the hyper-masculine military organization, making resistance towards it visible; and (ii) resisting the practices of sexual harassment and lack of responsibility in the military organization. The military organization is questioned when it comes to norms and practices, but there are variations in whether the social order of the military is truly challenged. Still, the call highlights the fragmentation of this ‘last bastion of masculinity’. More research is needed on the erosion of the militarized norms and practices and the effects of the call.

Understanding women veterans’ experiences with and management of weight gain from medications for serious mental illness: A qualitative study

Source
Psychiatric Rehabilitation Journal 2019

Author(s)

Abstract
Objective: More women veterans than men use Veterans Health Administration (VHA) mental health services. Some psychiatric medications are associated with weight gain and other metabolic side effects, with women more susceptible and reporting more distress than men. We sought to explore how women experience and manage medication-induced weight gain to identify strategies for improving its prevention and management in women. Method: We completed semistructured, qualitative interviews with 30 female veterans with serious mental illnesses prescribed antipsychotic or mood stabilizer medications and 18 mental health prescribers. Interview transcripts were summarized and coded via principles of phenomenological inquiry to develop themes reflecting the study purpose. Results: We identified 5 themes related to females’ experiences with medication-induced weight gain. Female veterans described considerable psychological and physical distress associated with weight gain. However, many expressed a willingness to accept weight gain as a trade-off for medications’ therapeutic effects, a theme echoed by prescribers. Both described primarily using reactive rather than proactive or preventative weight management approaches and described the limited effectiveness of reactive approaches. Other contributing factors, including the multiple and uncertain causes of weight gain, uneven quality and quantity of weight
loss information, lack of social support, and environmental barriers, add to the
difficulty and complexity of their struggles. Conclusions and Implications for Practice:
These findings improve our understanding of numerous veteran-, prescriber-, and
environmental-level factors in the management of medication-associated weight gain
in women that may be useful in designing gender-specific interventions.

2019-122 0367

Women's Health and Contraceptive Practices of Army Physician Assistants.

Source
Military Medicine 2019 184 (3-4) e169-e174

Author(s)
Carty, J.R., and Batig, T.S.,

Abstract
Introduction Women’s roles continue to increase within the U.S. Army. Medical
readiness contributes to individual readiness and supports the Army’s warfighting
mission. Army physician assistants are often the first-line medical providers for
Soldiers and their practices, including women’s health practices, should support
optimal Soldier readiness. Our objective was to survey Army physician assistants’
knowledge and practices related to female reproductive health care. Materials and
Methods This was a descriptive survey-based study of Army physician assistants
conducted from February to June 2017. This study was an addendum to a prior study
examining women’s health care knowledge and skills among physicians serving as
general medical officers. Surveys were distributed via e-mail. The survey was
anonymous and included 22 questions describing provider knowledge and practices
in the areas of family planning and women’s health screening. Results Out of 198
distributed surveys, 100 (51%) were returned. Most respondents were male (67%),
75% practiced in a troop-based medical clinic, and 73% had current or past practice
experience in a military operational/deployed environment. The majority of
respondents indicated that they provide family planning services to their
reproductive-aged female patients. Combined hormonal contraceptives and depo-
medroxyprogesterone had the highest percentage of respondents who reported
comfort discussing the method. The highest percentage of respondents indicated
discomfort discussing the copper intrauterine device and emergency contraception.
Only 10, 17, and 33% of respondents were trained to place the copper intrauterine
device, levonorgestrel intrauterine device, and etonogestrel contraceptive implant,
respectively. Most respondents offered cervical cancer (74%) and chlamydia (91%)
screening to their female patients. Conclusion Most study respondents practiced in a
troop-based primary care clinic and most reported experience as a deployed health
care providers. Although most respondents indicated comfort discussing combined
hormonal contraception and depo medroxyprogesterone, fewer reported comfort
discussing long-acting reversible and emergency contraception. Only a minority of
respondents reported prior training to place the copper or levonorgestrel intrauterine
device or contraceptive implant and, of those trained, most had not placed a device
for which they were trained in the preceding 12 months. Chlamydia and cervical
cancer screening were offered by most respondents but was not universally offered
among the respondents. These findings are consistent with our previous study
evaluating women’s health knowledge among general medical officers and highlight
a need for improved training in the field of women’s health for physician assistants
serving the active duty population.

See also
Female Reproductive, Adrenal, and Metabolic Changes during an Antarctic Traverse. Under Endocrinology.


Medical Suspension in Female Army Rotary-Wing Aviators. Under Aviation & Space Medicine.
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