



**U.S. ARMY PUBLIC HEALTH COMMAND**

5158 Blackhawk Road, Aberdeen Proving Ground, Maryland 21010-5403

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**Injuries from Participation in Sports, Exercise, and Recreational Activities Among Active Duty Service Members—Analysis of the April 2008 Status of Forces Survey of Active Duty Members**

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14. ABSTRACT

**Sports and athletics is a leading cause of injury hospitalizations for U.S. military forces and of injury air evacuations for deployed service members (SM) in Iraq and Afghanistan. From 24 March to 1 May 2008, 10,692 SMs completed the April 2008 Status of Forces Survey of Active Duty Members (SOFA0801), which included eleven questions about injuries from participation in sports, exercise, and recreational activities (SERA) in the past year. The survey employed a complex sampling procedure, which allowed for survey respondents to be representative of all active duty service members from the Air Force, Army, Marine Corps, and Navy. Forty-nine percent of SMs sustained an injury (of any type) and 25% sustained a SERA injury in the past 12 months. The Marine Corps had the highest proportion of SMs with a SERA injury (33%), followed by the Army (29 percent), Air Force (22%), and Navy (20%). Compared to 21- 30 year olds, 31-40 year olds and SMs over 40 years had a 19% and 55%, respectively, higher odds of SERA injury. Higher levels of personal stress and working longer hours than normal duty hours on more days were associated with higher odds of SERA injury. Running/jogging was the most frequently reported (45%) cause of SERA injury. The leading injuries for the most serious SERA injury were sprained ankles (10%), strained backs (6%), sprained knees (5%), and tendonitis/bursitis of the knee (5%). These findings emphasize the importance of SERA activities as a leading cause of injuries in the military and identify factors that should be further explored to decrease SERA-related injuries. Recommendations included 1) strict observance to evidence-based practices to reduce SERA-injury occurrences and 2) use of external cause codes in the electronic medical records by DoD medical providers to allow improved surveillance of injuries.**

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EXECUTIVE SUMMARY  
INJURY PREVENTION REPORT NO. 12-HF-0DPT-08  
INJURIES FROM PARTICIPATION IN SPORTS, EXERCISE, AND RECREATIONAL  
ACTIVITIES AMONG ACTIVE DUTY SERVICE MEMBERS—ANALYSIS OF THE  
APRIL 2008 STATUS OF FORCES SURVEY OF ACTIVE DUTY MEMBERS

1. INTRODUCTION AND PURPOSE.

a. Injuries are the biggest health problem confronting U.S. military forces in peacetime and combat, impacting directly on the health and readiness of Service members (SM). In 2009, there were almost 2.5 million medical encounters among Active Duty SMs, and more than three times as many SMs (n=643,000) received medical care for an injury than for any other category of medical conditions. In 2006, sports and athletics were the third leading cause of injury hospitalizations for military personnel. Sports are also among the leading causes of noncombat-related injuries requiring air medical evacuations from deployment operations in Iraq and Afghanistan. Because military treatment facilities have not recorded the causes of sports and training injuries, especially in outpatient encounters, the true magnitude of these injuries remains unknown.

b. The purpose of this report is to: (1) estimate the incidence of injuries of any type of injury, (2) estimate the incidence of injuries sustained from participating in sports, exercise, and recreational activities (SERA) among Active Duty SMs, (3) describe the types and causes of injuries from participation in SERA, and (4) identify factors associated with sustaining an injury from participation in SERA.

2. METHODS.

a. The April 2008 Status of Forces Survey of Active Duty Members (SOFA0801) was administered to a single-stage, nonproportional stratified random sample of Active Duty Service members. The survey was conducted by the Human Resources Strategic Assessment Program of the Defense Manpower Data Center. The complex sampling design of this survey allowed for survey respondents to be representative of all Active Duty Service members from the Air Force, Army, Marine Corps, and Navy. From 24 March to 1 May 2008, 10,692 Active Duty Service members responded to survey questions on injuries and SERA injuries that they experienced over the prior 12 months.

b. Eleven injury questions were included in the SOFA0801. These questions were related to the incidence of any injury (an injury of any type) and injuries from participation in sports, exercise, or recreational activities during the previous 12-month period. Other survey questions, such as relevant demographic variables and other factors that may be associated with higher risk of injury were identified and utilized in this analysis.

c. Survey respondents were asked how many different injuries they had sustained in the previous 12 months. If a respondent answered that they had sustained one or more injuries, the survey then asked a similar question pertaining specifically to injuries from participating in sports, exercise, and recreational activities.

d. Logistic regression analyses (univariate and multivariable) were used to examine the associations of the injury outcomes (any injury and SERA injury) and the demographic characteristics of SMs.

### 3. RESULTS.

a. This report describes the incidence of overall injuries (of any type) and SERA injuries reported by Active Duty SMs (Air Force, Army, Marine Corps, and Navy). Among these Active Duty SM respondents, 49 percent sustained an injury (of any type) and 25 percent sustained a SERA injury in the past 12 months. The Marine Corps had the highest proportion of SMs with a SERA injury (33 percent), followed by the Army (29 percent), Air Force (22 percent), and Navy (20 percent).

b. Compared to Army SMs, Navy and Air Force SMs had a 46 percent and 44 percent, respectively, lower odds of any injury and a 40 percent and 33 percent, respectively, lower odds of SERA injury. Females had a 37 percent higher odds of any injury compared to males, but there was no difference between genders in odds of sustaining a SERA injury.

c. There was a trend of more injuries with older age. Compared to the 21–30 year olds, 31–40 year olds and SMs over 40 years had a 19 percent and 66 percent, respectively, higher odds of any injury. The SMs over 30 and those over 40 were 19 percent and 55 percent, respectively, more likely to be injured participating in SERA than 21–30 year olds.

d. Compared to SMs who were satisfied with military life, those who reported dissatisfaction with military life had higher odds of sustaining any injury or a SERA injury. The SMs who reported having higher levels of personal stress or higher levels of work stress were more likely to sustain any injury or a SERA injury compared to SMs who reported lower levels of personal or work stress. In addition, SMs working longer

hours than normal duty hours on more days had higher odds of any injury and SERA injury compared to SMs who worked normal working hours. There were lower odds of SERA injury for SMs who were deployed three times since 9/11 or were deployed more than 30 consecutive days in the past 24 months compared to those who did not deploy.

e. Sprained ankles were the leading SERA injury, affecting 10 percent of SMs, followed by strained backs (6 percent), sprained knees (5 percent), tendonitis/bursitis of the knee (5 percent), and shoulder dislocations/ separations (4 percent).

f. The proportion of SMs with more than 14 days of limited duty was highest for the Marine Corps (44 percent) and lowest for the Air Force (25 percent). Females also had a proportionately higher amount of limited duty over 14 days compared to males (42 percent versus 34 percent). Fractures and joint dislocations/separations had the highest proportion of 15 or more days of limited duty, 52 percent and 53 percent of the SERA injured, respectively, compared to sprained joints and strained muscles, which accounted for a higher proportion of limited duty from 1–14 days, 64 percent and 73 percent of SMs with injuries of this type, respectively.

g. Running/jogging was the most frequently reported activity as the underlying cause of SERA injury by all services (45 percent of SMs with a SERA injury), followed by weight training (8 percent), basketball (8 percent), and touch or flag football (5 percent). A higher proportion of injuries due to running were reported by Army (50 percent) and Marine Corps (51 percent) compared to Navy (33 percent) and Air Force (41 percent). Women reported more SERA injuries due to running (58 percent) compared to men (43 percent).

#### 4. CONCLUSIONS AND RECOMMENDATIONS.

a. Slightly more than half of all injuries reported by SMs were due to SERA, so this is a big problem for the services. One-quarter of SMs reported a SERA injury in the past year. Several potential factors associated with SERA injury were identified and these include older age, personal stress, work stress, dissatisfaction with military life, and longer work hours. Deployment, senior enlisted, warrant officer and commissioned officer rank, and serving in the Air Force or Navy were associated with lower likelihood of SERA injury.

b. Although this was a cross-sectional survey with self-reported responses, this report has several strengths. This was the first broad look at incidence of SERA injuries in the military. Furthermore, this report was able to identify factors related to SERA injury among Active Duty SMs.

c. Based on the report findings, recommendations should focus on physical training and other sports-specific, evidence-based injury prevention guidelines which include prevention of overtraining, performance of multiaxial, neuromuscular, proprioceptive,

and agility training, use of semi-rigid ankle braces to prevent ankle injuries, use of mouthguards to prevent orofacial injuries, consumption of nutrients to restore energy balance within 1 hour following high-intensity activity, and wear of synthetic-blend socks to prevent blisters.

d. Because there has been limited data on sports as the cause of injuries, there is a need to improve injury surveillance for SERA injuries by including external cause codes for injuries treated in outpatient clinics.

e. These findings emphasize the importance of SERA activities as a leading cause of injuries in the military and identify factors that should be further explored to decrease SERA-related injuries.

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INJURIES FROM PARTICIPATION IN SPORTS, EXERCISE, AND RECREATIONAL  
ACTIVITIES AMONG ACTIVE DUTY SERVICE MEMBERS—ANALYSIS OF THE  
APRIL 2008 STATUS OF FORCES SURVEY OF ACTIVE DUTY MEMBERS

1. REFERENCES. References are listed in Appendix A.

2. PURPOSE. The main purposes of this report are to—

a. Estimate from questions in the April 2008 Status of Forces Survey of Active Duty Members (SOFA0801) the incidence of injuries of any type and of injuries sustained from participating in sports, exercise, and recreational activities among Active Duty Service members (SMs) from the Air Force, Army, Marine Corps, and Navy.

b. Analyze and evaluate the likelihood of having an injury or having a sports, exercise, or recreational activity injury.

c. Describe the types and causes of injuries from participation in sports, exercise, and recreational activities.

d. Identify risk factors associated with sustaining an injury from participation in sports, exercise, and recreational activities.

3. AUTHORITY.

a. Under Army Regulation 40-5 (Preventive Medicine, 25 May 2007), the U.S. Army Public Health Command (USAPHC) (formerly known as the U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM)) is responsible for providing support for Army preventive medicine activities, to include review and interpretation of surveillance data and identification and characterization of health problems as a foundation for injury prevention planning and policy efforts.

b. This study was a collaboration between the USAPHC and the Department of Preventive Medicine and Biometrics (PMB), Uniformed Services University of Health Sciences (USUHS). This project was approved as an exempt protocol by the Institutional Review Board (IRB) at USUHS (Project C0874F-01). The IRB approval is in Appendix B.

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#### 4. BACKGROUND

a. Injuries have long been the leading cause of deaths and disabilities in the U.S. military, and they continue to be the biggest health problem confronting the military services.<sup>1,2</sup> Not only do injuries directly impact the health and readiness of Service members, they are also the cause of an estimated 25,000,000 days of limited duty per year.<sup>3</sup>

b. In 2009, injuries accounted for more than one-fourth of all medical encounters and affected more SMs than any other single burden of disease category.<sup>2</sup>

c. In 2006, the leading causes of nonbattle injury hospitalizations for Active Duty military personnel were falls and near falls (34 percent of injury hospitalizations), followed by motor vehicle mishaps (19 percent), and then sports and athletics (13 percent).<sup>4</sup>

d. Sports and physical training were the leading causes of nonbattle injuries that required air medical evacuation of Army Soldiers from deployment operations in Iraq (2003 to 2006) and Afghanistan (2001 to 2006). Sports and physical training accounted for 19 percent and 21 percent of air evacuated nonbattle injuries from Iraq and Afghanistan, respectively.<sup>5</sup>

e. Injuries result in an estimated 25 million days of limited duty each year for SMs.<sup>3</sup> The five leading injury types for the Department of Defense (DOD), based on the total estimated number of days of limited duty, are lower extremity overuse, lower extremity fractures, upper extremity fractures, torso overuse, and lower extremity sprains/strains. In 2004, sports and physical training combined were among the top three activities associated with the occurrence of each of these leading injury types and were also the leading cause of lower-extremity strains and sprains.<sup>3</sup>

f. In 2006, the Military Injury Epidemiology and Prevention Priorities Working Group was established to identify the largest and most preventable DOD injury problems that, if addressed, would have the greatest potential to rapidly reduce military injury rates.<sup>6</sup> This expert panel ranked physical training as the number one priority and sports as the fourth priority.

g. A similar prioritization process was conducted for the Defense Safety Oversight Council by the DOD Military Injury Prevention Priorities Working Group. Sports and physical training combined were ranked the number one priority for the Air Force, Marine Corps, and Navy. For the Army, physical training was the top priority, and sports was the fourth priority.<sup>3</sup>

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h. Studies in healthcare workers have shown that several personal and work-related factors such as stress, work hours, and job satisfaction are associated with risk or incidence of occupational injury.<sup>7-9</sup> Zontek's research showed that for direct healthcare workers with tenure greater than 1 year, job satisfaction was a predictor of occupational injury. A study of behavioral and demographic risk factors for sport-related injuries among Army Soldiers showed that satisfaction with life was an independent risk factor (odds ratio 1.70) for a sports-related hospitalization.<sup>10</sup>

i. To conduct surveillance for sports and exercise related injuries, the causes of injury would need to be recorded in the electronic medical records when service members receive medical care for injuries. Currently, cause of injury is recorded and coded in electronic medical records for hospitalizations but not for outpatient visits. Limited duty is also not routinely recorded in electronic records. Given this situation, causes of injury have only been systematically and routinely reported for hospitalized injuries.<sup>3,11</sup> Causes of injury and limited duty restrictions for injuries treated in outpatient clinics have only been reported when investigators used local unit-based surveillance mechanisms or reviewed narrative patient histories in paper medical records for units of interest.<sup>12-14</sup> Limited duty days for injuries have been estimated based on average expected recovery periods for leading types of injury.<sup>3</sup>

j. To derive current estimates of the incidence and impact of injuries from sports, physical training/exercise, and recreational activities on military SMs, a series of questions was submitted for the 2008 Status of Forces Survey of Active Duty Members. This initiative was sponsored by the Injury Prevention Program at the U.S. Army Public Health Command (formerly known as the U.S. Army Center for Health Promotion and Preventive Medicine). For the survey data analysis and reporting, the U.S. Army Public Health Command collaborated with the U.S. University of Health Sciences. The purpose of the survey questions was to determine the magnitude of the problem of SERA injuries across the services and to identify the most hazardous sports, things that cannot be done with existing medical surveillance databases.

## 5. METHODS.

a. The Survey. The SOFA0801 was conducted by the Human Resources Strategic Assessment Program of the Defense Manpower Data Center. A complex sampling procedure was employed, which allowed for survey respondents to be representative of all Active Duty SMs from the Air Force, Army, Marine Corps, and Navy.

(1) The survey assessed the attitudes and opinions of military members on a range of personnel issues such as satisfaction, retention, tempo, readiness, stress, deployments, child care, spouse employment, education, compensation, financial

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health, injuries, personal work experiences, and the military workplace. All data obtained in the survey were self-reported. The survey instrument is in Appendix C.

(2) The eleven injury questions submitted by the U.S. Army Public Health Command were included in the SOFA0801. These questions focused on the incidence of any injury (an injury of any type) and injuries from participation in sports, exercise, or recreational activities (sports, exercise, and recreational activities (SERA) injury) during the previous 12-month period. The injury questions analyzed for this report are provided below. The full set of injury questions, along with the response categories, is provided in Appendix C (questions 137 to 147).

(a) Question 137: During the past 12 months, how many different injuries did you have for which you sought medical care from military or civilian medical providers?

(b) Question 138: How many of these injuries in the past 12 months came as a result of participating in sports, exercise, or recreational activities?

(c) Question 139: For your most serious injury that came as a result of sports, exercise, or recreational activities in the past 12 months, in what activity were you participating when the injury occurred?

(d) Question 140: What was your most serious injury that came as a result of sports, exercise, or recreational activities in the past 12 months?

(e) Question 141: For your most serious injury that came as a result of sports, exercise, or recreational activities in the past 12 months, what part of your body did you injure?

(f) Question 142: For your most serious injury from sports, exercise, or recreational activities in the past 12 months, how many total days of limited duty and quarters did you have?

(g) Question 143: For your most serious injury playing sports, where were you playing when the injury occurred?

(h) Question 144: For your most serious injury from exercise, where were you exercising when the injury occurred?

(i) Question 145: Which of the following factors were related to your most serious injury in sports, exercise, or recreational activities?

(3) The target population for the SOFA0801 was: (1) Active Duty members of the Army, Navy, Marine Corps, and Air Force, (2) who had at least 6 months of Active Duty service at the time the questionnaire was first fielded, (3) were below flag rank (O-6 and below) when the sample was drawn six months prior to the survey, and (4) excluded National Guard and Reserve members in Active Duty programs.

(4) A single stage, nonproportional stratified random sample of 37,198 Active Duty SMs was selected. The groupings used for stratification were service, gender, pay grade group, race, regions, and family status. Within each stratum, the sample was selected with equal probability and without replacement. Surveys were administered between 24 March and 1 May 2008.

(5) The number of locatable and eligible sample SMs that returned completed surveys (defined as 50 percent or more of the survey questions asked of all participants were answered) was 10,692.

(6) The survey data were weighted using a standard weighting process, which produced a survey population estimate which was representative of the Active Duty military.

(7) Data from 62 surveys that did not meet the inclusion criteria were included in the data analysis. Since these surveys had been used in the initial weighting process, they were needed in the analyses to accurately compute population estimates. Therefore, the total number of records used in the analysis was 10,754.

(8) The weighted sample size was 1,322,249. The adjusted weighted response rate was 31.4 percent.

(9) The DMDC's tabulated data from the complete survey are available on the HRSAP website <https://pki.dmdc.osd.mil/appj/hrsap/webguardLoginAction.do> (CAC card required to access website).

b. Survey Data.<sup>15</sup>

(1) The public survey data file (de-identified) was provided to the USAPHC<sup>1</sup> by DMDC for this study.

(2) Demographics (i.e., service, gender, age, pay grade, years of service, race, education, and marital status) were self-reported by survey respondents. If the self-

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<sup>1</sup> During the course of this project, the U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) transitioned to the USAPHC.

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reported data were missing, the data were imputed from DMDC's personnel files. Providing all demographic data in a public file provided the possibility of identifying an individual respondent, therefore, DMDC removed various pieces of demographic data from randomly selected survey respondent records.

(a) The number of records in the public survey file that had individual data removed from each reporting category is listed under "Missing" in Table 1. Records that had demographic data removed by DMDC were not included in the analysis.

(b) To further preserve confidentiality, DMDC collapsed some variables for the public file (e.g., instead of individual officer ranks of O1, O2, O3, O4, O5, and O6, officers were categorized as O1–O3 and O4–O6). At the request of USAPHC, DMDC provided an age variable for respondents and a pay grade variable that provided the breakout of the E-4 pay grade, neither of which had been provided in the public file.

(3) Injury case definitions for any injury and SERA injury were developed using the survey responses.

(a) Survey respondents were asked how many different injuries they had sustained in the previous 12 months with the possible answers being: 'no injury', 'one injury', 'two injuries', or 'three or more injuries.'

(b) When a respondent answered that they had not sustained an injury in the past year, the survey skipped all further questions regarding injuries.

(c) If a respondent answered that she/he had sustained one, two, or three or more injuries, the survey then asked a similar question pertaining specifically to injuries from participating in sports, exercise, or recreational activities with the same possible answers (no injury, one injury, two injuries, and three or more injuries).

(d) For this analysis and report, the injury responses from the first injury question were recoded into a single injury variable (Any Injury). This new dichotomous variable categorized SMs into those who had an injury (one or more injuries) of any type in the past year or those who had no injury in the past year.

(e) Similarly, the responses for the question about injuries from sports, exercise and recreational activity were recoded into a single SERA injury variable (SERA Injury). This new dichotomous variable categorized service members into those who had a SERA injury (one or more SERA injuries in the past year) or those who had no SERA injury in the past year (see Figure 1).

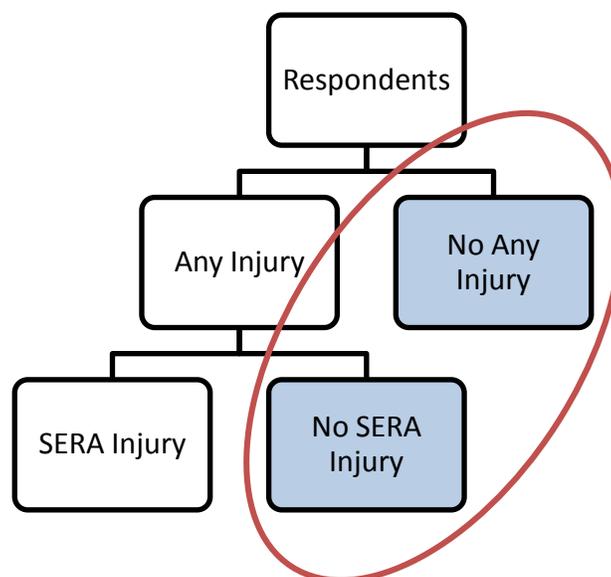


Figure 1. No SERA Injury includes both 'No Any Injury' and 'No SERA Injury.'

(4) All injury questions, except for the first two questions regarding the number of injuries sustained, had a list of possible responses which included the option of answering 'Other,' which was followed by a text box where the respondent could write in an answer that was not included in the list of responses for the question. Prior to analyzing the survey data, these other specified responses were reviewed and, if possible, recategorized into existing response categories.

(5) All 155 survey questions were reviewed to identify those that could be useful in identifying and evaluating potential injury risk factors. In addition to the demographics, six questions were included in the analysis. Topic areas for these questions were satisfaction with the military (1 question), amount of stress (2 questions), hours worked (1 question), and number of deployments (2 questions). However, as temporal relationships between the injury and the questions of potential risk factors were unknown (e.g., it was unknown if an injury occurred before or after a deployment), causal relationships could not be determined. The six potential risk factor questions are listed below (and in Appendix C).

(a) Question 21: Overall, how satisfied are you with the military way of life?

(b) Question 30: In the past 12 months, how many days have you had to work longer than your normal duty day (i.e., overtime)?

(c) Question 32: In the past 24 months, have you been deployed longer than 30 consecutive days?

(d) Question 41: Overall, how would you rate the current level of stress in your work life?

(e) Question 42: Overall, how would you rate the current level of stress in your personal life?

(f) Question 45: Since September 11, 2001, how many times have you been deployed?

(6) For the questions that used a five-level rating response (e.g., very dissatisfied to very satisfied and much less than usual to much more than usual), the two lower levels were combined and the two upper levels were combined to make three levels for percent distributions and statistical analyses.

c. Statistical Methods.

(1) Data analysis was performed using SAS<sup>®</sup>-callable SUDAAN<sup>®</sup> version 10 (Research Triangle Institute, Research Triangle Park, NC), SAS version 9.2 and SPSS version 16. (SAS<sup>®</sup> is a registered trademark of SAS Institute, Inc.; SUDAAN<sup>®</sup> is a registered trademark of Research Triangle Institute; SPSS<sup>®</sup> is a registered trademark of SPSS, Inc.)

(2) To properly describe and analyze the SERA injuries, the 'No SERA Injury' category shown in the percentage tables and the logistic regression analyses included both the 'No Any Injury' and the 'No SERA Injury' groups (see Figure 1).

(3) Percent distributions with standard errors (SE) were used to describe the demographic characteristics of survey respondents, incidence of any injury, incidence of SERA injury, responses for the other SERA injury questions, and responses for the potential risk factors for SERA injury (i.e., satisfaction with the military, amount of stress, hours worked, and number of deployments).

(4) A relative standard error (RSE) was calculated by dividing the percent injured by the standard error. The RSEs of greater than 30 percent should be used with caution as they do not meet the standards of reliability or precision.<sup>16</sup> Large RSE's are an indication there were too few respondents to ascertain any reliable statistical

conclusions. It is common to report RSEs between 30 and 50 percent and not to report RSEs above 50 percent in published research; however, for this report, all RSEs are reported regardless of size and any RSE of 30 percent or above is shaded.

(5) The associations between injury (any injury or SERA injury) and independent variables in the logistic regression were measured using odds ratios (OR) with 95 percent confidence intervals (CI). The OR was defined as the odds of having an injury at a particular level of the independent variable divided by the odds of having an injury at the baseline of the independent variable (or reference). The OR was adjusted when other variables were included in the multivariable logistic regression model. The significance level was set at 0.05 for all statistical tests.

(6) Logistic regression models were used to evaluate the associations of two injury outcomes (any injury and SERA injury) and the demographic characteristics of SMs. The multivariable logistic regression model for any injury included the demographics that were associated ( $p < 0.1$ ) with the injury outcomes in the univariate analyses (i.e., service, gender, age, pay grade, and race). The covariates from the 'any injury' model were also used in the 'SERA injury' model. The variable for years of service and education were not included in the models because of collinearity with other variables.

(7) Logistic regression was used to evaluate the six additional potential risk factors for any injury and SERA injury. Each risk factor was evaluated separately by adding it to the multivariable demographic logistic regression model described above. The adjusted OR and 95 percent CI for each risk factor were reported.

6. RESULTS. Descriptive and analytic findings are shown in the following tables.

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Table 1. Number of Respondents, Estimated Population, and Weighted Percent Distribution by Demographics, Active Duty Military, 2008

Demographics	Number of Respondents	Estimated Population	Weighted Percent	(SE)
<b>Total</b>	<b>10,692</b>	<b>1,322,249</b>	<b>100.0</b>	
<b>Service</b>				
Army	3,335	499,999	37.8	(0.2)
Navy	2,530	322,025	24.4	(0.2)
Marine Corps	1,891	178,767	13.5	(0.2)
Air Force	2,931	320,560	24.2	(0.1)
Missing	5	897	0.1	(0.0)
<b>Gender</b>				
Male	8,931	1,114,151	84.3	(0.2)
Female	1,756	207,653	15.7	(0.2)
Missing	5	445	0.0	(0.0)
<b>Age Group</b>				
20 years old or less	529	158,342	12.0	(0.5)
21-30 years old	4,283	688,764	52.1	(0.6)
31-40 years old	4,043	354,483	26.8	(0.4)
41-50 years old	1,694	113,567	8.6	(0.2)
More than 50 years old	140	6,970	0.5	(0.1)
Missing	3	123	0.0	(0.0)
<b>Pay Grade</b>				
<b>Enlisted</b>	<b>5,907</b>	<b>1,116,306</b>	<b>84.4</b>	<b>(1.0)</b>
E1-E3	847	224,908	17.0	(0.4)
E4-E6	3,802	750,186	56.7	(0.4)
E7-E9	1,258	141,212	10.7	(0.2)
<b>Warrant Officers/Officers</b>	<b>4,785</b>	<b>205,943</b>	<b>15.7</b>	<b>(0.2)</b>
W1-W5	621	16,550	1.3	(0.0)
O1-O3	2,192	107,861	8.2	(0.1)
O4-O6	1,972	81,532	6.2	(0.1)
<b>Years of Service</b>				
Less than 3 years	1,423	309,819	23.4	(0.5)
3 years to less than 6 years	1,723	318,780	24.1	(0.5)
6 years to less than 10 years	1,858	235,703	17.8	(0.4)
10 or more years	5,683	457,139	34.6	(0.4)
Missing	5	806	0.1	(0.0)
<b>Race</b>				
White	7,104	842,538	63.7	(0.4)
Non-white	3,558	477,066	36.1	(0.4)
Missing	30	2,644	0.2	(0.1)
<b>Education</b>				
No college	1,432	340,453	25.8	(0.6)
Some college	4,362	696,822	52.7	(0.6)
4-year degree	4,898	284,973	21.6	(0.3)
<b>Marital Status</b>				
Not married	3,270	545,005	41.2	(0.6)
Married	7,417	776,753	58.7	(0.6)
Missing	5	491	0.0	(0.0)

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### Summary of Table 1:

- Table 1 shows the number of survey respondents for each demographic variable, the estimated Active Duty population, and the weighted percentage of each demographic category.
- The data were weighted using a standard weighting process, which produces estimates that are representative of the Active Duty military population.
- Cases with missing data are listed to provide the magnitude of missing data. In subsequent tables, cases with missing data are not included in population estimates or percent frequencies nor are they included in statistical analyses.

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Table 2. Number of Respondents, Estimated Population, and Weighted Percent Distribution by Potential Injury Stress-Related Risk Factors from Questions in the April 2008 Status of Forces Survey of Active Duty Members

Potential Stress-Related Risk Factors for Injury	Number of Respondents	Estimated Population	Weighted Percent	(SE)
<b>Total</b>	<b>10,692</b>	<b>1,322,249</b>	<b>100.0</b>	
<b>Overall Satisfaction with Military Life</b>				
Very dissatisfied	301	57,782	4.4	(0.3)
Dissatisfied	1,128	172,341	13.0	(0.5)
Neither satisfied nor dissatisfied	1,750	271,043	20.5	(0.5)
Satisfied	5,768	655,072	49.5	(0.6)
Very satisfied	1,744	165,830	12.5	(0.4)
No response	1	181	0.0	(0.0)
<b>Current Level of Personal Stress</b>				
Much less than usual	391	56,496	4.3	(0.3)
Less than usual	1,277	164,087	12.4	(0.4)
About the same as usual	4,618	536,351	40.6	(0.6)
More than usual	3,180	388,283	29.4	(0.6)
Much more than usual	1,209	173,474	13.1	(0.5)
No response	17	3,557	0.3	(0.1)
<b>Current Level of Work Stress</b>				
Much less than usual	311	40,054	3.0	(0.2)
Less than usual	1,142	131,076	9.9	(0.4)
About the same as usual	4,135	484,626	36.7	(0.6)
More than usual	3,561	447,997	33.9	(0.6)
Much more than usual	1,533	216,804	16.4	(0.5)
No response	10	1,692	0.1	(0.5)
<b>Times Worked Longer than Normal Duty Hours in Past 12 Months</b>				
0 work days	951	144,039	10.9	(0.4)
1 to 10 work days	828	122,245	9.3	(0.4)
11 to 20 work days	720	102,632	7.8	(0.4)
21 to 60 work days	1,985	258,957	19.6	(0.5)
61 to 120 work days	1,606	190,391	14.4	(0.5)
121 or more work days	4,555	497,501	37.6	(0.6)
No response	47	6,483	0.5	(0.1)
<b>Number of Times Deployed Since 9/11</b>				
0 times	3,180	451,294	34.1	(0.6)
1 time	2,567	336,358	25.4	(0.6)
2 times	2,263	258,309	19.5	(0.5)
3 times	1,245	132,978	10.1	(0.4)
4 times or more	1,190	116,406	8.8	(0.3)
No response	247	26,904	2.0	(0.2)
<b>Deployed Longer than 30 Consecutive Days in Past 24 Months</b>				
No	5,696	682,821	51.6	(0.6)
Yes	4,995	639,266	48.4	(0.6)
No response	1	161	0.0	(0.0)

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### Summary of Table 2:

- Table 2 shows the distribution (estimated Active Duty population and weighted percentages) of responses to six survey questions that were evaluated as possible risk factors for any injury and for a SERA injury.
- Cases with missing data ('No Response') are listed to provide the amount of missing data. In subsequent tables, cases with missing data are not included in population estimates or percent frequencies nor are they included in statistical analyses.
- Sixty-two percent of SMs were satisfied/very satisfied with military life and 17 percent were dissatisfied/very dissatisfied.
- Forty-three percent reported more/much more than usual levels of personal stress, 41 percent reported the same level as usual, and 17 percent reported less/much less than usual levels.
- Approximately 50 percent of SMs reported more/much more than usual levels of work stress, 37 percent reported the same levels as usual, and 13 percent reported less/much less than usual levels of work stress.
- Approximately 72 percent of SMs reported having worked more than their normal duty hours on 21 or more days in the past 12 months; 38 percent reported working more than 121 days of longer than normal duty hours.
- Thirty-four percent of SMs had not deployed since 9/11 while 9 percent had deployed 4 or more times.
- Forty-eight percent of SMs were deployed more than 30 consecutive days in the past 24 months.

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Table 3. Percentage of Active Duty Service Members by Demographics Who Self-Reported Any Injury ( $\geq 1$ ) and Sports, Exercise, and Recreational Activities (SERA) Injury ( $\geq 1$ ), 2008

Demographics	Any Injury ( $\geq 1$ )	SERA Injury ( $\geq 1$ )
	Percent Injured (SE)	Percent Injured (SE)
<b>Total</b>	<b>48.9 (0.7)</b>	<b>25.4 (0.6)</b>
<b>Service</b>		
Army	56.6 (1.2)	29.0 (1.1)
Navy	41.4 (1.3)	19.9 (1.1)
Marine Corps	53.0 (2.1)	32.6 (2.0)
Air Force	42.7 (1.1)	21.8 (0.9)
<b>Gender</b>		
Male	48.0 (0.7)	25.3 (0.6)
Female	53.5 (1.7)	26.1 (1.6)
<b>Age Group</b>		
20 years old or less	47.2 (2.6)	24.9 (2.3)
21-30 years old	48.4 (1.0)	25.3 (0.9)
31-40 years old	49.1 (1.0)	25.3 (0.9)
41-50 years old	53.3 (1.6)	27.1 (1.4)
More than 50 years old	53.9 (5.0)	33.0 (4.9)
<b>Pay Grade</b>		
Enlisted	50.7 (0.8)	26.1 (0.7)
E1-E3	48.8 (2.0)	27.2 (1.9)
E4-E6	51.0 (1.0)	26.3 (0.9)
E7-E9	51.7 (1.6)	23.4 (1.3)
Warrant Officers/Officers	39.9 (0.8)	22.0 (0.7)
W1-W5	52.9 (2.4)	24.8 (2.0)
O1-O3	35.7 (1.2)	19.8 (1.0)
O4-O6	42.8 (1.3)	24.3 (1.1)
<b>Years of Service</b>		
Less than 3 years	44.8 (1.7)	25.4 (1.5)
3 years to less than 6 years	52.0 (1.6)	25.8 (1.4)
6 years to less than 10 years	46.6 (1.5)	24.0 (1.3)
10 or more years	50.5 (0.9)	25.9 (0.8)
<b>Race</b>		
White	50.0 (0.8)	25.8 (0.8)
Non-white	46.8 (1.1)	24.7 (1.0)
<b>Education</b>		
No college	49.0 (1.6)	24.3 (1.4)
Some college	51.3 (0.9)	26.6 (0.8)
4-year degree	43.0 (1.0)	23.9 (0.9)
<b>Marital Status</b>		
Not married	48.2 (1.2)	26.2 (1.1)
Married	49.3 (0.8)	24.9 (0.7)

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### Summary of Table 3:

- Table 3 shows the percentage of SMs by demographics who self-reported seeking medical care for an injury or SERA injury in the 12-month reporting period.
- Overall, 49 percent of military members self-reported an injury for which they sought medical care and 25 percent sustained a SERA injury.
- Of the SMs with any injury, 52 percent had a SERA injury.
- Amongn the services in the 12-month reporting period, the Army had the highest percentage (57 percent) of injured SMs, followed by the Marine Corps (53 percent) and then the Air Force (43 percent), with the Navy (41 percent) having the lowest percentage. For SERA injuries, the Marine Corps had the highest percentage (33 percent), then the Army (29 percent) followed by the Air Force (22 percent), with the Navy (20 percent) having the lowest percentage.
- A higher proportion of females sustained any injury compared to males (54 percent and 48 percent, respectively); the proportions for a SERA injury were similar for both females and males (26 percent and 25 percent, respectively).
- For both any Injury and SERA injury, each successively older age group had a higher percentage of injury (except for the 21-30 and 31-40 year old categories for SERA injury which had identical percentages of 25 percent).

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Table 4. Percentage of Active Duty Service Members Who Self-Reported Any Injury ( $\geq 1$ ) and Sports, Exercise, and Recreational Activities (SERA) Injury ( $\geq 1$ ) by Overall Satisfaction with Military Life, 2008

Overall Satisfaction with Military Life	Any Injury ( $\geq 1$ )	SERA Injury ( $\geq 1$ )
	Percent Injured (SE)	Percent Injured (SE)
Dissatisfied/very dissatisfied	60.0 (1.7)	30.3 (1.6)
Neither satisfied nor dissatisfied	50.9 (1.6)	28.2 (1.5)
Satisfied/very satisfied	45.2 (0.8)	23.2 (0.7)

### Summary of Table 4:

- Table 4 shows the percentage of SMs who self-reported any injury and SERA injury in the 12-month reporting period by overall satisfaction with military life.
- Overall, a smaller proportion of SMs who were satisfied or very satisfied with military life sustained any injury or a SERA injury compared to SMs who were neutral (neither satisfied nor dissatisfied) and SMs who were dissatisfied or very dissatisfied with military life.

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Table 5. Percentage of Active Duty Service Members Who Self-Reported Any Injury ( $\geq 1$ ) and Sports, Exercise, and Recreational Activities (SERA) Injury ( $\geq 1$ ) by Current Level of Personal Stress, 2008

Current Level of Personal Stress	Any Injury ( $\geq 1$ )	SERA Injury ( $\geq 1$ )
	Percent Injured (SE)	Percent Injured (SE)
Less/much less than usual	44.0 (1.6)	23.0 (1.4)
About the same as usual	44.1 (1.0)	22.6 (0.9)
More/much more than usual	55.5 (1.0)	29.2 (1.0)

### Summary of Table 5:

- Table 5 shows the percentage of SMs who self-reported any injury and SERA injury in the 12-month reporting period by personal stress levels at the time the survey was completed.
- Overall, a smaller proportion of SMs who reported less or much less personal stress than usual and those who reported about the same level of personal stress sustained any injury or SERA injury compared to SMs who reported more or much more personal stress than usual.

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Table 6. Percentage of Active Duty Service Members Who Self-Reported Any Injury ( $\geq 1$ ) and Sports, Exercise, and Recreational Activities (SERA) Injury ( $\geq 1$ ) by Current Level of Work Stress, 2008

Current Level of Work Stress	Any Injury ( $\geq 1$ )	SERA Injury ( $\geq 1$ )
	Percent Injured (SE)	Percent Injured (SE)
Less/much less than usual	42.4 (1.8)	22.0 (1.5)
About the same as usual	44.5 (1.1)	24.9 (1.0)
More/much more than usual	53.8 (1.0)	26.7 (0.9)

### Summary of Table 6:

- Table 6 shows the percentage of SMs who self-reported any injury and SERA injury in the 12-month reporting period by work stress levels at the time the survey was completed.
- Overall, a smaller proportion of SMs who reported less or much less work stress than usual and those who reported about the same level of work stress sustained any injury or SERA injury compared to SMs who reported more or much more work stress than usual.

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Table 7. Percentage of Active Duty Service Members Who Self-Reported Any Injury ( $\geq 1$ ) and Sports, Exercise, and Recreational Activities (SERA) Injury ( $\geq 1$ ) by Times Worked Longer than Normal Duty Hours in Past 12 Months, 2008

Times Worked Longer than Normal Duty Hours in Past 12 Months	Any Injury ( $\geq 1$ )		SERA Injury ( $\geq 1$ )	
	Percent Injured (SE)		Percent Injured (SE)	
0 work days	38.7	(2.2)	20.3	(1.8)
1 to 10 work days	42.4	(2.3)	20.1	(1.8)
11 to 20 work days	47.1	(2.5)	28.3	(2.3)
21 to 60 work days	49.9	(1.6)	27.3	(1.4)
61 to 120 work days	50.0	(1.8)	24.3	(1.5)
121 or more work days	52.7	(1.0)	27.0	(1.0)

### Summary of Table 7:

- Table 7 shows the percentage of SMs who self-reported any injury and SERA injury in the 12-month reporting period by the number of days they worked longer than normal duty hours in the past 12 months.
- Overall, SMs who worked longer than normal duty hours on more days sustained more injuries of any injury type and more SERA injuries than those who never worked (0 days) longer than normal duty hours.
- For any injury, SMs in each category with more days of working longer than normal duty hours had more injuries of any type compared to SMs in categories with fewer days of working longer than normal duty hours.

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Table 8. Percentage of Active Duty Service Members Who Self-Reported Any Injury ( $\geq 1$ ) and Sports, Exercise, and Recreational Activities (SERA) Injury ( $\geq 1$ ) by Number of Times Deployed Since 9/11, 2008

Number of Times Deployed Since 9/11	Any Injury ( $\geq 1$ )		SERA Injury ( $\geq 1$ )	
	Percent Injured (SE)		Percent Injured (SE)	
0 times	46.6	(1.2)	26.2	(1.1)
1 time	50.3	(1.4)	25.6	(1.2)
2 times	50.2	(1.5)	26.0	(1.3)
3 times	49.8	(2.0)	21.4	(1.7)
4 times or more	48.9	(2.0)	24.6	(1.7)

### Summary of Table 8:

- Table 8 shows the percentage of SMs who self-reported any injury and SERA injury in the 12-month reporting period by the number of times they were deployed since 9/11.
- For any injury, the lowest percentage of injured SMs was among those who had not deployed since 9/11 (47 percent), followed by those who had deployed four or more times (49 percent).
- For SERA injury, the lowest percentage of injured SMs was among those who had deployed 3 times (21 percent), followed by those who had deployed 4 or more times (25 percent).
- Number of deployments was not a risk factor for any injury or SERA injury.

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Table 9. Percentage of Active Duty Service Members Who Self-Reported Any Injury ( $\geq 1$ ) and Sports, Exercise, and Recreational Activities (SERA) Injury ( $\geq 1$ ) by Deployed Longer than 30 Consecutive Days in Past 24 Months, 2008

Deployed Longer than 30 Consecutive Days in Past 24 Months	Any Injury ( $\geq 1$ )	SERA Injury ( $\geq 1$ )
	Percent Injured (SE)	Percent Injured (SE)
No	48.9 (0.9)	26.9 (0.8)
Yes	48.9 (1.0)	23.8 (0.9)

### Summary of Table 9:

- Table 9 shows the percentage of SMs who self-reported any injury and SERA injury in the 12-month reporting period by deployments longer than 30 consecutive days in the past 24 months.
- For any injury, the percentage of injured SMs was the same among those who had deployed longer than 30 days and those who had not deployed longer than 30 days in the past 24 months.
- For SERA injury, the percentage of injured SMs was slightly lower (3 percent) among those who had deployed longer than 30 days in the past 24 months (24 percent) compared to those who had not deployed longer than 30 days (27 percent).

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Table 10. Unadjusted Odds Ratios for Demographics for Any Injury and Sports, Exercise, and Recreational Activities (SERA) Injury, Active Duty Military, 2008

Demographics	Any Injury		SERA Injury	
	Odds Ratio	(95% CI)	Odds Ratio	(95% CI)
<b>Service</b>				
Army	1.00	Reference	1.00	Reference
Navy	0.54*	(0.47, 0.62)	0.61*	(0.51, 0.72)
Marine Corps	0.86	(0.72, 1.04)	1.19	(0.97, 1.46)
Air Force	0.57*	(0.50, 0.65)	0.68*	(0.59, 0.79)
<b>Gender</b>				
Male	1.00	Reference	1.00	Reference
Female	1.24*	(1.08, 1.43)	1.04	(0.88, 1.24)
<b>Age Group</b>				
20 years old or less	0.95	(0.77, 1.19)	0.98	(0.76, 1.27)
21-30 years old	1.00	Reference	1.00	Reference
31-40 years old	1.03	(0.92, 1.15)	1.00	(0.88, 1.14)
More than 40 years old	1.22*	(1.06, 1.41)	1.12	(0.95, 1.32)
<b>Pay Grade</b>				
<b>Enlisted</b>				
E1-E3	1.00	Reference	1.00	Reference
E4-E6	1.09	(0.91, 1.30)	0.95	(0.78, 1.17)
E7-E9	1.12	(0.92, 1.37)	0.81	(0.65, 1.03)
<b>Warrant Officers/Officers</b>				
W1-W5	1.18	(0.92, 1.51)	0.88	(0.67, 1.17)
O1-O3	0.58*	(0.48, 0.70)	0.66*	(0.53, 0.82)
O4-O6	0.79*	(0.65, 0.95)	0.86	(0.69, 1.07)
<b>Years of Service</b>				
Less than 3 years	1.00	Reference	1.00	Reference
3 years to less than 6 years	1.34*	(1.11, 1.60)	1.02	(0.83, 1.26)
6 years to less than 10 years	1.07	(0.90, 1.28)	0.93	(0.75, 1.14)
10 or more years	1.25*	(1.08, 1.46)	1.02	(0.86, 1.22)
<b>Race</b>				
White	1.00	Reference	1.00	Reference
Non-white	0.88*	(0.79, 0.98)	0.94	(0.83, 1.07)
<b>Education</b>				
No college	1.00	Reference	1.00	Reference
Some college	1.10	(0.95, 1.27)	1.13	(0.95, 1.34)
4-year degree	0.78*	(0.67, 0.91)	0.97	(0.82, 1.16)
<b>Marital Status</b>				
Not married	1.00	Reference	1.00	Reference
Married	1.04	(0.93, 1.17)	0.94	(0.82, 1.07)

\*Significant (p < 0.05)

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### Summary of Table 10:

- Table 10 shows the unadjusted associations between demographic characteristics and any injury and SERA injury.

#### Any Injury

- Overall, the odds of having any injury were higher for SMs in the Army, female SMs, SMs over 40 years old, and SMs with 3 to 6 years or at least 10 years in the military. The odds for injury were lower for commissioned officers, nonwhite SMs, or those who have a 4-year degree.
- The odds of any injury for Navy and Air Force SMs were 46 percent ( $p<0.01$ ) and 43 percent ( $p<0.01$ ) lower, respectively, compared to Army SMs. The odds of any injury for Marine Corps SMs tended to be lower compared to Army SMs, but this finding was not statistically significant ( $p=0.13$ ).
- The odds of any injury for female SMs was 24 percent higher ( $p<0.01$ ) compared to male SMs.
- The odds of any injury for SMs older than 40 years was 22 percent ( $p<0.01$ ) more likely compared to 21-30 year olds.

#### SERA Injury

- Overall for SERA injury, Navy and Air Force SMs, and SMs in enlisted pay grades E4–E9 and officer pay grades W1–O6 had lower odds of sustaining a SERA injury compared with Army SMs and SMs who are E1–E3.
- Compared to an Army Soldier, the odds of a SERA injury was almost 40 percent lower ( $p<0.01$ ) for a Sailor and 32 percent lower ( $p<0.01$ ) for an Airman. The Marine Corps tended to have higher odds of injury compared to the Army, but this finding was not statistically significant ( $p=0.11$ ).

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Table 11. Unadjusted Odds Ratios for Potential Stress-Related Risk Factors for Any Injury and Sports, Exercise, and Recreational Activities (SERA) Injury, Active Duty Military, 2008

Potential Stress-Related Risk Factors for Injury	Any Injury		SERA Injury	
	Odds Ratio	(95% CI)	Odds Ratio	(95% CI)
<b>Satisfaction with Military Life</b>				
Dissatisfied/very dissatisfied	1.82*	(1.56, 2.13)	1.44*	(1.21, 1.70)
Neither satisfied nor dissatisfied	1.26*	(1.09, 1.45)	1.29*	(1.10, 1.52)
Satisfied/very satisfied	1.00	Reference	1.00	Reference
<b>Current Level of Personal Stress</b>				
Less/much less than usual	1.00	Reference	1.00	Reference
About the same as usual	0.98	(0.81, 1.17)	0.70*	(0.61, 0.81)
More/much more than usual	1.38*	(1.16, 1.66)	0.90	(0.73, 1.11)
<b>Current Level of Work Stress</b>				
Less/much less than usual	1.00	Reference	1.00	Reference
About the same as usual	1.18	(0.96, 1.44)	0.91	(0.80, 1.04)
More/much more than usual	1.29*	(1.07, 1.57)	0.90	(0.73, 1.11)
<b>Times Worked Longer than Normal Duty Hours in Past 12 Months</b>				
0 work days	1.00	Reference	1.00	Reference
1 to 10 work days	1.16	(0.90, 1.50)	0.99	(0.72, 1.35)
11 to 20 work days	1.40*	(1.08, 1.84)	1.55*	(1.13, 2.12)
21 to 60 work days	1.58*	(1.27, 1.96)	1.47*	(1.14, 1.91)
61 to 120 work days	1.58*	(1.26, 1.99)	1.26	(0.96, 1.66)
121 or more work days	1.76*	(1.45, 2.14)	1.46*	(1.15, 1.85)
<b>Number of Times Deployed Since 9/11</b>				
0 times	1.00	Reference	1.00	Reference
1 time	1.16*	(1.01, 1.35)	0.97	(0.82, 1.14)
2 times	1.16	(1.00, 1.34)	0.99	(0.83, 1.17)
3 times	1.14	(0.95, 1.36)	0.77*	(0.61, 0.96)
4 times or more	1.10	(0.91, 1.32)	0.92	(0.74, 1.13)
<b>Deployed Longer than 30 Consecutive Days in Past 24 Months</b>				
No	1.00	Reference	1.00	Reference
Yes	1.00	(0.90, 1.11)	0.85*	(0.75, 0.96)

\*Significant (p < 0.05)

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### Summary of Table 11:

- Table 11 shows the unadjusted odds ratios for any injury and SERA injury for the stress-related potential risk factors.
- Compared to SMs who were satisfied or very satisfied with military life, those who were neither satisfied nor dissatisfied and those who were dissatisfied or very dissatisfied with military life were more likely to sustain any injury or a SERA injury.
- Compared to SMs who reported less or much less personal stress in their lives currently, those who reported more or much more personal stress were more likely to sustain any injury.
- Compared to SMs who had less or much less than usual work stress in their lives currently, those who had more or much more work stress were more likely to sustain any injury.
- Compared to SMs who never worked longer than normal duty hours, those who worked longer hours on 11 to 20 days had higher odds of any injury. The odds of any injury tended to be higher when SMs worked longer hours on 21 to 60 days, 61 to 120 days, and 121 or more days. The odds for SERA injury also tended to be higher when SMs worked longer hours on 11 to 20 days, 21 to 60 days, and 121 or more days.
- Compared to SMs who had not deployed since 9/11, those who deployed one or more times tended to have higher odds of any injury, but this finding was significant only for those who had deployed one time. However, the odds of sustaining a SERA injury tended to be lower for SMs who had deployed one or more times, but this finding was significant only for those who had deployed 3 times.
- Compared to SMs who had not deployed longer than 30 days in the past 24 months, those who had deployed longer than 30 days had a lower odds of sustaining a SERA injury.

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Table 12. Adjusted Odds Ratios<sup>1</sup> for Demographics for Any Injury and Sports, Exercise, and Recreational Activities (SERA) Injury, Active Duty Military, 2008

Demographics	Any Injury		SERA Injury	
	Odds Ratio	(95% CI)	Odds Ratio	(95% CI)
<b>Service</b>				
Army	1.00	Reference	1.00	Reference
Navy	0.54*	(0.47, 0.62)	0.60*	(0.51, 0.71)
Marine Corps	0.90	(0.74, 1.09)	1.22	(0.99, 1.50)
Air Force	0.56*	(0.49, 0.64)	0.67*	(0.58, 0.78)
<b>Gender</b>				
Male	1.00	Reference	1.00	Reference
Female	1.37*	(1.18, 1.58)	1.10	(0.92, 1.31)
<b>Age Group</b>				
20 years old or less	0.83	(0.64, 1.06)	0.80	(0.60, 1.07)
21-30 years old	1.00	Reference	1.00	Reference
31-40 years old	1.19*	(1.04, 1.36)	1.19*	(1.02, 1.40)
More than 40 years old	1.66*	(1.37, 2.00)	1.55*	(1.24, 1.94)
<b>Pay Grade</b>				
<b>Enlisted</b>				
E1-E3	1.00	Reference	1.00	Reference
E4-E6	0.99	(0.81, 1.22)	0.87	(0.69, 1.10)
E7-E9	0.83	(0.64, 1.07)	0.61*	(0.45, 0.82)
<b>Warrant Officers/Officers</b>				
W1-W5	0.68*	(0.50, 0.93)	0.56*	(0.40, 0.78)
O1-O3	0.50*	(0.40, 0.63)	0.59*	(0.46, 0.76)
O4-O6	0.54*	(0.41, 0.69)	0.62*	(0.46, 0.83)
<b>Race</b>				
White	1.00	Reference	1.00	Reference
Non-white	0.78*	(0.70, 0.88)	0.91	(0.79, 1.04)

\*Significant (p < 0.05)

<sup>1</sup>Logistic regression model adjusted for service, gender, age, pay grade, and race

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### Summary of Table 12:

- Table 12 shows the adjusted odds ratios from the multivariable logistic regression models for any injury and SERA injury. The odds ratios are adjusted for service, gender, age group, pay grade, and race.
- Overall, the adjusted odds ratios were similar to the unadjusted odds ratios, however, there was a change in statistical significance for 31–40 year olds and warrant officers for any injury and for age groups and pay grades for SERA injury.
- Compared to Army SMs, Navy and Air Force SMs had lower odds (46 percent and 44 percent, respectively) ( $p < 0.01$ ) of sustaining any injury and lower odds (40 percent and 33 percent, respectively) ( $p < 0.01$ ) of sustaining a SERA injury. Compared to the Army, SMs in the Marine Corps tended to have lower odds for any injury but tended to have higher odds for a SERA injury but neither of these findings were statistically significant.
- Females had a 37 percent higher odds for any injury ( $p < 0.01$ ) compared to males, but the odds of having a SERA injury were similar for females and males.
- The odds of sustaining any injury were higher with age. Compared to the 21–30 year olds, 31–40 year olds had a 19 percent higher odds ( $p < 0.02$ ) and SMs older than 40 years had a 66 percent higher odds ( $p < 0.01$ ) for any injury.
- SMs between 31–40 years of age had 19 percent higher odds ( $p < 0.03$ ) and SMs more than 40 years old had 55 percent higher odds ( $p < 0.01$ ) of being injured participating in sports, exercise, and recreational activities than 21-30 year olds.
- Compared to SMs of E1-E3 rank, SMs of all other ranks had lower odds of sustaining any injury or a SERA injury. Officers and warrant officers were statistically less likely ( $p < 0.2$ ) to sustain any injury or be injured participating in SERA.

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Table 13. Adjusted Odds Ratios<sup>1</sup> for Each Potential Stress-Related Risk Factor for Injury for Any Injury and Sports, Exercise, and Recreational Activities (SERA) Injury, Active Duty Military, 2008

Potential Stress-Related Risk Factors for Injury	Any Injury		SERA Injury	
	Odds Ratio	(95% CI)	Odds Ratio	(95% CI)
<b>Satisfaction with Military Life</b>				
Dissatisfied/very dissatisfied	1.74*	(1.48, 2.04)	1.38*	(1.16, 1.64)
Neither satisfied nor dissatisfied	1.23*	(1.06, 1.43)	1.26*	(1.07, 1.49)
Satisfied/very satisfied	1.00	Reference	1.00	Reference
<b>Current Level of Personal Stress</b>				
Less/much less than usual	1.00	Reference	1.00	Reference
About the same as usual	1.03	(0.88, 1.21)	1.00	(0.83, 1.21)
More/much more than usual	1.56*	(1.33, 1.82)	1.39*	(1.16, 1.67)
<b>Current Level of Work Stress</b>				
Less/much less than usual	1.00	Reference	1.00	Reference
About the same as usual	1.08	(0.91, 1.29)	1.19	(0.97, 1.46)
More/much more than usual	1.54*	(1.30, 1.81)	1.28*	(1.06, 1.56)
<b>Times Worked Longer than Normal Duty Hours in Past 12 Months</b>				
0 work days	1.00	Reference	1.00	Reference
1 to 10 work days	1.16	(0.89, 1.50)	0.98	(0.72, 1.35)
11 to 20 work days	1.39*	(1.07, 1.83)	1.53*	(1.11, 2.09)
21 to 60 work days	1.54*	(1.24, 1.91)	1.43*	(1.09, 1.86)
61 to 120 work days	1.56*	(1.24, 1.97)	1.25	(0.94, 1.64)
121 or more work days	1.70*	(1.39, 2.08)	1.40*	(1.09, 1.79)
<b>Number of Times Deployed Since 9/11</b>				
0 times	1.00	Reference	1.00	Reference
1 time	1.05	(0.90, 1.22)	0.89	(0.75, 1.06)
2 times	1.06	(0.90, 1.25)	0.93	(0.77, 1.12)
3 times	1.11	(0.91, 1.34)	0.75*	(0.59, 0.96)
4 times or more	1.17	(0.96, 1.42)	0.96	(0.76, 1.20)
<b>Deployed Longer than 30 Consecutive Days in Past 24 Months</b>				
No	1.00	Reference	1.00	Reference
Yes	0.93	(0.83, 1.04)	0.80*	(0.71, 0.92)

\*Significant ( $p < 0.05$ )

<sup>1</sup>Logistic regression model adjusted for service, gender, age, pay grade, race, and each potential stress-related risk factor for injury

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### Summary of Table 13:

- Table 13 shows the adjusted odds of sustaining any injury and a SERA injury for the potential stress-related risk factors. Each risk factor was evaluated separately using a multivariable logistic regression model that included service, gender, age group, pay grade, and race.
- Compared to SMs who were satisfied or very satisfied with military life, SMs who were neither satisfied nor dissatisfied with military life were 23 percent more likely ( $p < 0.01$ ) to sustain any injury and 26 percent more likely ( $p < 0.01$ ) to sustain a SERA injury. SMs who were dissatisfied or very dissatisfied with military life were 74 percent more likely ( $p < 0.01$ ) to sustain any injury and 38 percent more likely to sustain a SERA injury.
- SMs reporting more or much more than usual personal stress and work stress were 56 percent ( $p < 0.01$ ) and 54 percent ( $p < 0.01$ ), respectively, more likely to sustain any injury than SMs reporting less or much less than usual levels of personal or work stress. SMs reporting more or much more than usual personal stress and work stress than usual were 39 percent ( $p < 0.01$ ) and 28% ( $p < 0.02$ ) more likely to sustain a SERA injury compared to SMs reporting less or much less than usual levels of personal and work stress.
- Compared to SMs who worked longer than normal duty hours on 0 days in the previous 12 months, SMs who worked longer duty hours than normal were more likely to sustain any injury or a SERA injury. With increasing number of days SMs worked of longer duty hours, the odds of any injury or SERA injury were higher.
- SMs who deployed three times since 9/11 and those who deployed longer than 30 days in the past 24 months had 25 percent and 20 percent, respectively, lower odds of an SERA injury, compared to SMs who did not deploy.

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Table 14. Percent Distribution by Service of Injured Body Part for the Most Serious Sports, Exercise, and Recreational Activities Injury Reported, Active Duty Military, 2008

Injured Body Part	Army	Navy	Marine Corps	Air Force	All Services
	Percent Injured (SE)				
Knee	23.1 (1.9)	19.7 (2.4)	27.4 (3.3)	23.9 (1.9)	23.4 (1.2)
Ankle	18.3 (1.9)	15.9 (2.3)	21.1 (3.3)	14.7 (1.7)	17.6 (1.1)
Back (upper or lower)	11.8 (1.4)	13.3 (1.9)	9.0 (2.1)	12.0 (1.5)	11.6 (0.8)
Shoulder	9.1 (1.2)	11.0 (2.0)	9.9 (2.1)	11.5 (1.4)	10.1 (0.8)
Foot	9.7 (1.3)	7.5 (1.5)	9.2 (2.2)	6.9 (1.1)	8.6 (0.8)
Wrist/hand	5.2 (1.0)	6.0 (1.4)	3.9 (1.1)	9.3 (1.4)	6.0 (0.6)
Lower leg/calf	5.6 (1.1)	8.7 (1.9)	4.4 (1.6)	4.9 (1.0)	5.8 (0.7)
Head	3.4 (0.9)	4.1 (1.1)	2.5 (1.2)	2.7 (0.8)	3.2 (0.5)
Hip	3.8 (0.9)	2.4 (1.0)	1.7 (0.9)	3.5 (0.8)	3.1 (0.5)
Thigh	1.7 (0.4)	2.3 (0.8)	3.2 (1.4)	2.9 (0.7)	2.3 (0.4)
Arm/elbow	1.9 (0.7)	2.6 (0.8)	2.1 (0.8)	2.4 (0.7)	2.2 (0.4)
Neck	1.0 (0.5)	1.8 (0.7)	0.3 (0.1)	1.8 (0.6)	1.2 (0.3)
Other	5.5 (1.1)	4.9 (1.4)	5.4 (1.9)	3.6 (0.9)	5.0 (0.7)
Total	100.0	100.0	100.0	100.0	100.0

The shaded data have a relative standard error (RSE) of greater than 30% and should be used with caution as they do not meet the standards of reliability or precision. (RSE= standard error/percent injured x 100). Large RSE's are an indication there were too few respondents to ascertain any reliable statistical conclusions.

### Summary of Table 14:

- Table 14 shows the percent distribution by service of body parts injured from the most serious SERA injury reported by SMs. The rank order (highest to lowest) of the injured body part is based on the 'All Services' category.
- With few exceptions, the order (highest to lowest) of the body part injured was the same for each of the services, but the proportion for each body part category slightly differed for each service.
- Overall for all the services, the knee (23 percent) was the most commonly injured body part from a SERA injury, followed by the ankle (18 percent), back (12 percent), shoulder (10 percent), and foot (9 percent). The combined categories of these five leading body parts accounted for 71 percent of the SERA injuries.
- The Air Force had the highest proportion of wrist/hand SERA injuries at 9 percent.
- The Navy and Air Force had higher proportions of shoulder injuries (11 percent and 12 percent respectively) and the Army and Marine Corps had higher proportions of foot injuries (10 percent and 9 percent respectively).

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Table 15. Percent Distribution by Gender of Injured Body Part for the Most Serious Sports, Exercise, and Recreational Activities Injury Reported, Active Duty Military, 2008

Injured Body Part	Male		Female		All Services	
	Percent Injured	(SE)	Percent Injured	(SE)	Percent Injured	(SE)
Knee	23.4	(1.3)	23.2	(2.8)	23.4	(1.2)
Ankle	17.8	(1.2)	16.5	(2.9)	17.6	(1.1)
Back (upper or lower)	11.3	(0.9)	13.5	(2.5)	11.6	(0.8)
Shoulder	11.2	(0.9)	4.5	(1.0)	10.1	(0.8)
Foot	8.2	(0.8)	10.8	(2.1)	8.6	(0.8)
Wrist/hand	6.4	(0.7)	3.8	(1.2)	6.0	(0.6)
Lower leg/calf	5.6	(0.7)	7.0	(2.0)	5.8	(0.7)
Head	3.6	(0.6)	1.3	(0.7)	3.2	(0.5)
Thigh	2.4	(0.4)	1.6	(0.6)	3.1	(0.5)
Arm/elbow	2.2	(0.4)	2.2	(1.1)	2.3	(0.4)
Hip	2.0	(0.4)	9.0	(2.3)	2.2	(0.4)
Neck	1.3	(0.3)	0.8	(0.5)	1.2	(0.3)
Other	4.8	(0.7)	6.0	(1.9)	5.0	(0.8)
Total	100.0		100.0		100.0	

The shaded data have a relative standard error (RSE) of greater than 30% and should be used with caution as they do not meet the standards of reliability or precision. (RSE= standard error/percent injured x 100). Large RSE's are an indication there were too few respondents to ascertain any reliable statistical conclusions.

### Summary of Table 15:

- Table 15 shows the percent distribution by gender of the injured body part as reported by SMs for their most serious SERA injury.
- The knee, ankle, and back were the first, second, and third most commonly injured body parts among males and females and their proportions were similar.
- For the other body part categories, both the rank order and proportions differed for males and females. Among males, shoulder (11 percent) and wrist/hand (6 percent) injuries were more common. Among females, foot (11 percent) and hip (9 percent) injuries were more common.
- The two body part categories with the greatest differences by gender were shoulder (11 percent for males, 5 percent for females) and hip (9 percent for females, 2 percent for males).

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Table 16. Percent Distribution by Service of the Injury Type for the Most Serious Sports, Exercise, and Recreational Activities Injury Reported, Active Duty Military, 2008

Type of Injury	Army	Navy	Marine Corps	Air Force	All Services
	Percent Injured (SE)				
Sprained joint	19.7 (1.8)	21.1 (2.4)	21.3 (3.1)	20.3 (1.9)	20.4 (1.1)
Strained muscle	18.2 (1.7)	24.5 (2.6)	15.7 (2.4)	23.0 (1.9)	20.0 (1.1)
Tendonitis or bursitis	11.5 (1.4)	11.2 (1.7)	12.6 (2.4)	12.1 (1.4)	11.8 (0.8)
Fracture (broken bone)	10.1 (1.4)	8.9 (1.7)	16.6 (3.0)	11.0 (1.5)	11.2 (0.9)
Joint dislocation/separation	7.2 (1.2)	6.9 (1.6)	8.8 (2.2)	5.8 (1.1)	7.1 (0.7)
Abrasion or laceration	2.2 (0.7)	4.3 (1.4)	0.9 (0.3)	2.0 (0.6)	2.3 (0.4)
Contusion (bruise)	1.1 (0.4)	1.0 (0.5)	2.5 (1.1)	2.0 (0.7)	1.5 (0.3)
Concussion	1.2 (0.5)	0.7 (0.4)	1.0 (0.9)	0.3 (0.2)	0.9 (0.3)
Blister	0.9 (0.5)	0.7 (0.6)	0.5 (0.4)	0.3 (0.2)	0.7 (0.2)
Other	27.8 (2.1)	20.9 (2.5)	20.2 (3.2)	23.3 (1.9)	24.2 (1.2)
Total	100.0	100.0	100.0	100.0	100.0

The shaded data have a relative standard error (RSE) of greater than 30% and should be used with caution as they do not meet the standards of reliability or precision. (RSE= standard error/percent injured x 100). Large RSE's are an indication there were too few respondents to ascertain any reliable statistical conclusions.

### Summary of Table 16:

- Table 16 shows the percent distribution of the types of SERA injuries sustained by all SMs. This table presents self-reported injury type for the most serious SERA injury. The ordering (highest to lowest) of injury type in the table is based on the 'All Services' category.
- The top five injury types were the same for each service, even though the percent distribution and rank order of injury types differed for each service.
- Sprained joints and strained muscles were the most serious injury types among all services combined (both 20 percent).
- Tendonitis/bursitis, fractures, and joint dislocation/separation round out the top five common injury types among all services (12 percent, 11 percent, and 7 percent respectively).
- The two injury types with the greatest differences by service were strained muscle (16 percent for the Marine Corps to 25 percent for the Navy) and fracture (9 percent for the Navy to 17 percent for the Marine Corps).
- Approximately 24 percent of all respondents answered 'Other.' The majority of the responses fell into one of two categories: (1) data had been removed by DMDC for confidentiality reasons, or (2) responses were not unique answers but corresponded to one of the injury types listed. Examples of written-in answers included torn muscle, stress fracture, gunshot wound, heel spur, ingrown toenail, torn ligament, shin splint, knee pain/injury, pinched nerve, back pain/injury, and shoulder pain/injury.

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Table 17. Percent Distribution by Gender of the Injury Type for the Most Serious Sports, Exercise, and Recreational Activities Injury Reported, Active Duty Military, 2008

Type of Injury	Male	Female	Total
	Percent Injured (SE)	Percent Injured (SE)	Percent Injured (SE)
Sprained joint	21.0 (1.2)	17.1 (2.7)	20.4 (1.1)
Strained muscle	21.0 (1.2)	15.0 (2.2)	20.0 (1.1)
Tendonitis or bursitis	11.3 (0.9)	14.3 (2.4)	11.8 (0.8)
Fracture (broken bone)	11.3 (1.0)	10.4 (2.2)	11.2 (0.9)
Joint dislocation/separation	7.5 (0.8)	5.1 (1.6)	7.1 (0.7)
Abrasion or laceration	2.6 (0.5)	1.0 (0.4)	2.3 (0.4)
Contusion (bruise)	1.5 (0.4)	1.5 (0.7)	1.5 (0.3)
Concussion	0.9 (0.3)	0.7 (0.6)	0.9 (0.3)
Blister	0.6 (0.2)	1.3 (0.7)	0.7 (0.2)
Other	22.4 (1.3)	33.8 (3.6)	24.2 (1.2)
Total	100.0	100.0	100.0

The shaded data have a relative standard error (RSE) of greater than 30% and should be used with caution as they do not meet the standards of reliability or precision. (RSE= standard error/percent injured x 100). Large RSE's are an indication there were too few respondents to ascertain any reliable statistical conclusions.

### Summary of Table 17:

- Table 17 shows the percent distribution by gender of injury types for the most serious SERA injuries reported by SMs.
- The leading injury types were the same for males and females but the proportions and rank distributions of the injury types differed.
- There were a greater proportion of sprains and strains among males (21 percent for both categories) compared to females (17 percent and 15 percent, respectively).
- Females (14 percent) had more tendonitis and bursitis than males (11 percent), but males had more joint dislocation/separations (8 percent) than females (5 percent).
- Approximately 24 percent of all respondents answered 'Other.' The majority of the responses fell into one of two categories: (1) data had been removed by DMDC for confidentiality reasons, or (2) responses were not unique answers but corresponded to one of the injury types listed. Examples of written-in answers included torn muscle, stress fracture, gunshot wound, heel spur, ingrown toenail, torn ligament, shin splint, knee pain/injury, pinched nerve, back pain/injury, and shoulder pain/injury.

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Table 18. Percent Distribution of Body Part Injured by Injury Type for the Most Serious Sports, Exercise, and Recreational Activities Injury Reported, Active Duty Military, 2008

Part of Body Injured	Sprained Joint		Strained Muscle		Tendonitis/Bursitis		Fracture		Dislocation/Separation of a Joint		Concussion		Other*		Totals	
	Percent	(SE)	Percent	(SE)	Percent	(SE)	Percent	(SE)	Percent	(SE)	Percent	(SE)	Percent	(SE)	Percent	(SE)
<b>Head and Neck</b>																
Head	0.0	(0.0)	0.0	(0.0)	0.0	(0.0)	0.6	(0.2)	0.0	(0.0)	0.9	(0.3)	1.7	(0.4)	3.2	(0.5)
Neck	0.2	(0.1)	0.5	(0.2)	0.1	(0.1)	0.1	(0.1)	0.0	(0.0)	0.0	(0.0)	0.4	(0.2)	1.2	(0.3)
Back	0.7	(0.2)	5.8	(0.6)	0.6	(0.2)	0.2	(0.1)	0.4	(0.2)	0.0	(0.0)	3.9	(0.6)	11.6	(0.8)
<b>Upper Extremity</b>																
Shoulder	1.1	(0.2)	2.2	(0.4)	1.6	(0.3)	0.5	(0.2)	3.5	(0.5)	0.0	(0.0)	1.4	(0.3)	10.1	(0.8)
Arm/elbow	0.3	(0.1)	0.3	(0.1)	0.4	(0.1)	0.4	(0.2)	0.2	(0.1)	0.0	(0.0)	0.7	(0.3)	2.2	(0.4)
Wrist/hand	1.4	(0.3)	0.2	(0.1)	0.4	(0.1)	2.8	(0.4)	0.3	(0.1)	0.0	(0.0)	0.9	(0.3)	6.0	(0.6)
<b>Lower Extremity</b>																
Hip	0.3	(0.1)	0.8	(0.3)	0.6	(0.2)	0.7	(0.3)	0.2	(0.1)	0.0	(0.0)	0.6	(0.3)	3.1	(0.5)
Thigh	0.0	(0.0)	1.7	(0.3)	0.1	(0.1)	0.0	(0.0)	0.0	(0.0)	0.0	(0.0)	0.5	(0.2)	2.3	(0.4)
Knee	5.3	(0.6)	3.2	(0.5)	4.5	(0.6)	0.5	(0.2)	1.2	(0.3)	0.0	(0.0)	8.6	(0.8)	23.2	(1.2)
Lower leg/calf	0.2	(0.1)	1.7	(0.3)	0.6	(0.2)	1.2	(0.4)	0.2	(0.2)	0.0	(0.0)	2.0	(0.4)	5.8	(0.7)
Ankle	10.0	(0.9)	1.8	(0.4)	1.1	(0.3)	2.2	(0.5)	1.1	(0.4)	0.0	(0.0)	1.4	(0.4)	17.6	(1.1)
Foot	1.0	(0.3)	1.1	(0.3)	1.9	(0.4)	1.7	(0.4)	0.1	(0.1)	0.0	(0.0)	2.8	(0.4)	8.6	(0.8)
Other	0.0	(0.0)	0.8	(0.3)	0.1	(0.1)	0.4	(0.2)	0.0	(0.0)	0.0	(0.0)	3.7	(0.6)	5.0	(0.7)
<b>Total</b>	<b>20.4</b>	<b>(1.1)</b>	<b>20.0</b>	<b>(1.1)</b>	<b>11.8</b>	<b>(0.9)</b>	<b>11.2</b>	<b>(0.9)</b>	<b>7.1</b>	<b>(0.7)</b>	<b>0.9</b>	<b>(0.3)</b>	<b>28.6</b>	<b>(1.3)</b>	<b>100.0</b>	

The shaded data have a relative standard error (RSE) of greater than 30% and should be used with caution as they do not meet the standards of reliability or precision. (RSE= standard error/percent injured x 100). Large RSE's are an indication there were too few respondents to ascertain any reliable statistical conclusions.

\*Type of Injury categories that had an overall total response rate of less than 2% were included in the 'Other' category ('Abrasion/Laceration', 'Contusion', and 'Blister'). Though 'Concussion' had a low response rate, it was left as a separate category due to its debilitating effect.

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### Summary of Table 18:

- Table 18 is a Barell-like matrix that presents the percent distribution of the injured body part (row headings) by the injury type (column headings) for the most serious SERA injury reported by the SMs.
- The most common types of injury were sprained joint (20 percent), strained muscle (20 percent), and tendonitis/bursitis (12 percent). The most common body parts injured were knee (23 percent), ankle (18 percent), and back (12 percent).
- The lower extremity (61 percent) was the body region most affected by SERA injuries. The upper extremities accounted for 18 percent of the most serious SERA injuries, the back 12 percent, and the head and neck 4 percent.
- The leading specific injuries were sprained ankle (10 percent), strained back (6 percent), sprained knee (5 percent), tendonitis/bursitis of the knee (5 percent), and shoulder dislocation/separation (4 percent).

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Table 19. Percent Distribution of Days of Limited Duty by Service for the Most Serious Sports, Exercise, and Recreational Activities Injury Sustained by Service Members, Active Duty Military, 2008

Days of Limited Duty	Army	Navy	Marine Corps	Air Force	Total
	Percent Injured (SE)				
0 Days	5.7 (1.2)	7.9 (1.8)	2.7 (0.7)	8.0 (1.3)	6.1 (0.7)
1 Day	22.0 (1.8)	31.8 (2.7)	17.6 (2.5)	35.6 (2.2)	26.0 (1.1)
2 to 7 Days	16.5 (1.7)	17.2 (2.3)	12.7 (2.4)	21.1 (1.9)	17.0 (1.0)
8 to 14 Days	17.2 (1.8)	13.1 (2.1)	23.5 (3.5)	10.9 (1.5)	16.2 (1.1)
≥ 15 Days	38.6 (2.2)	30.0 (2.9)	43.5 (3.8)	24.5 (2.0)	34.8 (1.4)
Total	100.0	100.0	100.0	100.0	100.0

### Summary of Table 19:

- Table 19 shows the days of limited duty (DLD) reported by SMs for their most serious SERA injury.
- Among all services, the two highest DLD categories were 1 day (Navy and Air Force) and 15 or more days (Army and Marine Corps), though the proportions were different for each service.
- The Navy and Air Force had a greater proportion of 1-7 days of limited duty (combined total for 1 day and 2–7 days: 49 percent and 57 percent, respectively) compared to the Army and Marine Corps (39 percent and 30 percent, respectively).
- Army and Marine Corps SMs had a greater proportion of 8 to 14 days of limited duty (17 percent and 24 percent) compared to Navy and Air Force (13 percent and 11 percent, respectively).
- Army and Marine Corps SMs had a greater proportion of 15 or more days of limited duty (39 percent and 44 percent, respectively) compared to Navy and Air Force (30 percent and 25 percent, respectively).

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Table 20. Percent Distribution of Days of Limited Duty by Gender for the Most Serious Sports, Exercise, and Recreational Activities Injury Sustained by Service Members, Active Duty Military, 2008

Days of Limited Duty	Male	Female	Total
	Percent Injured (SE)	Percent Injured (SE)	Percent Injured (SE)
0 Days	6.5 (0.8)	3.7 (1.1)	6.1 (0.7)
1 Day	27.1 (1.3)	20.2 (2.5)	26.0 (1.1)
2 to 7 Days	16.8 (1.1)	17.9 (2.6)	17.0 (1.0)
8 to 14 Days	16.1 (1.2)	16.5 (3.0)	16.2 (1.1)
≥ 15 Days	33.5 (1.5)	41.8 (3.7)	34.8 (1.4)
Total	100.0	100.0	100.0

### Summary of Table 20:

- Table 20 shows the percent distribution of days of limited duty (DLD) by gender for the most serious SERA injury sustained by SMs.
- Overall, the most common category of DLD was 15 or more days. The next common category was 1 day.
- A higher proportion of females had 15 or more days of limited duty (42 percent) compared to males (34 percent).
- A higher proportion of males had 0 days or 1 day of limited duty (7 percent and 27 percent respectively) compared to females (4 percent and 20 percent respectively).

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Table 21. Percent Distribution of Days of Limited Duty by Injured Body Part for the Most Serious Sports, Exercise, and Recreational Activities Injury Sustained by Service Members, Active Duty Military, 2008

Body Part Injured	0 Days	1 Day	2 to 7 Days	8 to 14 Days	≥ 15 Days	Total
	Percent Injured (SE)	Percent Injured				
Head	5.2 (2.4)	47.7 (8.0)	9.8 (4.6)	12.3 (5.3)	25.1 (7.4)	100.0
Neck	0.4 (0.4)	33.5 (10.1)	28.5 (10.4)	9.7 (6.9)	28.0 (11.0)	100.0
Back (upper or lower)	9.0 (2.5)	24.3 (3.0)	23.1 (3.0)	13.5 (3.2)	30.0 (3.5)	100.0
Shoulder	8.3 (2.5)	28.1 (3.5)	14.5 (2.9)	8.1 (2.0)	41.1 (4.3)	100.0
Arm/elbow	5.2 (3.0)	26.2 (6.2)	16.8 (7.6)	14.6 (6.8)	37.2 (8.8)	100.0
Wrist/hand	8.4 (2.5)	33.9 (4.8)	13.7 (3.7)	11.3 (3.6)	32.8 (5.4)	100.0
Hip	4.1 (2.5)	24.8 (6.2)	13.9 (6.0)	14.9 (6.8)	42.3 (8.4)	100.0
Thigh	5.6 (2.6)	31.3 (7.1)	24.4 (8.7)	21.0 (6.9)	17.7 (5.7)	100.0
Knee	4.7 (1.3)	24.6 (2.4)	15.8 (2.0)	18.8 (2.5)	36.1 (2.8)	100.0
Lower leg/calf	6.1 (3.2)	23.6 (4.8)	14.6 (3.8)	16.5 (4.8)	39.2 (5.9)	100.0
Ankle	5.5 (1.6)	20.3 (2.7)	19.0 (2.6)	20.3 (3.1)	34.9 (3.6)	100.0
Foot	7.3 (2.6)	25.6 (3.7)	13.4 (3.2)	18.1 (3.4)	35.7 (4.7)	100.0
Other	2.4 (1.4)	27.6 (6.3)	20.2 (5.5)	18.6 (5.6)	31.3 (6.6)	100.0

The shaded data have a relative standard error (RSE) of greater than 30% and should be used with caution as they do not meet the standards of reliability or precision. (RSE= standard error/percent injured x 100). Large RSE's are an indication there were too few respondents to ascertain any reliable statistical conclusions.

### Summary of Table 21:

- Table 21 shows the number of days of limited duty (DLD) by body part injured for the most serious SERA injury.
- Overall, the highest DLD category for most body parts was 15 or more days, except for the head, neck, wrist/hand, and thigh which had 1 day as the most common.
- The percent of SERA injuries that required 0 days of limited duty was very small, ranging from 0.4 percent of neck injuries to 9 percent for back injuries.
- Back injuries: 47 percent required 1–7 DLD (combined total for 1 day and 2–7 days), 14 percent required 8–14 days of limited duty, and 30 percent required at least 15 DLD.
- Shoulder injuries: 43 percent required 1-7 days of limited duty (combined total for 1 day and 2–7 days), 8 percent required 8–14 days of limited duty, and 41 percent required at least 15 days of limited duty.
- Knee injuries: 40 percent required 1–7 days of limited duty (combined total for 1 day and 2–7 days), 19 percent required 8–14 days of limited duty, and 36 percent required at least 15 days of limited duty.
- Ankle injuries: 39 percent required 1–7 days of limited duty (combined total for 1 day and 2–7 days), 20 percent required 8–14 days of limited duty, and 35 percent required at least 15 days of limited duty.
- Foot injuries: 39 percent required 1–7 days of limited duty (combined total for 1 day and 2–7 days), 18 percent required 8–14 days of limited duty, and 36 percent required at least 15 days of limited duty.

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Table 22. Percent Distribution of Days of Limited Duty by Injury Type for the Most Serious Sports, Exercise, and Recreational Activities Injury Sustained by Service Members, Active Duty Military, 2008

Type of Injury	0 Days	1 Day	2 to 7 Days	8 to 14 Days	≥ 15 Days	Total
	Percent Injured (SE)	Percent Injured				
Sprained joint	7.3 (1.6)	26.0 (2.5)	19.5 (2.4)	18.4 (2.4)	28.8 (3.0)	100.0
Strained muscle	8.4 (2.0)	33.5 (2.7)	25.2 (2.5)	14.2 (2.2)	18.7 (2.4)	100.0
Tendonitis or bursitis	6.1 (1.6)	34.1 (3.5)	12.1 (2.4)	16.6 (3.3)	31.0 (3.7)	100.0
Fracture (broken bone)	3.5 (1.4)	16.9 (3.0)	10.3 (2.1)	17.8 (3.5)	51.5 (4.4)	100.0
Joint dislocation/separation	4.5 (2.4)	17.2 (3.8)	13.6 (3.8)	11.3 (3.9)	53.4 (5.4)	100.0
Concussion	0.0 (0.0)	43.7 (15.6)	10.1 (7.8)	13.5 (9.9)	32.8 (15.8)	100.0
Other*	5.3 (1.1)	22.8 (2.2)	15.1 (1.9)	16.4 (2.2)	40.5 (2.7)	100.0

The shaded data have a relative standard error (RSE) of greater than 30% and should be used with caution as they do not meet the standards of reliability or precision. (RSE= standard error/percent injured x 100). Large RSE's are an indication there were too few respondents to ascertain any reliable statistical conclusions.

\*Type of Injury categories that had a total response rate of less than 2% were included in the 'Other' category ('Abrasion/Laceration', 'Contusion', and 'Blister'). Though 'Concussion' had a low response rate, it was left as a separate category due to its debilitating effect.

### Summary of Table 22:

- Table 22 shows the percent distribution of days of limited duty (DLD) by injury type for the most serious SERA injury.
- The most common category of limited duty days for sprained joint, fracture, and joint dislocation/separation was 15 or more days, whereas the most common category was 1 DLD for strained muscle, tendonitis, and concussion.
- Fractures and joint dislocations/separations resulted in longer lost duty time: 69 percent and 65 percent respectively required 8 or more days of lost time compared to only 31 percent and 35 percent respectively of 0 to 7 days of lost time.

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Table 23. Percent Distribution by Service of Activity Service Member Was Participating In when the Most Serious Sports, Exercise, and Recreational Activities Injury Occurred, Active Duty Military, 2008

Activity Participating In when Injury Occurred	Army		Navy		Marine Corps		Air Force		All Services	
	Percent Injured	(SE)								
Running or jogging (outdoors)	50.2	(2.3)	33.2	(2.8)	50.6	(3.7)	41.3	(2.2)	45.1	(1.4)
Weight training	6.4	(1.0)	8.9	(1.7)	6.6	(1.5)	9.6	(1.4)	7.6	(0.7)
Basketball	7.3	(1.1)	10.1	(1.8)	3.5	(1.0)	8.6	(1.3)	7.5	(0.7)
Touch or flag football	4.8	(1.0)	6.0	(1.4)	4.4	(1.7)	5.6	(1.1)	5.1	(0.6)
Martial arts	4.5	(1.0)	3.0	(1.1)	9.1	(2.0)	1.1	(0.5)	4.3	(0.6)
Softball or baseball	1.5	(0.4)	6.3	(1.6)	1.3	(0.8)	5.9	(1.1)	3.3	(0.4)
Soccer	2.0	(0.6)	3.6	(1.1)	5.4	(1.7)	3.6	(0.9)	3.2	(0.5)
Outdoor recreation (e.g., hiking, mountain/rock climbing)	2.0	(0.7)	2.0	(0.7)	5.1	(2.2)	1.8	(0.6)	2.5	(0.5)
Motorized sports (e.g., ATV, snowmobile, motor cross)	0.5	(0.3)	3.3	(1.3)	4.8	(1.6)	2.2	(0.8)	2.2	(0.4)
Volleyball	1.4	(0.6)	2.0	(0.7)	0.1	(0.1)	2.2	(0.7)	1.5	(0.3)
Calisthenics or gymnastics	1.4	(0.4)	2.0	(0.8)	0.1	(0.0)	2.1	(0.6)	1.4	(0.3)
Bicycling outdoors (not on a stationary bike)	1.0	(0.4)	2.0	(0.9)	0.7	(0.3)	1.6	(0.6)	1.3	(0.3)
Snow sports (e.g., skiing, snowboarding, sledding, tubing)	0.4	(0.2)	0.8	(0.3)	0.6	(0.4)	3.2	(0.8)	1.1	(0.2)
Racquet sports (e.g., tennis, racquetball)	0.5	(0.3)	2.7	(0.7)	0.2	(0.2)	1.0	(0.4)	1.0	(0.2)
Brisk walking outdoors for exercise	1.5	(0.6)	0.4	(0.2)	0.0	(0.0)	0.6	(0.4)	0.9	(0.3)
Stationary aerobic equipment (e.g., bike, treadmill, elliptical machine)	0.6	(0.3)	2.2	(0.8)	0.0	(0.0)	0.6	(0.3)	0.8	(0.2)
Water sports (e.g., water skiing, boating, swimming)	0.1	(0.1)	2.3	(1.0)	0.3	(0.2)	0.3	(0.2)	0.6	(0.2)
Skating (e.g., ice/roller skating, rollerblading, skateboarding)	0.2	(0.1)	0.3	(0.3)	1.7	(1.1)	0.4	(0.3)	0.5	(0.2)
Horseback riding	0.7	(0.5)	0.0	(0.0)	0.0	(0.0)	0.4	(0.3)	0.4	(0.2)
Other	12.8	(1.6)	8.9	(1.8)	5.8	(1.4)	8.0	(1.2)	9.8	(0.8)
Total	100.0		100.0		100.0		100.0		100.0	

The shaded data have a relative standard error (RSE) of greater than 30% and should be used with caution as they do not meet the standards of reliability or precision. (RSE= standard error/percent injured x 100). Large RSE's are an indication there were too few respondents to ascertain any reliable statistical conclusions.

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### Summary of Table 23:

- Table 23 shows the percent distribution by service of what activity SMs were participating in when they sustained their most serious SERA injury.
- Overall for all services combined, the most common activities SMs were participating in when they sustained their most serious SERA injury were running (45 percent), weight training (8 percent), basketball (8 percent), and touch/flag football (5 percent), and martial arts (4 percent). Overall those activities accounted for approximately 70 percent of the most serious SERA injuries.
- The rank order and percentage of these activities differed for each service.
- Overall, 45 percent of the most serious injuries were sustained due to running. Fifty percent and 51 percent, respectively, of the injuries among Army and Marine Corps SMs were due to running. Running was also the most common injury-related activity for SMs in the Navy (33 percent) and Air Force (41 percent).
- The second most common activity was basketball among Army and Navy SMs, martial arts among Marine Corps SMs, and weight training among Air Force SMs.
- Responses to the 'Other' category included physical training (PT), combatives, Frisbee/ultimate Frisbee, rugby, dodge ball, wrestling, aerobics/cross fit, bowling, hiking/walking, and weight training.
- Approximately 10 percent of all the respondents checked 'Other' on the survey. Many of the answers written in were not unique answers but corresponded to one of the activities listed. For example, running, calisthenics, and weight training were listed as possible responses to the question but written-in responses included physical training, PT, pushups, and sit ups. Examples of other written-in responses included combatives, Frisbee, rugby, dodge ball, wrestling, and bowling.

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Table 24. Percent Distribution by Gender of Activity Service Member Was Participating In when the Most Serious Sports, Exercise, and Recreational Activities Injury Was Sustained, Active Duty Military, 2008

Activity Participating In when Injury Occured	Male		Female		Total	
	Percent Injured	(SE)	Percent Injured	(SE)	Percent Injured	(SE)
Running or jogging (outdoors)	42.6	(1.5)	58.1	(3.5)	45.1	(1.4)
Weight training	8.1	(0.7)	4.8	(1.5)	7.6	(0.7)
Basketball	8.5	(0.8)	2.0	(0.8)	7.5	(0.7)
Touch or flag football	5.8	(0.7)	1.8	(1.0)	5.1	(0.6)
Martial arts	4.7	(0.7)	1.8	(1.1)	4.3	(0.6)
Softball or baseball	3.7	(0.5)	1.5	(0.6)	3.3	(0.4)
Soccer	3.3	(0.5)	2.8	(1.2)	3.2	(0.5)
Outdoor recreation (e.g., hiking, mountain/rock climbing)	1.9	(0.5)	5.4	(2.1)	2.5	(0.5)
Motorized sports (e.g., ATV, snowmobile, motor cross)	2.5	(0.5)	0.5	(0.4)	2.2	(0.4)
Volleyball	1.7	(0.4)	0.5	(0.3)	1.5	(0.3)
Calisthenics or gymnastics	1.3	(0.3)	2.0	(0.6)	1.4	(0.3)
Bicycling outdoors (not on a stationary bike)	1.4	(0.3)	0.6	(0.3)	1.3	(0.3)
Snow sports (e.g., skiing, snowboarding, sledding, tubing)	1.2	(0.3)	0.8	(0.4)	1.1	(0.2)
Racquet sports (e.g., tennis, racquetball)	1.1	(0.3)	0.3	(0.2)	1.0	(0.2)
Brisk walking outdoors for exercise	0.7	(0.3)	1.5	(0.6)	0.9	(0.3)
Stationary aerobic equipment (e.g., bike, treadmill, elliptical machine)	0.6	(0.2)	2.0	(0.7)	0.8	(0.2)
Water sports (e.g., water skiing, boating, swimming)	0.7	(0.3)	0.2	(0.1)	0.6	(0.2)
Skating (e.g., ice/roller skating, rollerblading, skateboarding)	0.5	(0.3)	0.4	(0.4)	0.5	(0.2)
Horseback riding	0.4	(0.3)	0.4	(0.3)	0.4	(0.2)
Other	9.3	(0.9)	12.7	(2.4)	9.8	(0.8)
Total	100.0		100.0		100.0	

The shaded data have a relative standard error (RSE) of greater than 30% and should be used with caution as they do not meet the standards of reliability or precision. (RSE= standard error/percent injured x 100). Large RSE's are an indication there were too few respondents to ascertain any reliable statistical conclusions.

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### Summary of Table 24:

- Table 24 shows the percent distribution by gender for the activity SMs were participating in when they sustained their most serious SERA injury.
- Overall, running was the most commonly reported activity for males (43 percent) and females (58 percent).
- The top five most common activities for males included basketball (9 percent), weight training (8 percent), touch/flag football (6 percent), and martial arts (5 percent).
- The top five most common activities for females included outdoor recreation (e.g., hiking, rock climbing) (5 percent), weight training (5 percent), soccer (3 percent), and basketball (2 percent), calisthenics/gymnastics (2 percent), and stationery aerobic equipment (2 percent).
- Though statistical conclusions cannot be drawn from the weighted percent distributions (except for 'Running' and 'Other') for females due to small counts, the percentages still provide insight into the activities they were participating in when they sustained their most serious SERA injury.
- Approximately 10 percent of all the respondents checked 'Other' on the survey. Many of the answers written in were not unique answers but corresponded to one of the activities listed. For example, running, calisthenics, and weight training were listed as possible responses to the question but written-in responses included physical training, PT, pushups, and sit ups. Examples of other written-in responses included combatives, Frisbee, rugby, dodge ball, wrestling, and bowling.

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Table 25a. Percent Distribution by Service of Location and Sponsorship where Service Members Reported Their Most Serious SPORTS Injury Occurred, Active Duty Military, 2008

Location of Sports Play when Injured	Army	Navy	Marine Corps	Air Force	All Services
	Percent Injured (SE)				
On post, scheduled unit-level leagues (MWR sponsored intramurals)	26.6 (4.1)	27.9 (4.5)	19.2 (4.7)	32.6 (4.1)	27.1 (2.2)
Unit-sponsored organizational days	15.7 (3.6)	29.3 (4.7)	30.2 (6.8)	11.4 (2.8)	20.4 (2.2)
On post, unsupervised sports play (pick-up game)	19.4 (3.8)	19.0 (3.7)	10.3 (2.9)	28.4 (4.0)	19.9 (2.0)
Off post, unsupervised sports play	6.8 (2.6)	10.3 (3.3)	14.0 (6.3)	3.9 (1.6)	8.2 (1.7)
Off post, league play (recreation or church league)	3.0 (1.6)	9.4 (3.4)	2.7 (2.2)	9.0 (2.3)	5.9 (1.2)
Installation-level competitions (e.g., area, conference, All-Service)	8.6 (2.3)	1.7 (1.5)	2.0 (1.3)	6.7 (2.2)	5.4 (1.1)
Other	19.9 (3.9)	2.4 (1.2)	21.5 (6.1)	8.0 (2.5)	13.0 (1.9)
Total	100.0	100.0	100.0	100.0	100.0

Table 25b. Percent Distribution by Service of Location and Sponsorship where Service Members Reported Their Most Serious EXERCISE Injury Occurred, Active Duty Military, 2008

Location of Exercise when Injured	Army	Navy	Marine Corps	Air Force	All Services
	Percent Injured (SE)				
Unit-level physical training, not at a post gym or fitness center	58.7 (2.8)	27.0 (4.1)	50.3 (5.0)	23.1 (2.6)	44.6 (1.8)
Unit-level physical training, at a post gym or fitness center	13.3 (1.9)	28.0 (3.8)	7.8 (2.5)	35.8 (2.9)	19.5 (1.4)
Personal exercise, not at a post gym or fitness center	13.2 (1.9)	17.8 (2.9)	25.6 (4.2)	15.2 (2.0)	16.5 (1.3)
Personal exercise, at a post gym or fitness center	10.5 (1.5)	25.8 (3.5)	12.6 (2.6)	23.1 (2.5)	16.0 (1.2)
Other	4.3 (1.2)	1.5 (0.8)	3.7 (2.2)	2.8 (1.0)	3.4 (0.7)
Total	100.0	100.0	100.0	100.0	100.0

The shaded data have a relative standard error (RSE) of greater than 30% and should be used with caution as they do not meet the standards of reliability or precision. (RSE= standard error/percent injured x 100). Large RSE's are an indication there were too few respondents to ascertain any reliable statistical conclusions.

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### Summary of Table 25:

- Tables 25a and 25b present the percent distributions by service for the self-reported place of occurrence and sponsorship for SMs' most serious sports injury (Table 25a) or exercise-related injury (Table 25b). Unlike the other tables in this report, Table 25a is specific to sports play and Table 25b is specific to exercise.

### Table 25a: Sports Play

- The three most common locations where SMs sustained their most serious SERA injury while playing sports were on base participating in scheduled unit-level leagues (27 percent), unit-sponsored organizational days (20 percent), and on base participating in unsupervised sports play (20 percent).
- For the Army and Air Force, 27 percent and 33 percent of SMs, respectively, sustained their most serious sports injury while on base participating in unit-level leagues, 19 percent and 28 percent, respectively, were on base playing unsupervised sports, and 16 percent and 11 percent, respectively, were participating in unit-sponsored organizational days.
- Navy and Marine Corps, 29 percent and 30 percent of SMs, respectively, sustained their most serious sports injury while participating in unit-sponsored organizational days, 28 percent and 19 percent, respectively, were on base playing in unit-level leagues, and 19 percent and 10 percent, respectively, were playing unsupervised sports on base.
- Overall, the majority of sports injuries (67 percent) occurred on post.

### Table 25b: Exercise

- Overall, approximately 45 percent of SMs across the services sustained their exercise-related injury while participating in unit-level physical training, not at a post gym or fitness center.
- Army and Marine Corps SMs most often sustained their most serious exercise injury while participating in unit-level physical training that was not at the post gym/fitness center (59 percent and 50 percent, respectively).
- The percentages for the Navy and Air Force were more evenly distributed between the four location/sponsorship categories with unit-level physical training at a post gym/fitness center accounting for the highest proportions (28 percent and 36 percent, respectively).
- The majority of exercise injuries (64 percent) occurred during unit-level physical training.

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Table 26. Percentage by Service of Factors Identified by Service Members to be Related to the Most Serious Sports, Exercise, and Recreational Activities Injury, Active Duty Military, 2008

Factors Related to the Most Serious SERA Injury*	Army	Navy	Marine Corps	Air Force	All Services
	Percent Injured (SE)				
Playing, running, exercise, or other <b>surface</b> (e.g., court, field, baseball diamond, road, trail) was poorly maintained or inadequate (e.g., poorly constructed, slippery, uneven, rocky, pot holes)	33.8 (2.2)	27.2 (2.8)	28.5 (3.5)	24.7 (2.0)	29.7 (1.3)
Too <b>aggressive play</b> by me or others	21.0 (1.9)	22.8 (2.5)	17.2 (2.5)	18.5 (1.8)	20.2 (1.1)
<b>Environmental factors</b> (e.g., temperature, rain, snow)	19.0 (1.9)	16.0 (2.3)	9.7 (2.2)	9.2 (1.3)	14.8 (1.0)
<b>Poor lighting</b> for outdoor activity	11.6 (1.4)	4.7 (1.3)	6.8 (1.8)	4.8 (1.1)	8.0 (0.8)
<b>Shoes and/or clothing were not appropriate</b> for the activity (e.g., wearing running shoes to play basketball)	5.4 (1.1)	7.5 (1.7)	8.6 (2.3)	7.0 (1.2)	6.7 (0.7)
I was <b>out of shape</b> for the activity	6.5 (1.1)	6.4 (1.5)	5.3 (2.0)	3.7 (0.8)	5.7 (0.7)
<b>Un-officiated sports play</b> (no referee or umpire)	5.7 (1.1)	8.4 (1.7)	4.2 (1.4)	4.3 (1.0)	5.6 (0.6)
<b>Inadequate or improper protective equipment</b> (e.g., eyewear, mouth guards, mitt, glove, reflective vest/belt, shin guards, spotter, weight clamp)	3.9 (0.9)	6.6 (1.7)	4.4 (1.5)	1.8 (0.6)	4.1 (0.6)
<b>Improper use of exercise or recreational equipment</b> by me or others	3.2 (0.9)	3.0 (1.1)	3.4 (1.5)	2.5 (0.7)	3.0 (0.5)
Other	23.7 (2.0)	22.1 (2.5)	18.7 (2.9)	21.3 (1.8)	22.0 (1.2)

The shaded data have a relative standard error (RSE) of greater than 30% and should be used with caution as they do not meet the standards of reliability or precision. (RSE= standard error/percent injured x 100). Large RSE's are an indication there were too few respondents to ascertain any reliable statistical conclusions.

\*Respondents could select more than one risk factor; therefore, percentages do not total 100%.

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### Summary of Table 26:

- Table 26 lists the self-reported factors related to the occurrence of SMS' most serious injury by service.
- For all services combined, the most common factor related to the most serious SERA injury was due to a poorly maintained or inadequate surface (30 percent), followed by too aggressive play (20 percent), and then environmental factors (15 percent), but the proportions were different between services.
- The environs of the location of injury (which includes surface conditions, weather conditions, and lighting conditions) accounted for the majority of the SERA injuries: Army-64 percent; Navy-48 percent; Marine Corps-45 percent; and Air Force-39 percent.
- Too aggressive play was the second most common factor across each service.
- Twenty-two percent of all respondents checked 'Other' on the survey. Many of the written-in answers were not unique but corresponded to a factor listed on the survey. Examples of written-in answers were overuse/wear and tear, getting old, an accident, lifting too much weight, running too much, landed wrong on foot/ankle, inadequate warm-up/stretching, aggravated previous injury, over training, fatigue, fall, and inexperience with activity.

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Table 27. Percentage by Gender of Factors Identified by Service Members to be Related to the Most Serious Sports, Exercise, and Recreational Activities Injury, Active Duty Military, 2008

Factors Related to the Most Serious SERA Injury*	Male	Female	Total
	Percent Injured (SE)	Percent Injured (SE)	Percent Injured (SE)
Playing, running, exercise, or other <b>surface</b> (e.g., court, field, baseball diamond, road, trail) was poorly maintained or inadequate (e.g., poorly constructed, slippery, uneven, rocky, pot holes)	27.6 (1.4)	40.9 (3.6)	29.7 (1.3)
Too <b>aggressive play</b> by me or others	20.4 (1.2)	18.8 (2.9)	20.2 (1.1)
<b>Environmental factors</b> (e.g., temperature, rain, snow)	13.9 (1.1)	19.4 (2.8)	14.8 (1.0)
<b>Poor lighting</b> for outdoor activity	7.4 (0.8)	11.3 (2.2)	8.0 (0.8)
<b>Shoes and/or clothing were not appropriate</b> for the activity (e.g., wearing running shoes to play basketball)	6.4 (0.8)	8.6 (2.1)	6.7 (0.7)
I was <b>out of shape</b> for the activity	5.3 (0.7)	7.5 (2.3)	5.7 (0.7)
<b>Un-officiated sports play</b> (no referee or umpire)	6.1 (0.7)	3.2 (1.1)	5.6 (0.6)
<b>Inadequate or improper protective equipment</b> (e.g., eyewear, mouth guards, mitt, glove, reflective vest/belt, shin guards, spotter, weight clamp)	4.1 (0.6)	3.7 (1.3)	4.1 (0.6)
<b>Improper use of exercise or recreational equipment</b> by me or others	3.4 (0.6)	1.1 (0.6)	3.0 (0.5)
Other	21.2 (1.2)	26.4 (3.2)	22.0 (1.2)

The shaded data have a relative standard error (RSE) of greater than 30% and should be used with caution as they do not meet the standards of reliability or precision. (RSE= standard error/percent injured x 100). Large RSE's are an indication there were too few respondents to ascertain any reliable statistical conclusions.

\*Respondents could select more than one risk factor; therefore, percentages do not total 100%.

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### Summary of Table 27:

- Table 27 lists the factors SMs reported were related to their most serious SERA injury occurrence by gender.
- Both males and females reported the same factors (surface condition, too aggressive play, and weather) were related to their most serious SERA injury though the percent distributions were somewhat different.
- Twenty-eight percent of males reported a poorly maintained or inadequate surface was a factor compared to 41 percent of females.
- Proportions were similar for both genders regarding too aggressive play: males 20 percent and females 19 percent.
- Twenty-two percent of all respondents checked 'Other' on the survey. Many of the written-in answers were not unique but corresponded to a factor listed on the survey. Examples of written-in answers were overuse/wear and tear, getting old, an accident, lifting too much weight, running too much, landed wrong on foot/ankle, inadequate warm-up/stretching, aggravated previous injury, over training, fatigue, fall, and inexperience with activity.

## 7. DISCUSSION.

a. This is the first known report of SERA injury incidence among the military services. It describes the incident injuries and SERA injuries cited by Active Duty SMs (Air Force, Army, Marine Corps, and Navy) who completed the April 2008 Status of Forces Survey of Active Duty Members. From 24 March to 1 May 2008, 10,692 Active Duty SMs responded to survey questions on any injuries and SERA injuries that they experienced over the prior 12 months. Among these Active Duty SM respondents, 49 percent reported sustaining any injury (one or more injuries of any type), and 25 percent reported sustaining a SERA injury (one or more SERA injuries) in the past 12 months. The Marine Corps had the highest proportion of SMs with a SERA injury (33 percent), followed by the Army (29 percent), Air Force (22 percent), and Navy (20 percent).

b. In the adjusted analyses, the following factors were associated with higher odds of SERA injury: age 31 and over, dissatisfaction with military life, more than usual levels of personal stress, more than usual levels of work stress, and working longer than normal duty hours (11–20, 21–60, and 121 or more work days in the past year). The SMs in the Marine Corps tended to also have higher odds of SERA injury compared to Army SMs, but this finding was not statistically significant (OR=1.22, p=0.66). Serving in the Air Force or Navy (compared to Army), senior enlisted and officer (including warrant officer) rank, and deployment (three times since 9/11 or more than 30 days in past 24 months) were associated with lower odds of SERA injury.

c. Psychological and work-related factors are important but often overlooked potential contributors to injuries. In this study, SMs who were dissatisfied/very dissatisfied with military life had a 74 percent greater likelihood of any injury and 38 percent greater likelihood of SERA injury than SMs who were satisfied with military life. There was a trend for increasing odds of any injury with higher categories of number of days worked longer than normal duty hours in the past year. For SERA injury, there were higher odds for those who worked more than normal duty hours on 11–20 days, 21 to 60 days, and 121 or more days. Although the temporal relationship between the injury and risk factor in this study cannot be established, several civilian studies have shown a relationship between increased work strain or stress and occupational injuries.<sup>7,9</sup> Among athletes, psychological factors, such as stress, can be predictive of injuries and may also impact rehabilitation and return to play.<sup>17</sup> A military study found those with higher anxiety/tension scores had an increased risk of traumatic injury.<sup>18</sup>

d. Sports and physical training injuries have been a leading cause of nonbattle injury among SMs deployed to Iraq and Afghanistan, accounting for 21 percent of nonbattle injury between 2001 and 2008.<sup>5</sup> Interestingly, we found there was a 20 percent lower odds of SERA injury among those who deployed longer than 30 consecutive days in the

past 24 months and 25 percent lower odds among those who deployed three times since 9/11. Those who deploy or deploy more times may be healthier compared to those who were not able to deploy in the first place because of medical reasons.

e. Consistent with military and civilian studies, there was 37 percent greater adjusted odds of any injury among women compared to men. However, there was no significant difference for the odds of SERA injury. Women did report a higher proportion of SERA injuries due to running compared to men. Females also had proportionately more limited duty for over 14 days compared to males. Several military studies have found higher injuries rates among women especially for basic training related injuries. Women were also more than twice as likely to get injured in training environments.<sup>14,19,20</sup> For studies of sports and training-related injuries, women have been found to be at higher risk of injury compared to men. However, several studies showed that when physical fitness was controlled for in the model, there was no longer a gender difference.<sup>21,22</sup> In a study of Marine recruits, differences in injury rates were attributed to symptom reporting.<sup>23</sup> According to a review article, risk factors for exercise-related injury among women are poorly understood, especially how they act in combination.<sup>24</sup>

f. In the multivariable logistic regression model for demographics, age was an independent risk factor for any injury and for SERA injury. The highest likelihood for injury and SERA injury was among the oldest age groups (31–40 years and more than 40 years old). In military studies, there are different results on age depending on the population and type of environment studied. For recruits, studies have shown that incidence of injury increases with age.<sup>25,26</sup> These individuals are required to do the same physical activity and live and eat in the same environment regardless of age. In other settings training requirements vary, as senior enlisted or officers may be less likely to be involved in physical training on a regular basis. Injury incidence among these older individuals decrease with age as there is less overall exposure.<sup>27</sup>

g. Rank was also an independent risk factor for any injury and for SERA injury in the multivariable analyses, but there was no evidence for an age-rank interaction (data not shown). Warrant officers, junior officers O1–O3, and senior officers O4–O6 had 32 percent, 50 percent, and 46 percent lower odds of any injury compared to enlisted SMs E1–E3. Compared to enlisted SMs E1–E3, there were lower odds of SERA injury for senior enlisted SMs (39 percent), warrant officers (44 percent), junior officers (41 percent), and senior officers (38 percent). Lower odds of any injury for senior enlisted and officer SMs may reflect differences in their work-related exposure to injury risks in their duty assignments. Differences in the types of off-duty activity engaged in by senior enlisted and officer SMs may also contribute to their lower odds of any injury. Similar differences in work assignments and types of SERA activities in which they engage may

account for the officers having lower odds of SERA injury. They may also be less likely to participate in unit-based physical training and sports compared to enlisted SMs.

h. There are very few reports in the scientific literature on rank as a risk factor for injury as most studies have focused on basic training recruits or junior enlisted SMs. A report was identified in which students (E1–O5 and warrant officers) in airborne training completed a survey that included a question about injuries (of any cause and type) they experienced during the previous year.<sup>28</sup> In this study, rank was not an independent risk factor for injury in the past year. Two reports on students during airborne training evaluated rank as a risk factor for injury during jump week. Rank was an independent risk factor for injury in one of these reports.<sup>28,29</sup>

i. Differences by service were not the primary objective of this report, but some of the findings may merit further evaluation including the location of injury as mentioned above. A higher proportion of injuries due to running were reported by SMs in the Army and Marine Corps compared to those in the Navy and Air Force. As mentioned previously, Marine Corps SMs cited a higher proportion of fractures as their most common injury type. Days of limited duty over 14 days were highest for Marine Corps and lowest for Air Force. There has been no previous study that evaluated each of the military services in the context of sports injuries. There are several studies, however, that evaluated different aspects of military training or exercise-related injuries. There have been fewer military studies that have evaluated injuries in the context of specific sports, exercise, or recreational activities.<sup>11,30-32</sup> A study of injury-specific hospitalization rates from 1980–1992 (Army, Air Force, Navy) demonstrated that overall injury hospitalization rates were highest for the Army, as were the rates for sports-related injuries.<sup>33</sup> Another study evaluated Active Duty Army personnel who were admitted to a hospital for sports and physical training injuries from 1989–1994 and reported different injury types by sport and gender.<sup>11</sup>

j. The most commonly reported body part injured were knees and ankles among all services. Sprained joints and strained muscles were the two most common injury types among all SMs, with the exception of Marine Corps SMs who cited sprained joints and fractures as the two most common injury types. A matrix of injury types by location of injury in this report demonstrated the most predominant SERA injuries among Active Duty SMs. Sprained ankles accounted for the highest proportion of SERA injuries (10 percent), followed by strained back (6 percent), sprained knee (5 percent), and tendonitis/bursitis of the knee (5 percent). Examining the literature, knee and ankle injuries are among the most common in sports, but there are some differences depending on population and injury acuity (inpatient or outpatient setting). In the study of sports injury hospitalizations by Lauder, Baker, Smith, and Lincoln (2000), anterior cruciate ligament (ACL) sprains (knee) and meniscus tears (knee) were the top two

injuries.<sup>11</sup> Ankle sprains and iliotibial band syndrome (knee) were the most reported injuries in a study of Marine Corps recruits.<sup>23</sup> Ruscio et al (2010) found that injuries affecting the lower extremity were the most common (41 percent) and, of these, the most common types were sprains and strains.<sup>3</sup> Cameron, Owens, and DeBerardino (2010) found that the incidence of ankle sprains among military SMs was five times higher than that reported among civilian populations.<sup>34</sup>

k. The highest proportion of DLD for more than 2 weeks was attributed to injuries such as fractures and dislocations/separations (“traumatic injuries”) which is consistent with prior studies.<sup>27,35</sup> On the other hand, higher proportions of sprained joints, strained muscles, and tendonitis/bursitis required 0 to 14 days of limited duty than other injury types. A study by Reynolds et al (2009) showed that traumatic injuries especially among Special Forces soldiers led to more lost duty time and prolonged rehabilitation.<sup>35</sup> Ruscio et al (2010) estimated the number of DLD for the leading types of injury among military SMs.<sup>3</sup> They estimated that fractures of the lower extremity and upper extremity result in at least 120 and 90 days, respectively, of limited duty per injury. Overuse injuries (pain, inflammation) result in 14 to 22 DLD. Considering all injuries among SMs (all causes), Ruscio et al (2010) reported that lower extremity overuse injury (pain, inflammation, and stress fractures) was the injury type (any injury) that accounted for the most DLD for SMs followed by lower extremity fractures.<sup>3</sup> These reports give us further insight to the overall impact on the DLD related to injuries from participation in sports, exercise, and recreation among SMs.

l. Running or jogging was by far the most frequently reported activity cited by SMs in each service as the cause of their most serious SERA injury. Among SMs who reported having had two or three serious SERA injuries in the past 12 months, running was also the leading activity for 38 percent and 33 percent, respectively (data not shown). Though other activities accounted for much smaller proportions of the total injuries, some of the more common activities included weight training, basketball, and touch or flag football. Most military studies have examined injuries in relation to specific sports or training and there are very few studies on the types of activity that contributed to these injuries. Lauder et al (2000) found that football and basketball led to the highest rate of hospitalized sports injuries among men in the military services while physical training and basketball led to the highest rates among women.<sup>11</sup> Studies of physical training injuries have demonstrated that running can result in almost 30 percent of the total injuries.<sup>36</sup>

m. Army and Air Force SMs reported their most serious *sports* injury occurring on post during scheduled unit-level leagues followed by on post during unsupervised sports play. Navy and Marine Corps SMs reported their most serious sports injuries occurred during unit-sponsored organizational days, followed by on post scheduled unit-level

leagues. These differences may reflect differences in the ways services conduct their sports activities. For their most serious *exercise-related* injury, Army and Marine Corps SMs cited that the injury occurred most frequently during unit level physical training not conducted at a post gym or fitness center while Navy and Air Force SMs reported the injuries occurred during unit level physical training at a post gym or fitness center. Although no service-based comparisons have been published on location where injuries occurred, these findings may reflect differences in service specific factors that include training policy, emphasis on physical fitness, types and availability of facilities, and emphasis on intramural leagues for sports play.

n. The most commonly reported factors related to the most serious SERA injury were: (1) surface (for sports play, running, or exercises) was poorly maintained or inadequate, followed by, (2) “too aggressive play,” and (3) environmental factors including excessive temperatures (i.e., heat or cold) and poor lighting. Poorly maintained or inadequate surface was reported more frequently by Army SMs compared to other SMs. This factor was also reported more commonly by women compared to men and enlisted compared to officers. Although the most commonly related factor (poorly maintained surface) may likely be related to running injuries, “too aggressive play” and “environmental factors” may be related to several of the other SERA. Modifiable risk factors for military training injuries have been well-studied and have included high running mileage, previous injury, lower fitness level, and various biomechanical factors.<sup>13-14,25-26,37,38-41</sup> In fact, beyond the established survey responses to this category, common “other” responses were running, prior injury, acute injury, and overuse/cumulative injury.

o. There are several limitations to this report. The full survey was long with 155 questions, of which questions 137 through 147 were on injuries. The responses were self-reported. Respondents who wished to provide input on a specific question but did not see their response listed often indicated “other” and entered a text response. These responses contained useful information but, unfortunately, could not be categorized with those in the tables due to the responses often being very unique or containing several pieces of information (multiple types of injuries or sports). Although the survey requested injuries over the past 12 months, respondents may have been more likely to report injuries that occurred most recently (recall bias). Survey respondents may have also been more likely to report injuries that were more severe in nature even if occurring almost a year ago.

p. Because of the study design, temporal relationships cannot be determined between the injuries and various factors, such as deployment, work stress, and number of days worked more hours than a normal duty day. There were also a limited number of survey questions on potential risk factors for any injury or SERA injury. Finally, the

number of those reporting SERA injuries may have been too low to detect any significant difference among selected groups, especially among women.

q. This was the first broad look at incidence of SERA injuries across all military services (Army, Air Force, Navy, Marine Corps), despite the limitations. This report identified the leading SERA activities related to injury among Active Duty SMs and factors which contributed to these injuries. Because of the survey methodology used, it allowed estimation of injury incidence for each military service. The survey included many relevant variables associated with the incidence of injuries (age, gender, education, work, personal stress, etc). Because some of these variables could overlap (such as years of service, pay grade, and age), we were able to evaluate for multicollinearity in the analyses and therefore did not include redundant variables in the final model.

r. Because SERA injuries greatly affect the military services, injury prevention strategies are essential. A number of injury prevention strategies for physical training were evaluated through a systematic review process by the Joint Services Physical Training Injury Prevention Work Group.<sup>42-43</sup> According to this work group, the six injury prevention strategies in Table 28 were found to have sufficient scientific evidence to recommend to all services. Though the work group focused on physical training injury prevention, these recommendations are also appropriate when training for or participating in sports activities. In the above mentioned working group's evaluation, many other frequently espoused injury prevention strategies could not be recommended because of lack of scientific evidence, conflicting evidence, or, in several cases, evidence of harm. There were still several injury prevention guidelines that will require further evaluation.<sup>42-43</sup>

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Table 28. Physical Training Recommendations from the Joint Services Physical Training Injury Prevention Workgroup<sup>42-43</sup>

Injury Prevention Strategy	General or Sport-Specific	References*
Prevent overtraining (guidance includes reduction in running duration/frequency, gradual introduction of running mileage, use of interval training, and allow for recovery)	Primarily physical training and running	46, 47, 48, 49
Perform multiaxial, neuromuscular, proprioceptive, and agility training	General	50, 51, 52, 53, 54, 55
Wear mouthguards during high-risk activities	High-risk/contact activities such as football, basketball, boxing, combatives, hockey, and martial arts	56, 57
Wear semi-rigid ankle braces for high-risk activities	Activities such as basketball and soccer	58, 59, 60, 61, 62
Consume nutrients to restore energy balance within 1 hour of high-intensity activity	Continuous, strenuous activity	63, 64, 65, 66, 67, 68
Wear synthetic-blend socks to prevent blisters	General	69, 70, 71

\*A complete literature review for each of the injury prevention guidelines can also be found in the JSPTIPW report.<sup>43</sup>

s. Additional sport-specific evidence-based recommendations are provided in Table 29. In a recent analysis of 12,000 articles on sports injury prevention (including civilian and military studies), Klugl et al (2010) found that articles studying changes in sports rules and regulations were the least common (<1 percent) compared to those on training and equipment.<sup>44</sup> Officiating and enforcement of sport-specific or military regulations (such as heat injury prevention guidelines) may be of increasing importance given the high prevalence of sports and training injuries previously reported in deployed environments.<sup>45</sup>

Table 29. Sport-Specific Injury Prevention Recommendations

Injury Prevention Strategy	Sports	References
Use breakaway bases	Baseball/softball	72, 73, 74
Wear appropriate helmet	Bicycling, skating, skate boarding, snow skiing, all-terrain vehicles, baseball/softball, etc.	75, 76, 77, 78, 79
Wear approved eye protection	High risk sports such as racquet sports, lacrosse, and basketball	80, 81, 82, 83
Wear U.S. Coast Guard-approved life jacket	Kayaking, canoeing, fishing, tubing, and swimming in open water	84, 85

t. In addition to education of military SMs and leadership on these evidence-based injury prevention strategies, accurate reporting of injury data is the other key element. Because injury data is not being captured through cause-coding, this survey provides the best estimate on SERA injuries to date. This survey showed that several potential factors may be associated with higher or lower odds for any injury and/or SERA injury. Despite its limitations, this survey was able to capture a large spectrum of injury data, to include relevant demographic data and other potential risk factors of interest, and the most common sports, exercise, and recreational activities that cause injuries.

## 8. CONCLUSIONS.

a. In this first known report of incident SERA injuries among the military services, one quarter of Active Duty SMs reported a SERA injury in the past year. Furthermore, the Marine Corps had the highest proportion of SERA injuries (33 percent), followed by the Army (29 percent), Air Force (22 percent), and Navy (20 percent). Personal stress, long work hours, and older age were associated with higher odds of SERA injury. On the other hand, serving in the Air Force or Navy (compared to Army), senior enlisted and officer rank, deployment (three times since 9/11 or more than 30 days in past 24 months), and satisfaction with military life were associated with a lower odds of SERA injury. Sprained ankles accounted for the highest proportion of injuries. Running or jogging outdoors was by far the activity most frequently cited as the cause of the most serious SERA injury. Inadequate or poorly maintained surface, “too aggressive play,” and environmental factors were the most frequently reported factors contributing to SERA injuries.

b. Understanding the incidence of SERA injuries and their risk factors is essential for development of regulations and injury prevention strategies. Results from this survey are important because there is currently insufficient reporting of cause of injury and SERA injury from medical encounters. Findings from this survey also identify factors that should be addressed to decrease SERA-related injuries and where more research is needed. Finally, evidence-based injury recommendations, as described above, should be emphasized to SMs and their leadership among all services.

9. RECOMMENDATIONS. Based on findings in this report, the following recommendations are provided to prevent sports and physical training injuries, to focus on the importance of cause coding, and to highlight areas for future research:

a. Focus on evidence-based physical training injury prevention guidelines, including—

- (1) Prevent overtraining.
- (2) Perform multi-axial, neuromuscular, proprioceptive, and agility training.
- (3) Wear semi-rigid ankle braces for high-risk activities to prevent ankle injuries.
- (4) Use mouthguards to prevent orofacial injuries.
- (5) Replace nutrients to restore energy balance within 1 hour of high-intensity activity.
- (6) Wear of synthetic-blend socks to prevent blisters.

b. Encourage use of the following sport and activity-based recommendations:

- (1) Use break-away bases in softball/baseball.
- (2) Wear appropriate helmet while skating and skiing and while riding bicycles and all-terrain vehicles.
- (3) Wear approved eye-protection for high-risk activities such as racquet sports and basketball.
- (4) Wear U.S. Coast Guard-approved life jacket while in open water and while boating.

c. Improve injury surveillance for SERA injuries by including external cause coding for all medical encounters, especially outpatient visits.

d. Continue research efforts to explore service-specific differences and the role of other risk factors, including fair play (avoid over-aggressive play in unofficiated sports play), deployment, stress, job satisfaction, gender, and other military and demographic factors of SERA injuries.

10. POINT OF CONTACT.

The point of contact at USAPHC is Keith G. Hauret, Injury Prevention Program, Epidemiology and Disease Surveillance Portfolio, DSN 584-4655 or commercial (410) 426-4655 or by electronic mail [keith.hauret@us.army.mil](mailto:keith.hauret@us.army.mil).



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APPENDIX A

REFERENCES

1. Army Medical Surveillance Activity. May/June 2004. Frequencies and characteristics of medical evacuations of soldiers by air (with emphasis on non-battle injuries), Operations Enduring Freedom/Iraqi Freedom (OEF/OIF), January-November 2003. *Medical Surveillance Monthly Report (MSMR)* 10(3):8-12.
2. Armed Forces Health Surveillance Center. April 2010. Absolute and relative morbidity burdens attributable to various illness and injuries, U.S. Armed Forces, 2009. *Medical Surveillance Monthly Report (MSMR)* 17(4):16-21.
3. Ruscio BA, Jones BH, Bullock SH, Burnham BR, Canham-Chervak M, Rennix CP, Wells TS, and Smith JW. 2010. A process to identify military injury prevention priorities based on injury type and limited duty days. *Am J Prev Med* 38(1 Suppl):S19-33.
4. Jones BH, Canham-Chervak M, Canada S, Mitchener TA, and Moore S. 2010. Medical surveillance of injuries in the U.S. military: descriptive epidemiology and recommendations for improvement. *Am J Prev Med* 38(1 Suppl):S42-60.
5. Hauret KG, Taylor BJ, Clemmons NS, Block SR, and Jones BH. 2010. Frequency and causes of nonbattle injuries air evacuated from Operations Iraqi Freedom and Enduring Freedom, U.S. Army, 2001-2006. *Am J Prev Med* 38(1 Suppl):S94-107.
6. Canham-Chervak M, Hooper TI, Brennan FH Jr, Craig SC, Girasek DC, Schaefer RA, Barbour G, Yew KS, and Jones BH. 2010. A systematic process to prioritize prevention activities sustaining progress toward the reduction of military injuries. *Am J Prev Med* 38(1 Suppl):S11-8.
7. Gillen M, Yen IH, Trupin L, Swig L, Rugulies R, Mullen K, Font A, Burian D, Ryan G, Janowitz I, Quinlan PA, Frank J, and Blanc P. 2007. The association of socioeconomic status and psychosocial and physical workplace factors with musculoskeletal injury in hospital workers. *Am J Ind Med* 50(4):245-60.
8. Rugulies R and Krause N. 2005. Job strain, iso-strain, and the incidence of low back and neck injuries. A 7.5-year prospective study of San Francisco transit operators. *Soc Sci Med* 61(1):27-39.

Injury Prevention Report No. 12-HF-0DPT-08

9. Zontek TL, Isernhagen JC, and Ogle BR. 2009. Psychosocial factors contributing to occupational injuries among direct care workers. *AAOHN J* 57(8):338-47.
10. Williams JO, Bell NS, Senier L, and Amoroso PJ. 2001. Behavioral and demographic risk factors for sport-related injuries among U.S. Army soldiers, 1987-1998. *Med Sci Sports Exerc* 33(5)(Supplement 1):S81.
11. Lauder TD, Baker SP, Smith GS, and Lincoln AE. 2000. Sports and physical training injury hospitalizations in the army. *Am J Prev Med* 18(3 Suppl):118-28.
12. Hauret, KG, Shippey DL, and Knapik JJ. 2001. The physical training and rehabilitation program: duration of rehabilitation and final outcome of injuries in basic combat training. *Mil Med* 166(9):820-6.
13. Jones BH and Knapik JJ. 1999. Physical training and exercise-related injuries. Surveillance, research and injury prevention in military populations. *Sports Med* 27(2):111-25.
14. Knapik JJ, Sharp MA, Canham-Chervak M, Hauret K, Patton JF, and Jones BH. 2001. Risk factors for training-related injuries among men and women in basic combat training. *Med Sci Sports Exerc* 33(6):946-54.
15. Department of Defense. Human Resources Strategic Assessment Program, Defense Manpower Data Center. 2009. *April 2008 Status of Forces Survey of Active Duty Members: Administration, Datasets, and Codebook* (Report No. 2008-027).
16. U. S. Department of Health and Human Services (DHHS). Centers for Disease Control and Prevention, National Center for Health Statistics. 2008. DHHS Publication No. 2008-1033. *Injury in the United States: 2007 Chartbook*. Washington, DC: Government Printing Office.
17. American College of Sports Medicine. 2006. Psychological issues related to injury in athletes and the team physician: a consensus statement. *Med Sci Sports Exerc* 38(11):2030-4.
18. Gregg RL, Banderet LE, Reynolds KL, Creedon JF, and Rice VJ. 2002. Psychological factors that influence traumatic injury occurrence and physical performance. *Work* 18(2):133-9.

Injury Prevention Report No. 12-HF-0DPT-08

19. Snedecor MR, Boudreau CF, Ellis BE, Schulman J, Hite M, and Chambers B. 2000. U.S. Air Force recruit injury and health study. *Am J Prev Med* 18(3 Suppl):129-40.
20. Strowbridge NF. 2002. Musculoskeletal injuries in female soldiers: analysis of cause and type of injury. *J R Army Med Corps* 148(3):256-8.
21. Bell NS, Mangione TW, Hemenway D, Amoroso PJ, and Jones BH. 2000. High injury rates among female army trainees: a function of gender? *Am J Prev Med* 18(3 Suppl):141-6.
22. Blacker SD, Wilkinson DM, Bilzon JLJ, and Rayson MP. 2008. Risk Factors for training injuries among British army recruits. *Mil Med* 173(3):278-6.
23. Almeida SA, Trone DW, Leone DM, Shaffer RA, Patheal SL, and Long K. 1999. Gender differences in musculoskeletal injury rates: a function of symptom reporting? *Med Sci Sports Exerc* 31(12):1807-12.
24. Centers for Disease Control and Prevention. 2000. Exercise-related injuries among women: strategies for prevention from civilian and military studies. *MMWR* 49(No. RR-2):15-33.
25. Reynolds KL, White JS, Knapik JJ, Witt CE, and Amoroso PJ. 1999. Injuries and risk factors in a 100-mile (161-km) infantry road march. *Prev Med* 28(2):167-73.
26. Jones BH, Cowan DN, Tomlison JP, Robinson JR, Polly DW, and Frykman PN. 1993. Epidemiology of injuries associated with physical training among young men in the army. *Med Sci Sports Exerc* 25(2):197-203.
27. Knapik J, Ang P, Reynolds, K, Jones B. 1993. Physical fitness, age, and injury incidence in infantry soldiers. *J Occup Environ Med* 35(6):598-603.
28. USACHPPM. 2007. USACHPPM Report No. 12-MA01Q2-08B. Risk Factors for parachute injuries and airborne student observations on the parachute ankle brace. (Prepared by Knapik JJ, Spiess A, Darakjy S, Grier T, Manning F, Swedler D, Amoroso P, and Jones BH.)
29. USAPHC. 2011. USAPHC Epidemiological Report No. 12-HF-17G072-10. Military airborne training injuries and injury risk factors, Fort Bragg North Carolina, June-December 2010. (Prepared by Knapik JJ, Steelman R, Hoedebecke N, Grier T, Graham B, Klug K, Rankin S, Proctor S, and Jones BH.)

Injury Prevention Report No. 12-HF-0DPT-08

30. Burnham BR, Copley GB, Shim MJ, Kemp PA, and Jones BH. 2010. Mechanisms of flag-football injuries reported to the HQ Air Force Safety Center: a 10-year descriptive study, 1993-2002. *Am J Prev Med* 38(1 Suppl):S141-7.
31. Burnham BR, Copley GB, Shim MJ, and Kemp PA. 2010. Mechanisms of basketball injuries reported to the HQ Air Force Safety Center: a 10-year descriptive study, 1993-2002. *Am J Prev Med* 38(1 Suppl):S134-40.
32. Burnham BR, Copley GB, Shim MJ, Kemp PA, and Jones BH. 2010. Mechanisms of slow-pitch softball injuries reported to the HQ Air Force Safety Center: a 10-year descriptive study, 1993-2002. *Am J Prev Med* 38(1 Suppl):S126-33.
33. Smith GS, Dannenberg AL, and Amoroso PJ. 2000. Hospitalization due to injuries in the military. Evaluation of current data and recommendations on their use for injury prevention. *Am J Prev Med* 18(3):41-53.
34. Cameron, KL, Owens BD, and DeBerardino TM. 2010. Incidence of ankle sprains among active-duty members of the United States Armed Services from 1998 through 2006. *J Athl Train* 45(1):29-38.
35. Reynolds K, Cosio-Lima L, Bovill M, Tharion W, Williams J, and Hodges T. 2009. A comparison of injuries, limited-duty days, and injury risk factors in infantry, artillery, construction engineers, and Special Forces soldiers. *Mil Med* 174(7):702-8.
36. Smith TA, Cashman TM. Incidence of injury in light infantry soldiers. 2002. *Mil Med* 167(2):104-8.
37. Kaufman KR, Brodine S, and Shaffer R. 2000. Military training-related injuries: surveillance, research, and prevention. *Am J Prev Med* 18(3 Suppl):54-63.
38. Heir T and Eide G. 1996. Age, body composition, aerobic fitness and health condition as risk factors for musculoskeletal injuries in conscripts. *Scand J Med Sci Sports* 6(4):222-7.
39. Jones BH, Bovee MW, Harris JM 3rd, and Cowan DN. 1993. Intrinsic risk factors for exercise-related injuries among male and female army trainees. *Am J Sports Med* 21(5):705-10.
40. Jones BH, Shaffer RA, and Snedecor MR. 1999. Chapter 6. Injuries treated in outpatient clinics: surveys and research data. *Mil Med* 164(8 Suppl):1-89.

Injury Prevention Report No. 12-HF-0DPT-08

41. USACHPPM. 2008. Epidemiological Report No. 12-HF-05SR-05. Injuries and physical fitness before and after deployments of the 10th Mountain Division to Afghanistan and the 1st Cavalry Division to Iraq September 2005 – October 2008. (Prepared by Knapik JJ, Spiess A, Grier TL, Lester ME, Sharp MA, Tobler SK, Swedler DI, and Jones BH).
42. Bullock SH, Jones BH, Gilchrist J, and Marshall SW. 2010. Prevention of physical training-related injuries recommendations for the military and other active populations based on expedited systematic reviews. *Am J Prev Med* 38(1 Suppl):S156-81.
43. USACHPPM. 2008. USACHPPM Report No. 21-KK-08QR-08. Recommendations for prevention of physical training (PT)-related injuries: results of a systematic evidence-based review by the Joint Services Physical Training Injury Prevention Work Group (JSPTIPWG). (Prepared by Bullock SH and Jones BH.)
44. Klugl M, Shrier I, McBain K, Shultz R, Meeuwisse WH, Garza D, and Matheson GO. 2010. The prevention of sports injury: an analysis of 12,000 published manuscripts. *Clin J Sports Med* 20(6):407-12.
45. USACHPPM. 2008. Injury Prevention Report No. 12-HF-0AN7b-09. Development and Results of an Injury Cause-Coded Database for Deployment Injury Surveillance – Air Force, Marines, and Navy October 2001–May 2008. (Prepared by Hauret K.)
46. Knapik JJ, Bullock SH, Canada S, Toney E, Wells JD, Hoedebecke E, and Jones BH. 2004. Influence of an injury reduction program on injury and fitness outcomes among soldiers. *Inj Prev* 10(1):37-42.
47. Knapik JJ, Hauret KG, Arnold S, Canham-Chervak M, Mansfield AJ, Hoedebecke EL, and McMillian D. 2003. Injury and fitness outcomes during implementation of physical readiness training. *Int J Sports Med* 24(5):372-81.
48. Rudzki SJ and Cunningham MJ. 1999. The effect of a modified physical training program in reducing injury and medical discharge rates in Australian Army recruits. *Mil Med* 164(9):648-52.
49. Kibler WB, Chandler TJ, and Stracener ES. 1992. Musculoskeletal adaptations and injuries due to overtraining. *Exerc Sport Sci Rev* 20:99-126
50. Cochrane JL, Lloyd DG, Besier TF, Elliott BC, Doyle TLA, and Ackland TR. 2010. Training affects knee kinematics and kinetics in cutting maneuvers in sport. *Med Sci Sports Exerc* 42(8):1535-44.

51. Hrysomallis C. 2007. Relationship between balance ability, training and sports injury risk. *Sports Med* 37(6):547-56.
52. Hübscher M, Zech A, Pfeifer K, Hänsel F, Vogt L, and Banzer W. 2010. Neuromuscular training for sports injury prevention: a systematic review. *Med Sci Sports Exerc* 42(3):413-21.
53. Verhagen E, van der Beek A, Twisk J, Bouter L, Bahr R, and van Mechelen W. 2004. The effect of a proprioceptive balance board training program for the prevention of ankle sprains: a prospective controlled trial. *Am J Sports Med* 32(6):1385-93.
54. Hewett TE, Myer GD, and Ford KR. 2005. Reducing knee and anterior cruciate ligament injuries among female athletes: a systematic review of neuromuscular training interventions. *J Knee Surg* 18(1):82-8.
55. Yeung EW and Yeung S. 2001. Interventions for preventing lower limb soft-tissue injuries in runners. *Cochrane Database Syst Rev.* (3):CD001256.
56. Knapik JJ, Jones SB, Darakjy S, Hauret KG, Bullock SH, Sharp MA, and Jones BH. 2007. Injury rates and injury risk factors among U.S. Army wheel vehicle mechanics. *Mil Med* 172(9):988-96.
57. dela Cruz GG, Knapik JJ, and Birk MG. 2008. Evaluation of mouthguards for the prevention of orofacial injuries during United States Army basic military training. *Dent Traumatol* 24(1):86-90.
58. Amoroso PJ, Bell NS, Smith GS, Senier L, and Pickett D. 2000. Viewpoint: A comparison of cause-of-injury coding in U.S. military and civilian hospitals. *Am J Prev Med* 18(3 Suppl):164-73.
59. Milgrom C, Shlamkovitch N, Finestone A, Eldad A, Laaor A, Danon YL, Lavie O, Wosk J, and Simkin A. 1991. Risk factors for lateral ankle sprains: a prospective study among military recruits. *Foot Ankle* 12(1):26-30.
60. Sitler M, Ryan J, Wheeler B, McBride J, Arciero R, Anderson J, and Horodyski M. 1994. The efficacy of a semirigid ankle stabilizer to reduce acute ankle injury in basketball. *Am J Sports Med* 22:454-61.
61. Sharpe S, Knapik J, and Jones B. 1997. Ankle braces effectively reduce recurrence of ankle sprains in female soccer players. *J Athl Train* 32(1):21-24.

62. Thacker SB, Stroup DF, Branche CM, Gilchrist J, Goodman RA, and Weitman EA. 1999. The prevention of ankle sprains in sports. A systematic review of the literature. *Am J Sports Med* 27(6):753-60.
63. Waterman BR, Belmont PJ Jr, Cameron KL, Deberardino TM, and Owens BD. 2010. Epidemiology of ankle sprain at the United States Military Academy. *Am J Sports Med* 38(4):797-803.
64. Hawley JA, Tipton KD, and Millard-Stafford ML. 2006. Promoting training adaptations through nutritional interventions. *J Sports Sci* 24(7):709-21.
65. Flakoll PJ, Judy T, Flinn K, Carr C, and Flinn S. 2004. Postexercise protein supplementation improves health and muscle soreness during basic military training in Marine recruits. *J Appl Physiol* 96(3):951-6.
66. Bloomer RJ, Goldfarb AH, McKenzie MJ, You T, and Nguyen L. 2004. Effects of antioxidant therapy in women exposed to eccentric exercise. *Int J Sport Nutr Exerc Metab* 14(4):377-88.
67. Ivy JL, Goforth HW, Jr., Damon BM, McCauley TR, Parsonos EC, and Price TB. 2002. Early postexercise muscle glycogen recovery is enhanced with a carbohydrate-protein supplement. *J Appl Physiol* 93(4):1337-44.
68. Ivy JL, Res PT, Sprague RC, and Widzer MO. 2003. Effect of a carbohydrate-protein supplement on endurance performance during exercise of varying intensity. *Int J Sport Nutr Exerc Metab* 13(3):382-95.
69. Reynolds K, Williams J, Miller C, Mathis A, and Dettori J. 2000. Injuries and risk factors in an 18-day Marine winter mountain training exercise. *Mil Med* 165(12):905-10.
70. Knapik JJ, Hamlet MP, Thompson KJ, and Jones BH. 1996. Influence of boot sock systems on frequency and severity of foot blisters. *Mil Med* 161(10):594-8.
71. Jagoda A, Madden H, and Hinson C. 1981. A friction blister prevention study in a population of Marines. *Mil Med* 146(1):42-4.
72. Pollack KM, Canham-Chervak M, Gazal-Carvaiho C, Jones BH, and Baker SP. 2005. Interventions to prevent softball related injuries: a review of the literature. *Inj Prev* 11(5):277-81.

Injury Prevention Report No. 12-HF-0DPT-08

73. Janda DH, Bir C, and Kedroske B. 2001. A comparison of standard vs. breakaway bases: an analysis of a preventative intervention for softball and baseball foot and ankle injuries. *Foot Ankle Int* 22(10):810-6.
74. Janda DH, Wojtys EM, Hankin FM, Benedict ME, and Hensinger RN. 1990. A three-phase analysis of the prevention of recreational softball injuries. *Am J Sports Med* 18(6):632-5.
75. American Academy of Orthopedic Surgeons. 2010. Position Statement. *Winter Sports Safety and Helmet Use*. <http://www.aaos.org/about/papers/position/1152.asp> (accessed June 22, 2010).
76. Bowman SM, Aitken ME, Helmkamp KJ, Maham SA, and Graham CJ. 2009. Impact of helmets on injuries to riders of all-terrain vehicles. *Inj Prev* 15(1):3-7.
77. McGeehan J, Shields BJ, and Smith GA. 2004. Children should wear helmets while ice-skating: a comparison of skating-related injuries. *Pediatrics* 114(1):124-8.
78. Thompson DC, Rivara FP, and Thompson R. 2000. Helmets for preventing head and facial injuries in bicyclists. *Cochrane Database Syst Rev* (2):CD001855.
79. Centers for Disease Control and Prevention. 1995. Injury control recommendations: bicycle helmets. *MMWR* 44 (No. RR-1):1-18.
80. American Academy of Pediatrics and American Academy of Ophthalmology. 2004. Policy statement: protective eyewear for young athletes. *Pediatrics* 113(3 Pt 1):619–22; Reaffirmed Feb 2008.
81. Rodriguez JO, Lavina AM, and Agarwal A. 2003. Prevention and treatment of common eye injuries in sports. *Am Fam Physician* 67(7):1481-8.
82. Zigelbaum BM, Starkey C, Hersh PS, Donnerfeld ED, Perry HD, and Jeffers JB. 1995. The National Basketball Association eye injury study. *Arch Ophthalmol* 113(6):749-52.
83. Jones NP. 1987. Eye Injuries in sports: an increasing problem. *Br J Sports Med* 21(4):168-70.
84. Weiss, J. 2010. Technical Report—Prevention of Drowning. *Pediatrics*. <http://pediatrics.aappublications.org/content/early/2010/05/24/peds.2010-1265> (accessed June 22, 2010).

85. Quan L, Bennet E, Cummings P, Trusty M, and Treser C. 1998. Are life vests worn? A multiregional observational study of personal flotation device use in small boats. *Inj Prev* 4(3):203-205.



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November 18, 2009

MEMORANDUM FOR MAJ Sheryl Bedno, MC, USA

SUBJECT: USUHS IRB #1 (FWA 00001628; DoD Assurance P60001) Approval of C0874F-01 for Human Subjects Participation

Congratulations! The Initial Review for your human subjects research protocol was reviewed and approved for execution on 18 November 2009 by Margaret Pickerel as an EXEMPT protocol under the provision of 32 CFR 219.101(b)(4) . This approval will be reported to the USUHS IRB #1 scheduled to meet on 10 December 2009.

This project uses de-identified data (2008 Status of Forces Survey) collected by the Defense Manpower Data Center (DMDC) to: (1) estimate the occurrence of injuries; (2) describe the types and causes of injury; and (3) identify injury risk factors from participation in sports, exercise, and recreational activities among active duty service members using data from the April 2008 Status of Forces Survey of Active Duty Members.

You are required to submit amendments to this protocol, changes to the informed consent document (if applicable), adverse event reports, and other information pertinent to human research for this project in IRBNet. No changes to this protocol may be implemented prior to IRB approval. If you have questions regarding this IRB action or questions of a more general nature concerning human participation in research, please contact Margaret Pickerel at (301) 295-3836 or mpickerel@usuhs.mil.

Margare Pickerel

Exemption Determination Official

This document has been signed electronically .

"Electronic Signature Notice: In accordance with the "Government Paperwork Elimination Act" (GPEA) (Pub.L. 105-277; codified at 44 USC 3504); Federal and DOD applicable instructions, directives and regulations, documents have been electronically signed and authorized by all who have been required to do so. These signatures have the same effect as their paper-based counterparts. Verification is retained within our protected electronic records and audit trails."



*Information and Technology for Better Decision Making*

# **April 2008 Status of Forces Survey of Active Duty Members**

## **Survey Instrument**

# Survey Instrument

**DMDC**

**Human Resources Strategic Assessment Program  
(HRSAP)**  
*Information and Technology for Better Decision Making*

- You have reached the redirect page for Department of Defense Human Resources Strategic Assessment Program (HRSAP) surveys. You will be redirected to our contractor's web site (a secure .com site run by Data Recognition Corporation) to participate in the survey.
- Please enter your Ticket Number below, then click the Continue button to access your survey.

- If you are not automatically transferred, click on the link below:  

<http://www.dodsurvey.net/>

**Certification**

Authorities: [10 USC 1782](#)

Sponsor: [Office of the Under Secretary of Defense for Personnel and Readiness](#)

Report Control Number: DD-P&R(AR) 2145

Contract: M67004-04-D-0018

Survey Results: <http://www.dmhc.osd.mil/surveys>

 **tatus Of Forces Surveys**

**April 2008 Status of Forces Survey of Active Duty Members**

[Security Protection Advisory](#)

[RCS#DD-P&R\(AR\)2145](#)  
[Exp. 5/31/08](#)

**Welcome!**

Thank you for your participation. You have been selected to take a survey on your attitudes and perceptions of personnel policies. When you click the Continue button below, you will be asked to:

- Create a personal PIN #.
- Read the Privacy Act Statement.
- Answer some questions giving us your attitudes and opinions about military life.

Thank you, again, for your time and participation.

[Frequently Asked Questions / How to Contact Us](#)

**PRIVACY ACT STATEMENT & INFORMED CONSENT INFORMATION FOR  
APRIL 2008 STATUS OF FORCES SURVEY OF ACTIVE DUTY MEMBERS**

In accordance with the Privacy Act, this notice informs you of the purpose of the Status of Forces Surveys and how the findings of these surveys will be used. It also provides information about the Privacy Act and about informed consent. Please read it carefully.

**AUTHORITY:** 10 United States Code, Sections 136, 1782, and 2358.

**PRINCIPAL PURPOSE:** Information collected in this survey will be used to research attitudes and perceptions about personnel programs and policies. This information will assist in the formulation of policies which may be needed to improve the working environment. Reports will be provided to the Office of the Secretary of Defense, each Military Department, and the Joint Chiefs of Staff. Findings will be used in reports and testimony provided to Congress. Some findings may be published by the Defense Manpower Data Center (DMDC) or in professional journals, or presented at conferences, symposia, and scientific meetings. Data could be used in future research and datasets without any identifying information may be analyzed by researchers outside of DMDC. Briefings and reports on results from these surveys will be posted on the Web, for example at: <http://www.dmdc.osd.mil/surveys/>. In none of these cases will survey responses be reported for identifiable individual(s).

**ROUTINE USES:** None.

**DISCLOSURE:** Providing information on this survey is voluntary. Most people can complete the survey in 30 minutes or less. There is no penalty or loss of benefits to which you are entitled if you choose not to respond. However, maximum participation is encouraged so that the data will be complete and representative. Your survey responses will be treated as confidential. Identifying information will be used only by government and contractor staff engaged in, and for purposes of, the survey research. For example, the research oversight office of the Office of the Under Secretary of Defense (Personnel and Readiness) and representatives of the U.S. Army Medical Research and Materiel Command are eligible to review research records as a part of their responsibility to protect human subjects in research. This survey is being conducted for research purposes. If you answer any items and indicate distress or being upset, etc., you will not be contacted for follow-up purposes. However, if a direct threat to harm yourself or others is found in survey comments or communications about the survey, DMDC is legally required to forward information about that threat to an office in your area for appropriate action.

**SURVEY ELIGIBILITY AND POTENTIAL BENEFITS:** DMDC uses well-established, scientific procedures to select a sample that represents the Defense community. This sampling procedure sets up clusters of people based on combinations of demographic characteristics (e.g., location, gender). You were selected at random from one of these clusters of people. This is your chance to be heard on issues that directly affect you. While there is no direct benefit for your individual participation, your answers on a survey **make a difference**. For example, results from previous surveys have played an important role in deliberations on pay rate adjustments, cost of living and housing allowances, and morale and retention programs.

**STATEMENT OF RISK:** The data collection procedures are not expected to involve any risk or discomfort to you. The only risk to you is accidental or unintentional disclosure of the data you provide. However, the government and its contractors have a number of policies and procedures to ensure that survey data are safe and protected. For example, no identifying information (name, address, Social Security Number) is ever stored in the same file as survey responses. Survey data may be shared with organizations doing research on DoD personnel but only after minimizing detailed demographic data (for example, paygrade and detailed location information) that could possibly be used to identify an individual. A confidentiality analysis is performed to reduce the risk of there being a combination of demographic variables that can single out an individual. Some variables are randomly set to missing. Government and contractor staff members have been trained to protect client identity and are subject to civil penalties for violating your confidentiality.

If you experience any problem with the survey, please e-mail [ADSurvey@osd.pentagon.mil](mailto:ADSurvey@osd.pentagon.mil) or call, toll-free, at 1-800-881-5307. If you have concerns about your rights as a research participant, please contact Ms. Caroline Miner, Certified IRB Professional, HRPP Program Manager for the Office of the Under Secretary of Defense (P&R), 5113 Leesburg Pike, Skyline 4, Suite 901, Falls Church, VA 22041, [HRPP@tma.osd.mil](mailto:HRPP@tma.osd.mil), (703) 575-2677, Fax (703) 578-8501.

Click 'continue' if you agree to do the survey. Once you start answering the survey, if you desire to withdraw your answers, please notify the Survey Processing Center prior to April 28, 2008 by sending an e-mail to [ADSurvey@osd.pentagon.mil](mailto:ADSurvey@osd.pentagon.mil) or leave a message, toll-free, at 1-800-881-5307. Please include in the e-mail or phone message your name, Ticket Number, and the PIN that you selected when you started this survey. Unless withdrawn, partially completed survey data may be used after that date.

## HOW TO CONTACT US

If you have questions or concerns about this survey, you have three ways to contact the Survey Operations Center:

- Call 1-800-881-5307
- Or
- E-mail: [ADSurvey@osd.pentagon.mil](mailto:ADSurvey@osd.pentagon.mil)
- Or
- Fax: 1-763-268-3002

## FREQUENTLY ASKED QUESTIONS

### What is the Status of Forces Survey (SOFS) Program?

- SOFS is a Department of Defense (DoD) personnel survey program that features Web-based surveys sponsored by the Under Secretary of Defense for Personnel and Readiness (USD[P&R]).
- These surveys enable the DoD, on a regular basis, to quickly and accurately gauge the attitudes and opinions of the entire DoD community—Active Duty, Reserve component members, and DoD civilian employees—on the full range of personnel issues.

### How do I know this is an official, approved DoD survey?

- In accordance with DoD Instruction 8910.01, all data collection in the Department must be licensed and show that license as a Report Control Symbol (RCS) with an expiration date. The RCS for the SOFS is DD-P&R(AR)2145, expiring 05/31/2008.
- If you need verification that this is a legitimate survey, DoD or other government phones with DSN can be used to call 426-7427 for a list of current data collections by licensed Defense Manpower Data Center (DMDC) surveys. If you do not have access to a DSN telephone line, you can call 1-703-696-7427. This phone line does not accept messages nor does it list surveys being conducted by any other office.

### Why should I participate?

- This is your chance to be heard on issues that directly affect you. Some examples of topics include: quality of life, retention, retirement, and satisfaction.
- Your answers on this survey *make a difference*. For example, results from previous surveys have played an important role in deliberations on pay rate adjustments, cost of living and housing allowances, and morale and retention programs.

### What is DMDC?

- The Defense Manpower Data Center (DMDC) maintains the largest archive of personnel, manpower, training, and financial data in DoD. It also conducts Joint-Service surveys and operates the Status of Forces Survey Program for the DoD. To learn more, visit the DMDC Web site.

<http://www.dmdc.osd.mil/>

### How did you pick me?

- We use well-established, scientific procedures to select a sample that represents the Defense community.
- This sampling procedure sets up clusters of people based on combinations of demographic characteristics (e.g., location, gender). You were selected at random from one of these clusters of people.

### Why am I being asked to use the Web?

- Web administration enables us to get survey results to senior Defense leaders faster.

### Why are you using a .net instead of a .mil domain to field your survey?

- This survey is administered by our contractor, Data Recognition Corporation, an experienced survey operations company. The survey program starts off on a .mil site within DMDC. However, to make access to the survey as easy as possible for everyone including users from a non-government computer, each person is redirected to a contractor site which uses a .net domain.

### Do I have to take the survey in one sitting?

- No, it is not necessary to complete the survey in one sitting. Just click the "Save and Return Later" button and the work you completed will be saved.
- When you return to the survey Web site, enter your Ticket Number and PIN to get to the place in the survey where you had stopped.

**Can I withdraw my answers once I have started the survey on the Web?**

- Once you start answering the survey, if you desire to withdraw your answers, please notify the Survey Processing Center prior to April 28, 2008 by sending an e-mail to [ADSurvey@osd.pentagon.mil](mailto:ADSurvey@osd.pentagon.mil) or call, toll-free, at 1-800-881-5307. Please include your name, Ticket Number, and the PIN that you selected when you started this survey.

**Why does the survey ask personal questions?**

- DMDC reports not only overall results, but also results by location, gender, etc. To complete these analyses, we must ask respondents for these types of demographic information.
- Analyzing results in this way provides Defense leaders information about the attitudes and concerns of all subgroups of personnel (e.g., US/Overseas, males/females) so that no groups are overlooked.
- Sensitive questions are sometimes also asked about topics like personal finances. Such information will be used to improve personnel policies, programs, and practices. As with all questions on the surveys, your responses will be held in confidence.

**Will my answers be kept private?**

- Your privacy will be safeguarded in accordance with the Privacy Act of 1974 (Public Law 93-579).
- Only group statistics will be reported. Individual data will not be disclosed.

**Will I ever see the results of the survey?**

- This survey's briefings and reports will be posted on the following Web site:  
<http://www.dmdc.osd.mil/surveys/>

**What is ADSurvey@osd.pentagon.mil?**

- The official e-mail address for communicating with Active Duty members about Status of Forces Surveys. "ADSurvey" is short for Active Duty Survey.

### ELIGIBILITY

**1. In what Service were you on active duty on March 24, 2008?**

- Army  
 Navy  
 Marine Corps  
 Air Force  
 None, I have separated or retired

### BACKGROUND INFORMATION

**2. Are you...?**

- Male  
 Female

**3. What is your current paygrade? *Mark one.***

- |   |   |  |  |
|---|---|--|--|
| <input checked="" type="checkbox"/> E-1 | <input checked="" type="checkbox"/> E-6 | <input checked="" type="checkbox"/> W-1          | <input checked="" type="checkbox"/> O-1/O-1E |
| <input checked="" type="checkbox"/> E-2 | <input checked="" type="checkbox"/> E-7 | <input checked="" type="checkbox"/> W-2          | <input checked="" type="checkbox"/> O-2/O-2E |
| <input checked="" type="checkbox"/> E-3 | <input checked="" type="checkbox"/> E-8 | <input checked="" type="checkbox"/> W-3          | <input checked="" type="checkbox"/> O-3/O-3E |
| <input checked="" type="checkbox"/> E-4 | <input checked="" type="checkbox"/> E-9 | <input checked="" type="checkbox"/> W-4          | <input checked="" type="checkbox"/> O-4      |
| <input checked="" type="checkbox"/> E-5 | <input checked="" type="checkbox"/> W-5 | <input checked="" type="checkbox"/> O-5          |  |
|   |   | <input checked="" type="checkbox"/> O-6 or above |  |

**4. What is your marital status?**

- Married  
 Separated  
 Divorced  
 Widowed  
 Never married

**5. [Ask if Q4 = "Divorced" OR Q4 = "Widowed" OR Q4 = "Never married"] How many years have you been in a relationship with your current significant other (that is, your girlfriend or boyfriend)?**

- Does not apply; I do not have a girlfriend/boyfriend  
 Less than 1 year  
 1 year to less than 6 years  
 6 years to less than 10 years  
 10 years or more

**In the following section, you will be asked questions about your spouse's employment status in enough detail to ensure comparability with national employment surveys.**

**6. [Ask if Q4 = "Married" OR Q4 = "Separated"] Is your spouse currently serving on active duty (not a member of the National Guard or Reserve)?**

- Yes  
 No

**7. [Ask if (Q4 = "Married" OR Q4 = "Separated") AND Q6 = "No"] Is your spouse currently serving as a member of the National Guard or Reserve in a full-time, active duty program (AGR/FTS/AR)?**

- Yes  
 No

**8. [Ask if (Q4 = "Married" OR Q4 = "Separated") AND Q6 = "No" AND Q7 = "No"] Is your spouse currently serving as a member of another type of National Guard or Reserve unit (e.g., drilling unit, Individual Mobilization Augmentee (IMA), Individual Ready Reserve (IRR))?**

- Yes  
 No

**9. [Ask if (Q4 = "Married" OR Q4 = "Separated") AND Q6 = "No" AND Q7 = "No"] Last week, did your spouse do any work for pay or profit? *Mark "Yes" even if your spouse worked only one hour, or helped without pay in a family business or farm for 15 hours or more.***

- Yes  
 No

**10. [Ask if (Q4 = "Married" OR Q4 = "Separated") AND Q6 = "No" AND Q7 = "No" AND Q9 = "No"] Last week, was your spouse temporarily absent from a job or business?**

- Yes, on vacation, temporary illness, labor dispute, etc.  
 No

**11. [Ask if (Q4 = "Married" OR Q4 = "Separated") AND Q6 = "No" AND Q7 = "No" AND Q9 = "No" AND Q10 = "No"] Has your spouse been looking for work during the last 4 weeks?**

- Yes  
 No

12. [Ask if (Q4 = "Married" OR Q4 = "Separated") AND Q6 = "No" AND Q7 = "No" AND Q9 = "No" AND Q10 = "No" AND Q11 = "Yes"] **Last week, could your spouse have started a job if offered one, or returned to work if recalled?**

- Yes, could have gone to work
- No, because of his/her temporary illness
- No, because of other reasons (in school, etc.)

13. **What is the highest degree or level of school that you have completed? Mark the one answer that describes the highest grade or degree that you have completed.**

- 12 years or less of school (no diploma)
- High school graduate---traditional diploma
- High school graduate---alternative diploma (home school, GED, etc.)
- Some college credit, but less than 1 year
- 1 or more years of college, no degree
- Associate's degree (e.g., AA, AS)
- Bachelor's degree (e.g., BA, AB, BS)
- Master's, doctoral, or professional school degree (e.g., MA, MS, MEd, MEng, MBA, MSW, PhD, MD, JD, DVM, EdD)

For the next questions, the definition of "child, children, or other legal dependents" includes anyone in your family, **except your spouse**, who has, or is eligible to have, a Uniformed Services Identification and Privilege card (also called a military ID card) or is eligible for military health care benefits, and is enrolled in the Defense Enrollment Eligibility Reporting System (DEERS).

14. **Do you have a child, children, or other legal dependents based on the definition above?**

- Yes
- No

15. [Ask if Q14 = "Yes"] **How many children or other legal dependents do you have in each age group? Mark one answer in each row. To indicate none, select "0". To indicate nine or more, select "9".**

	0	1	2	3	4	5	6	7	8	9
a. 5 years and younger .....	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. 6 - 13 years old .....	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>							
c. 14 - 18 years old .....	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>							
d. 19 - 22 years and older.....	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>							

16. **Are you Spanish/Hispanic/Latino?**

- No, not Spanish/Hispanic/Latino
- Yes, Mexican, Mexican-American, Chicano, Puerto Rican, Cuban, or other Spanish/Hispanic/Latino

17. **What is your race? Mark one or more races to indicate what race you consider yourself to be.**

- White
- Black or African-American
- American Indian or Alaska Native
- Asian (e.g., Asian Indian, Chinese, Filipino, Japanese, Korean, Vietnamese)
- Native Hawaiian or other Pacific Islander (e.g., Samoan, Guamanian or Chamorro)

18. **Where is your permanent duty station (homeport) located?**

- In one of the 50 states, D.C., Puerto Rico, or a U.S. territory or possession
- Europe (e.g., Bosnia-Herzegovina, Germany, Italy, Serbia, United Kingdom)
- Former Soviet Union (e.g., Russia, Tajikistan, Uzbekistan)
- East Asia and Pacific (e.g., Australia, Japan, Korea)
- North Africa, Near East, or South Asia (e.g., Bahrain, Diego Garcia, Kuwait, Saudi Arabia)
- Sub-Saharan Africa (e.g., Kenya, South Africa)
- Western Hemisphere (e.g., Cuba, Honduras, Peru)
- Other or not sure

[Ask if Q18 = "In one of the 50 states, D.C., Puerto Rico, or a U.S. territory or possession"] **Please select from the list below your permanent duty station location (homeport) within one of the 50 states, D.C., Puerto Rico, or a U.S. territory or possession.**

[Ask if Q18 = "Other or not sure"] **Please enter the name of the country or installation.**

**19. Where do you live at your permanent duty station?**

- Aboard ship
- Barracks/dorm/BEQ/UEPH/BOQ/UOPH military facility
- Military family housing, on base
- Military family housing, off base
- Privatized military housing that you rent on base
- Privatized military housing that you rent off base
- Civilian/community housing that you own or pay mortgage on
- Civilian/community housing that you rent
- Other

[Ask if Q19 = "Other"] Please specify where you live at your permanent duty station.

**SATISFACTION**

**20. Taking all things into consideration, how satisfied are you, in general, with each of the following aspects of being in the military?**

	Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
a. Your total compensation (i.e., base pay, allowances, and bonuses) .....	<input checked="" type="checkbox"/>				
b. The type of work you do in your military job.....	<input checked="" type="checkbox"/>				
c. Your opportunities for promotion.....	<input checked="" type="checkbox"/>				
d. The quality of your coworkers .....	<input checked="" type="checkbox"/>				
e. The quality of your supervisor .....	<input checked="" type="checkbox"/>				

**21. Overall, how satisfied are you with the military way of life?**

- Very satisfied
- Satisfied
- Neither satisfied nor dissatisfied
- Dissatisfied
- Very dissatisfied

**RETENTION**

**22. How many years of active duty service have you completed (including enlisted, warrant officer, and commissioned officer time)? To indicate less than 1 year, enter "0". To indicate 35 years or more, enter "35".**

Years

**23. Suppose that you have to decide whether to stay on active duty. Assuming you could stay, how likely is it that you would choose to do so?**

- Very likely
- Likely
- Neither likely nor unlikely
- Unlikely
- Very unlikely

**24. [Ask if (Q4 = "Married" OR Q4 = "Separated") OR (Q5 = "Less than 1 year" OR Q5 = "1 year to less than 6 years" OR Q5 = "6 years to less than 10 years" OR Q5 = "10 years or more"))] Does your spouse or significant other think you should stay on or leave active duty?**

- Strongly favors staying
- Somewhat favors staying
- Has no opinion one way or the other
- Somewhat favors leaving
- Strongly favors leaving

**25. Does your family think you should stay on or leave active duty?**

- Strongly favors staying
- Somewhat favors staying
- Has no opinion one way or the other
- Somewhat favors leaving
- Strongly favors leaving

**26. How much do you agree or disagree with each of the following statements?**

	Strongly disagree				
	Disagree				
	Neither agree nor disagree				
	Agree				
	Strongly agree				
a. I enjoy serving in the military .....	<input checked="" type="checkbox"/>				
b. Serving in the military is consistent with my personal goals .....	<input checked="" type="checkbox"/>				
c. If I left the military, I would feel like I am starting all over again .....	<input checked="" type="checkbox"/>				
d. I would feel guilty if I left the military .....	<input checked="" type="checkbox"/>				
e. Generally, on a day-to-day basis, I am happy with my life in the military .....	<input checked="" type="checkbox"/>				
f. It would be difficult for me to leave the military and give up the benefits that are available in the Service.....	<input checked="" type="checkbox"/>				
g. I would not leave the military right now because I have a sense of obligation to the people in it.....	<input checked="" type="checkbox"/>				
h. I really feel as if the military's values are my own .....	<input checked="" type="checkbox"/>				
i. I would have difficulty finding a job if I left the military .....	<input checked="" type="checkbox"/>				
j. Generally, on a day-to-day basis, I am proud to be in the military .....	<input checked="" type="checkbox"/>				
k. If I left the military, I would feel like I had let my country down .....	<input checked="" type="checkbox"/>				
l. I continue to serve in the military because leaving would require considerable sacrifice .....	<input checked="" type="checkbox"/>				
m. I feel like being a member of the military can help me achieve what I want in life.....	<input checked="" type="checkbox"/>				
n. One of the problems with leaving the military would be the lack of available alternatives .....	<input checked="" type="checkbox"/>				
o. I am committed to making the military my career .....	<input checked="" type="checkbox"/>				

**27. When you leave active duty, how likely is it that you will join a National Guard or Reserve unit?**

- Does not apply, retiring or otherwise ineligible
- Very likely
- Likely
- Neither likely nor unlikely
- Unlikely
- Very unlikely

**TEMPO**

**28. Have you ever made a Permanent Change of Station (PCS)?**

- Yes
- No

**29. [Ask if Q28 = "Yes"] How many months has it been since your last PCS? To indicate less than 1 month, enter "0". To indicate more than 99 months, enter "99".**

Months

**30. In the past 12 months, how many days have you had to work longer than your normal duty day (i.e., overtime)? To indicate none, enter "0".**

Days

**31. In the past 12 months, how many nights have you been away from your permanent duty station (homeport) because of your military duties? To indicate none, enter "0".**

Nights

**32. In the past 24 months, have you been deployed longer than 30 consecutive days?**

- Yes
- No

**33. [Ask if Q32 = "Yes"] Are you currently on a deployment that has lasted longer than 30 consecutive days?**

- Yes
- No

**34. [Ask if Q33 = "Yes"] Where are you currently deployed?**

- In one of the 50 states, D.C., Puerto Rico, or a U.S. territory or possession
- Afghanistan
- Iraq
- Other North African, Near Eastern or South Asian country (e.g., Bahrain, Diego Garcia, Kuwait, Saudi Arabia)
- Europe (e.g., Bosnia-Herzegovina, Germany, Italy, Serbia, United Kingdom)
- Former Soviet Union (e.g., Russia, Tajikistan, Uzbekistan)
- East Asia and Pacific (e.g., Australia, Japan, Korea)
- Sub-Saharan Africa (e.g., Kenya, Liberia, South Africa)
- Western Hemisphere (e.g., Cuba, Honduras, Peru)
- Other or not sure

[Ask if Q34 = "In one of the 50 states, D.C., Puerto Rico, or a U.S. territory or possession."] Please select from the list below your deployment location within one of the 50 states, D.C., Puerto Rico, or a U.S. territory or possession.

[Ask if Q34 = "Other or not sure"] Please enter the name of the country or installation.

**35. In the past 12 months, have you spent more or less time away from your permanent duty station (homeport) than you expected when you first entered the military?**

- Much more than expected
- More than expected
- Neither more nor less than expected
- Less than expected
- Much less than expected

**36. What impact has time away (or lack thereof) from your permanent duty station (homeport) in the past 12 months had on your military career intentions?**

- Greatly increased your desire to stay
- Increased your desire to stay
- Neither increased nor decreased your desire to stay
- Decreased your desire to stay
- Greatly decreased your desire to stay

**READINESS**

**37. Overall, how well prepared are you to perform your wartime job?**

- Very well prepared
- Well prepared
- Neither well nor poorly prepared
- Poorly prepared
- Very poorly prepared

**38. Overall, how well prepared is your unit to perform its wartime mission?**

- Very well prepared
- Well prepared
- Neither well nor poorly prepared
- Poorly prepared
- Very poorly prepared

**39. How well has your training prepared you to perform your wartime job?**

- Very well
- Well
- Neither well nor poorly
- Poorly
- Very poorly

**40. How well has your training prepared you to perform your wartime job in support of joint operations?**

- Very well
- Well
- Neither well nor poorly
- Poorly
- Very poorly

	Never	Almost never	Sometimes	Fairly often	Very often
b. Felt that you were unable to control the important things in your life? .....	<input checked="" type="checkbox"/>				
c. Been upset because of something that happened unexpectedly? .....	<input checked="" type="checkbox"/>				
d. Been angered because of things that were outside of your control? .....	<input checked="" type="checkbox"/>				
e. Felt difficulties were piling up so high that you could not overcome them?.....	<input checked="" type="checkbox"/>				
f. Found that you could not cope with all of the things you had to do? .....	<input checked="" type="checkbox"/>				

**STRESS**

**41. Overall, how would you rate the current level of stress in your work life?**

- Much less than usual
- Less than usual
- About the same as usual
- More than usual
- Much more than usual

**42. Overall, how would you rate the current level of stress in your personal life?**

- Much less than usual
- Less than usual
- About the same as usual
- More than usual
- Much more than usual

**43. In the past month, how often have you...**

	Never	Almost never	Sometimes	Fairly often	Very often
a. Felt nervous and stressed? .....	<input checked="" type="checkbox"/>				

**DEPLOYMENTS SINCE SEPTEMBER 11, 2001**

**44. Since September 11, 2001, how many times have you been deployed for any of the following operations? *Mark one answer in each row. To indicate none, select "0 times".***

	0 times	1 time	2 times	3 or more times
a. Operation Noble Eagle (airport security).....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
b. Operation Enduring Freedom (Afghanistan).....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
c. Operation Iraqi Freedom .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
d. Other .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

**[Ask if Q44 d > "0"] Please specify the other operation for which you were deployed since September 11, 2001.**

**45. [Ask if Q44 a > "0" OR Q44 b > "0" OR Q44 c > "0" OR Q44 d > "0"] Since September 11, 2001, how many times have you been deployed?**

 Times

46. [Ask if Q44 a > "0" OR Q44 b > "0" OR Q44 c > "0" OR Q44 d > "0"] Since September 11, 2001, what is the total number of days you have been away from your permanent duty station (homeport)?

 Days

47. [Ask if Q44 a > "0" OR Q44 b > "0" OR Q44 c > "0" OR Q44 d > "0"] Since September 11, 2001, have you been deployed to a combat zone or an area where you drew imminent danger pay or hostile fire pay?

- Yes
- No

48. [Ask if Q47 = "Yes"] Since September 11, 2001, how many days have you been deployed to a combat zone?

 Days

49. [Ask if Q47 = "Yes"] **For your most recent deployment**, how many months have you been or were you deployed to an area where you drew imminent danger pay or hostile fire pay? *Include partial months. For example, if you were deployed to a combat zone for 2 days, and those days were in different months, enter "2".*

 Months

50. [Ask if Q44 a > "0" OR Q44 b > "0" OR Q44 c > "0" OR Q44 d > "0"] Were you involved in combat operations?

- Yes
- No

51. [Ask if Q33 = "Yes" AND Q47 = "Yes"] Are you currently deployed to a combat zone or an area where you are drawing imminent danger pay or hostile fire pay?

- Yes
- No

52. [Ask if Q44 a > "0" OR Q44 b > "0" OR Q44 c > "0" OR Q44 d > "0"] Were any of your deployments since September 11, 2001 longer than you expected?

- Yes
- No

53. Since September 11, 2001, have you been under stop-loss at any time?

- Yes
- No

**MILITARY ONESOURCE**

54. In the past 12 months, have you used the confidential Military OneSource in the following ways to obtain information or services? *Mark "Yes" or "No" for each item.*

	Yes	No
a. Accessed www.MilitaryOneSource.com.....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
b. E-mailed Military OneSource.....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
c. Talked on the telephone with a Military OneSource consultant (1-800-342-9647) .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
d. Used Military OneSource to arrange face-to-face counseling session(s) .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

55. [Ask if Q54 a = "Yes"] How useful was Military OneSource.com?

- Very useful
- Useful
- Somewhat useful
- Not useful

56. [Ask if Q54 b = "Yes"] How useful was e-mail communication with a Military OneSource consultant?

- Very useful
- Useful
- Somewhat useful
- Not useful

57. [Ask if Q54 c = "Yes"] How useful was the Military OneSource confidential telephonic counseling?

- Very useful
- Useful
- Somewhat useful
- Not useful

58. [Ask if Q54 a = "Yes"] How useful were the Military OneSource in-person counseling referrals?

- Very useful
- Useful
- Somewhat useful
- Not useful

59. [Ask if Q54 a = "Yes" OR Q54 b = "Yes" OR Q54 c = "Yes" OR Q54 d = "Yes"] Please rate the usefulness of the following features of Military OneSource (1-800-342-9647). If you have not used the feature, please select "Not applicable". Mark one for each row.

	Very useful	Useful	Somewhat useful	Not useful	Not applicable
a. On-line calculations .....	<input checked="" type="checkbox"/>				
b. Tip sheets .....	<input checked="" type="checkbox"/>				

**CHILD CARE**

60. [Ask if (Q4 = "Married" OR Q4 = "Separated") AND (Q15 a > 0 OR Q15 b > 0)] Do you have child(ren) who routinely use child care arrangements so you and your spouse can work?

- Yes
- No

61. [Ask if (Q4 = "Divorced" OR Q4 = "Widowed" OR Q4 = "Never married") AND (Q15 a > 0 OR Q15 b > 0)] Do you have child(ren) who routinely use child care arrangements so you can work?

- Yes
- No

62. [Ask if (Q15 a > 0 OR Q15 b > 0) AND (Q60 = "No" OR Q61 = "No")] Do you need child care arrangements so you (and/or your spouse) can work?

- Yes
- No

63. [Ask if (Q15 a > 0 OR Q15 b > 0) AND (Q60 = "Yes" OR Q61 = "Yes")] During the work day, do you routinely use the following sources of child care?

	Yes	No
a. On-base child care .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
b. Off-base child care .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

64. [Ask if (Q15 a > 0 OR Q15 b > 0) AND (Q60 = "Yes" OR Q61 = "Yes")] How many of your child(ren), in each age group, routinely use child care arrangements? Mark one answer in each row. To indicate none, select "0". To indicate nine or more, select "9".

	0	1	2	3	4	5	6	7	8	9
a. 1 year old or younger .....	<input checked="" type="radio"/>									
b. More than 1 year old to 2 years old .....	<input checked="" type="radio"/>									
c. More than 2 years to 3 years old .....	<input checked="" type="radio"/>									
d. More than 3 years old to 5 years old .....	<input checked="" type="radio"/>									
e. More than 5 years old .....	<input checked="" type="radio"/>									

65. [Ask if (Q15 a > 0 OR Q15 b > 0) AND (Q60 = "Yes" OR Q61 = "Yes")] During the past 12 months, how many different child care arrangements have you routinely used (e.g., child's sibling, child's grandparent, other relative, sitter, nanny, au-pair, friend/neighbor, child care center, family child care home, preschool, after-school program)?

Number of child care arrangements

66. [Ask if (Q15 a > 0 OR Q15 b > 0) AND Q63 a = "Yes"] Indicate the extent you are satisfied with each of the following aspects of on-base child care.

	Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
a. Availability of child care .....	<input checked="" type="checkbox"/>				
b. Quality of child care .....	<input checked="" type="checkbox"/>				
c. Affordability of child care .....	<input checked="" type="checkbox"/>				

67. [Ask if (Q15 a > 0 OR Q15 b > 0) AND Q63 b = "Yes"] Indicate the extent you are satisfied with each of the following aspects of off-base child care.

	Very dissatisfied				
	Dissatisfied				
	Neither satisfied nor dissatisfied				
	Satisfied				
	Very satisfied				
a. Availability of child care.....	<input checked="" type="checkbox"/>				
b. Quality of child care .....	<input checked="" type="checkbox"/>				
c. Affordability of child care.....	<input checked="" type="checkbox"/>				

68. [Ask if (Q15 a > 0 OR Q15 b > 0) AND (Q60 = "Yes" OR Q61 = "Yes")] What is the **total** amount that you spent last month on child care arrangements for your child(ren)? *If you didn't spend anything for child care arrangements last month, enter "0".*

 Dollars

69. [Ask if (Q15 a > 0 OR Q15 b > 0) AND (Q60 = "Yes" OR Q61 = "Yes" OR Q62 = "Yes")] In the **past 12 months**, how many days of work have you (and/or your spouse) missed because of lack of child care?

 Days

**SPOUSE EMPLOYMENT**

70. [Ask if Q4 = "Married" OR Q4 = "Separated"] How satisfied are you with your spouse's employment and career opportunities?

- Very satisfied
- Satisfied
- Neither satisfied nor dissatisfied
- Dissatisfied
- Very dissatisfied

71. [Ask if (Q4 = "Married" OR Q4 = "Separated") AND (Q9 = "Yes" OR Q10 = "Yes") AND Q28 = "Yes"] How long did it take your spouse to find employment after your last PCS?

- Less than 1 month
- 1 month to less than 4 months
- 4 months to less than 7 months
- 7 months to less than 10 months
- 10 months to less than 12 months
- 1 year or more

72. [Ask if (Q4 = "Married" OR Q4 = "Separated") AND Q11 = "Yes"] How many weeks has your spouse been looking for work?

 Weeks

73. [Ask if (Q4 = "Married" OR Q4 = "Separated") AND (Q6 = "Yes" OR Q7 = "Yes" OR Q9 = "Yes" OR Q10 = "Yes")] How well do your spouse's qualifications match the work he or she does?

- He/she is greatly underqualified for the work
- He/she is somewhat underqualified for the work
- His/her qualifications are appropriate for the work
- He/she is somewhat overqualified for the work
- He/she is greatly overqualified for the work

74. [Ask if (Q4 = "Married" OR Q4 = "Separated") AND (Q6 = "Yes" OR Q7 = "Yes" OR Q9 = "Yes" OR Q10 = "Yes")] How much does your spouse's income contribute toward your total household income?

- No contribution
- Minor contribution
- Moderate contribution
- Major contribution

75. [Ask if (Q4 = "Married" OR Q4 = "Separated") AND (Q6 = "Yes" OR Q7 = "Yes" OR Q9 = "Yes" OR Q10 = "Yes")] Does your spouse work less than 35 hours a week?

- Yes
- No

76. [Ask if Q75 = "Yes"] Does your spouse want to work a full-time work week of 35 hours or more?

- Yes
- No

**77. [Ask if Q75 = "Yes" AND Q76 = "Yes"] What is your spouse's main reason for working part-time instead of full-time?**

- Slack work/business conditions
- Could only find part-time work
- Seasonal work
- Child care problems
- Other family/personal obligations
- Health/medical limitations
- School/training/certification
- Other

**78. [Ask if Q75 = "Yes" AND Q76 = "No"] What is the main reason your spouse has not been looking for a full-time job?**

- Do not want to work full-time
- Child care responsibilities
- Other family/personal obligations
- Health/medical limitations
- Need school/training/certification
- Other

**79. [Ask if (Q4 = "Married" OR Q4 = "Separated") AND (Q9 = "Yes" OR Q10 = "Yes")] How did your spouse find his or her current primary job? Mark "Yes" or "No" for each item.**

	Yes	No
a. Answered an ad in a newspaper/trade journal.....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
b. Answered an Internet ad.....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
c. Contacted the employer directly .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
d. Job fair.....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
e. Information provided by a friend or relative....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
f. Contact made while doing volunteer work .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
g. Civilian/private employment agency .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
h. Employment assistance program.....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
i. State employment service .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
j. Job bank .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
m. Other.....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

**[Ask if (Q4 = "Married" OR Q4 = "Separated") AND (Q9 = "Yes" OR Q10 = "Yes") AND Q79 m = "Yes"] Please specify any other method your spouse used to find his or her current primary job.**

**80. [Ask if Q4 = "Married" OR Q4 = "Separated"] Regardless of your spouse's current employment status, how important are each of the following reasons for why your spouse works, wants to work, or needs to work?**

	Very important	Important	Moderately important	Somewhat important	Not important
a. Need money for basic expenses.....	<input checked="" type="checkbox"/>				
b. Desire for career .....	<input checked="" type="checkbox"/>				
c. Want extra money to use now.....	<input checked="" type="checkbox"/>				
d. Want to save money for the future .....	<input checked="" type="checkbox"/>				
e. Other .....	<input checked="" type="checkbox"/>				

**81. [Ask if Q4 = "Married" OR Q4 = "Separated"] To what extent does your spouse's ability to maintain a career impact your decision to remain in the military?**

- Very large extent
- Large extent
- Moderate extent
- Small extent
- Not at all

**82. [Ask if Q4 = "Married" OR Q4 = "Separated"] To what extent would tuition assistance for your spouse impact your decision to remain in the military?**

- Very large extent
- Large extent
- Moderate extent
- Small extent
- Not at all

**EDUCATION**

83. [Ask if Q4 = "Married" OR Q4 = "Separated"] Is your spouse currently in a civilian school? Mark "Yes" if your spouse was enrolled in the most recent academic semester, is enrolled for the following semester, or is in between semesters.

- Yes
- No

84. [Ask if (Q4 = "Married" OR Q4 = "Separated") AND Q83 = "No"] What is the main reason your spouse is not attending school?

- Satisfied with educational level attained
- Hours are not convenient
- Location/transportation problems
- Family responsibilities
- Costs
- Other

85. [Ask if (Q4 = "Married" OR Q4 = "Separated") AND Q83 = "Yes"] Is your spouse currently a part-time student or full-time student? Part-time is considered an equivalent of less than 12 credit hours per semester.

- Part-time
- Full-time

86. [Ask if (Q4 = "Married" OR Q4 = "Separated") AND Q83 = "Yes"] What kind of civilian school is your spouse currently enrolled in?

- High School (including public, private, or home schooling)
- GED completion
- Vocational/trade/business or other career training school
- Junior or community college (2-year)
- Four-year college or university
- Graduate/professional school
- Other

[Ask if (Q4 = "Married" OR Q4 = "Separated") AND Q83 = "Yes" AND Q86 = "Other"] Please specify the other civilian school in which your spouse is currently enrolled.

87. [Ask if Q4 = "Married" OR Q4 = "Separated"] What is the highest degree or level of school that your spouse has completed? Mark the one answer that describes the highest grade or degree that your spouse has completed.

- 12 years or less of school (no diploma)
- High school graduate---traditional diploma
- High school graduate---alternative diploma (home school, GED, etc.)
- Some college credit, but less than 1 year
- 1 or more years of college, no degree
- Associate's degree (e.g., AA, AS)
- Bachelor's degree (e.g., BA, AB, BS)
- Master's, doctoral, or professional school degree (e.g., MA, MS, MEd, MEng, MBA, MSW, PhD, MD, JD, DVM, EdD)

88. [Ask if Q4 = "Married" OR Q4 = "Separated"] How satisfied are you with your spouse's education and training opportunities?

- Very satisfied
- Satisfied
- Neither satisfied nor dissatisfied
- Dissatisfied
- Very dissatisfied

89. How many college credits have you earned since joining the military?

 Credit Hours

90. Have you earned any of the following since joining the military? Mark "Yes" or "No" for each item.

	Yes	No
a. High school diploma .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
b. Alternative diploma (e.g., home school, GED) .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
c. Associate's degree (e.g., AA, AS) .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
d. Bachelor's degree (e.g., BA, AB, BS) .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
e. Master's, doctoral, or professional school degree (e.g., MA, MS, MEd, MEng, MSW, PhD, MD, JD, DVM, EdD) .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
f. Other .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

**COMPENSATION**

**91. How satisfied are you with each of the following?**

	Very dissatisfied				
	Dissatisfied				
	Neither satisfied nor dissatisfied				
	Satisfied				
	Very satisfied				
a. Basic pay .....	<input checked="" type="checkbox"/>				
b. Military retirement system .....	<input checked="" type="checkbox"/>				
c. Your medical benefits .....	<input checked="" type="checkbox"/>				
d. Your dental benefits .....	<input checked="" type="checkbox"/>				

**92. Have you received any of the following forms of compensation in the past 12 months? Mark "Yes" or "No" for each item.**

	No	
	Yes	
a. Special pay (e.g., incentive, reenlistment, continuation, family separation pay, hazardous duty pay) .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
b. Basic Allowance for Subsistence (BAS) .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
c. Basic Allowance for Housing (BAH) .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
d. Overseas Housing Allowance (OHA) .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
e. Cost of Living Allowance (COLA) .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

**93. [Ask if Q92 a = "Yes"] How satisfied are you with special pay (e.g., incentive, reenlistment, continuation)?**

- Very satisfied
- Satisfied
- Neither satisfied nor dissatisfied
- Dissatisfied
- Very dissatisfied

**94. [Ask if Q92 b = "Yes"] How satisfied are you with your Basic Allowance for Subsistence (BAS)?**

- Very satisfied
- Satisfied
- Neither satisfied nor dissatisfied
- Dissatisfied
- Very dissatisfied

**95. [Ask if Q92 c = "Yes"] How satisfied are you with your Basic Allowance for Housing (BAH)?**

- Very satisfied
- Satisfied
- Neither satisfied nor dissatisfied
- Dissatisfied
- Very dissatisfied

**96. [Ask if Q92 d = "Yes"] How satisfied are you with your Overseas Housing Allowance (OHA)?**

- Very satisfied
- Satisfied
- Neither satisfied nor dissatisfied
- Dissatisfied
- Very dissatisfied

**97. [Ask if Q92 e = "Yes"] How satisfied are you with your Cost of Living Allowance (COLA)?**

- Very satisfied
- Satisfied
- Neither satisfied nor dissatisfied
- Dissatisfied
- Very dissatisfied

**98. [Ask if Q92 c = "Yes"] To what extent does your Basic Allowance for Housing (BAH) cover your expenses?**

- More than covers expenses
- Covers expenses
- Covers basic expenses
- Requires supplement sometimes to cover basic expenses
- Requires supplement all the time to cover basic expenses

**99. How important should the following factors be in determining total military compensation, including pay, benefits, and allowances?**

	Not important				
	Somewhat important				
	Moderately important				
	Important				
	Very important				
a. Job difficulty .....	<input checked="" type="checkbox"/>				
b. Job performance .....	<input checked="" type="checkbox"/>				

	Not important				
	Somewhat important				
	Moderately important				
	Important				
	Very important				
c. Danger .....	<input checked="" type="checkbox"/>				
d. Time spent away from home.....	<input checked="" type="checkbox"/>				
e. Number of hours worked.....	<input checked="" type="checkbox"/>				
f. Level of responsibility.....	<input checked="" type="checkbox"/>				
g. Amount of education/training.....	<input checked="" type="checkbox"/>				
h. Years of experience.....	<input checked="" type="checkbox"/>				
i. Amount civilian employer would pay for this type of work.....	<input checked="" type="checkbox"/>				
j. Amount needed to provide for family.....	<input checked="" type="checkbox"/>				
k. Cost of living.....	<input checked="" type="checkbox"/>				

**100. How important do you think the following factors actually are in determining total military compensation, including pay, benefits, and allowances?**

	Not important				
	Somewhat important				
	Moderately important				
	Important				
	Very important				
a. Job difficulty .....	<input checked="" type="checkbox"/>				
b. Job performance.....	<input checked="" type="checkbox"/>				
c. Danger .....	<input checked="" type="checkbox"/>				
d. Time spent away from home.....	<input checked="" type="checkbox"/>				
e. Number of hours worked.....	<input checked="" type="checkbox"/>				
f. Level of responsibility.....	<input checked="" type="checkbox"/>				
g. Amount of education/training.....	<input checked="" type="checkbox"/>				
h. Years of experience.....	<input checked="" type="checkbox"/>				
i. Amount civilian employer would pay for this type of work.....	<input checked="" type="checkbox"/>				
j. Amount needed to provide for family.....	<input checked="" type="checkbox"/>				
k. Cost of living.....	<input checked="" type="checkbox"/>				

**101. Relative to your high school classmates, how would you rate your opportunities and benefits in the military?**

	Much worse than high school classmates				
	Worse than high school classmates				
	Neither better nor worse				
	Better than high school classmates				
	Much better than high school classmates				
a. Promotion opportunities .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
b. Vacation time.....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
c. Education and training.....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
d. Total compensation (e.g., pay, bonuses, allowances) .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
e. Health care benefits .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
f. Retirement benefits .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

**102. [Ask if Q4 = "Married" OR Q4 = "Separated"] Relative to your spouse's high school classmates, how would you rate your spouse's opportunities?**

- Much better than high school classmates
- Better than high school classmates
- Neither better nor worse
- Worse than high school classmates
- Much worse than high school classmates

**FINANCIAL HEALTH**

**103. During the past 12 months, did you or your spouse receive any income or financial support from the following sources? Mark "Yes" or "No" for each item.**

	No	
	Yes	No
a. A second job.....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
b. Alimony and/or child support .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
c. Supplemental Security Income, unemployment, or worker's compensation .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
d. State-funded child care assistance.....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
e. Women, Infants, and Children (WIC), and/or Temporary Assistance for Needy Families (TANF) .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
f. Food Stamp Program .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
g. Financial aid societies .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
h. Other .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

[Ask if Q103 h = "Yes"] Please specify the other sources of income or financial support that you or your spouse received in the past 12 months.

104. In today's dollars, how much income do you think you will receive annually from military retirement pay, if you stay in the military for 20 years or more?

 Dollars per Year

105. Assume you had to pay for your medical benefits when you retire. How much do you think you would have to pay in annual medical insurance premiums to get the same level of service that you (and your family) presently receive?

 Dollars per Year

The next questions ask about your income. (Answer only for yourself.)

106. What were your total military gross earnings (i.e., before-tax) in 2007? (Please include all allowances, special pay, basic pay, and bonuses. Exclude spouse earnings.)

a. You can enter an estimate for 2007 here:

 Dollars

b. Or, if you prefer, you can enter a range here. My estimated total military earnings in 2007 were at least:

 Dollars

c. but no more than:

 Dollars

107. In 2007, how much income did you receive from the following sources: a second job; net gains or losses from sale of stocks, bonds, or real estate; interest income; dividends; child support/alimony; social security; welfare assistance; and net rent, trusts, and royalties from any other investments or business? (Exclude spouse earnings.)

a. You can enter an estimate for 2007 here:

 Dollars

b. Or if you prefer, enter a range here. My estimated income from other sources in 2007 was at least:

 Dollars

c. but no more than:

 Dollars

The next few questions ask about income for your spouse.

108. [Ask if Q4 = "Married" OR Q4 = "Separated"] What was your spouse's estimated total yearly gross earnings (i.e., before-tax) in 2007? (Please include bonuses, overtime, and income from a second job.)

a. You can enter an estimate for 2007 here:

 Dollars

b. Or, if you prefer, you can enter a range here. My spouse's estimated total gross earnings in 2007 were at least:

 Dollars

c. but no more than:

 Dollars

109. [Ask if Q4 = "Married" OR Q4 = "Separated"] In 2007, how much income did your spouse receive from the following sources: net gains or losses from sale of stocks, bonds, or real estate; interest income; dividends; child support/alimony; social security, welfare assistance; and net rent, trusts, and royalties from any other investments or business? (Exclude your earnings.)

a. You can enter an estimate for 2007 here:

 Dollars

b. Or, if you prefer, you can enter a range here. My spouse's estimated income from other sources in 2007 was at least:

 Dollars

c. but no more than:

 Dollars

110. Do you own any real estate property including a home?

Yes

No

111. [Ask if Q110 = "Yes"] What is the total amount you paid last month for mortgage(s)? (*Include mortgage for primary residence, other residential property debt, lines of credit [home], home improvement loans, and land contracts. Include what was due on a monthly basis; exclude down payments and origination fees. If you do not owe any money for a home, enter "0".*)

Dollars per Month

112. [Ask if Q110 = "Yes"] After the last (most recent) payment was made on your mortgage(s), what was the estimated total amount you still owed? *If you do not owe any money for a home, enter "0".*

Dollars

113. [Ask if Q110 = "Yes"] What do you think is the current market value of all real estate that you own?

a. You can enter an estimate here:

b. Or, if you prefer, you can enter a range here. The estimated current market value of all real estate that I own is at least:

Dollars

c. but no more than:

Dollars

114. What is the total amount you paid last month for rent? *If you do not rent, enter "0".*

Dollars per Month

115. Other than real estate, what is the estimated total value of your financial assets? (*Exclude real estate. Include assets jointly held with your spouse, bank accounts, IRAs, money market accounts, Certificates of Deposit [CDs], Savings Bonds, mutual funds, stocks and/or bonds, cash value of life insurance, and managed investment accounts.*)

a. You can enter an estimate for your financial assets here:

Dollars

b. Or, if you prefer, you can enter a range here. My estimated total value of financial assets is at least:

Dollars

c. but no more than:

Dollars

116. What is the amount of payments that you made last month to cover personal unsecured debt? (*Include all credit cards, debt consolidation loans, AAFES loans, NEXCOM loans, Military Star Accounts, student loans, margin loans, pension loans, installment loans, and other personal loans; exclude home mortgage and car loans.*)

Dollars per Month

117. After the last payment was made on personal unsecured debt, what was the total estimated amount you still owed? (*Include all credit cards, debt consolidation loans, AAFES loans, NEXCOM loans, Military Star Accounts, student loans, margin loans, pension loans, installment loans, and other personal loans; exclude home mortgage and car loans.*)

a. You can enter an estimate of personal unsecured debt here:

Dollars

b. Or, if you prefer, you can enter a range here. The estimated total amount I still owed was at least:

Dollars

c. but no more than:

Dollars

118. Do you have a credit card for which you carry debt from month to month?

Yes

No

119. [Ask if Q118 = "Yes"] What is the annual percentage rate (APR) you are paying on the credit card you use most frequently?

Annual Percent

120. Are you currently making payments on vehicle loans or leases?

Yes

No

121. [Ask if Q120 = "Yes"] What is the total amount you paid last month for all vehicle loans and leases (i.e., cars, trucks, or motorcycles)? (*Include what is due monthly; exclude down payments and origination fees.*)

Dollars per Month

122. [Ask if Q120 = "Yes" AND Q121 > "0"] What interest rate are you paying on your largest vehicle loan?

Annual Percent

123. [Ask if Q120 = "Yes"] After the last payment was made on your vehicle(s), what was the estimated total amount you still owed? If you do not owe any money for vehicles, enter "0".

a. You can enter an estimate for total vehicle loans and leases here:

Dollars

b. Or, if you prefer, you can enter a range here. The total estimated amount I still owed on vehicle loans and leases was at least:

Dollars

c. but no more than:

Dollars

124. In the past 12 months, did any of the following happen to you (and your spouse)? Mark "Yes" or "No" for each item.

	Yes	No
a. Bounced two or more checks .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
b. Failed to make a monthly/minimum payment on credit card, AAFES, NEXCOM account, or Military Star Card account .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
c. Fell behind in paying rent or mortgage .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
d. Was pressured to pay bills by stores, creditors, or bill collectors .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
e. Had telephone, cable, or Internet shut off .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
f. Had water, heat, or electricity shut off .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
g. Had a car, household appliance, or furniture repossessed .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
h. Failed to make a car payment .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
i. Filed for personal bankruptcy .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
j. Had to pay overdraft fees to your bank or credit union two or more times .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

125. In the past 12 months, have you obtained a short-term, low interest loan?

- Yes
- No

126. Which of the following best describes your financial condition?

- Very comfortable and secure
- Able to make ends meet without much difficulty
- Occasionally have some difficulty making ends meet
- Tough to make ends meet but keeping your head above water
- In over your head

127. Which of the following statements comes closest to describing the saving habits of you (and your spouse)?

- Don't save--usually spend more than income
- Don't save--usually spend about as much as income
- Save whatever is left over at the end of the month--no regular plan
- Save income of one family member, spend the other
- Spend regular income, save other income
- Save regularly by putting money aside each month

128. Please indicate whether the following are financial goals for you or your spouse. Mark one answer in each row.

	Not applicable			
	No, this is not a goal for us			
	Yes, this is a goal we plan to pursue			
	Yes, this is a goal we are currently working on			
a. Saving for retirement .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
b. Saving for my spouse's education .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
c. Saving for child(ren)'s education .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
d. Saving for a vacation .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
e. Saving for a safety net/emergency fund .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
f. Paying off education-related loans (e.g., Stafford loan, PLUS loan) .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
g. Being free of credit card debt (e.g., no carryover from month to month) .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
h. Being free of debt, except for mortgage .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
i. Buying a home .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
j. Purchasing furniture/appliances .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
k. Buying a car .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

**129. In the past 12 months, did you (or your spouse) receive messages about reducing debt and increasing savings from one of the following? Mark "Yes" or "No" for each item.**

	Yes	No
a. Military Saves Campaign .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
b. Bank or credit union brochures .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
c. Military Service sponsored financial education programs .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
d. Financial education program provided by a nonprofit organization .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

**130. [Ask if Q129 a = "Yes" OR Q129 b = "Yes" OR Q129 c = "Yes" OR Q129 d = "Yes"] Did you take any action as a result of receiving these messages about reducing debt and increasing savings?**

- Yes, I have decided to reduce my debt or increase my savings
- No, I have decided not to make any changes to the level of my debt or savings
- I am undecided

**131. [Ask if Q4 = "Married" OR Q4 = "Separated"] When you are deployed, whose responsibility is it to make sure that monthly, household bills are paid?**

- My responsibility
- My spouse's responsibility
- We share responsibility
- Not applicable, I have not been deployed

**132. [Ask if Q4 = "Married" OR Q4 = "Separated" AND Q131 not equal to "Not applicable, I have not been deployed"] When you are not deployed, whose responsibility is it to make sure that monthly, household bills are paid?**

- My responsibility
- My spouse's responsibility
- We share responsibility

**133. Do you have \$500 or more in emergency savings?**

- Yes
- No
- Don't know

**134. Do you contribute to the Thrift Savings Plan (TSP), the retirement savings plan for Service members and federal civilian employees?**

- Yes
- No
- Don't know

**LANGUAGE CAPABILITY**

**135. Are you proficient in a language other than English?**

- Yes
- No

**136. [Ask if Q135 = "Yes"] Suppose that, after you retire or separate, the government faced a crisis requiring foreign language assistance. How likely is it that you would be willing to volunteer such assistance for pay?**

- Very likely
- Likely
- Neither likely nor unlikely
- Unlikely
- Very unlikely

**INJURIES**

**137. During the past 12 months, how many different injuries did you have for which you sought medical care from military or civilian medical providers? To indicate none, enter "0".**

For questions 138 through 147, "sports, exercise, and recreational activities" refer to any physical activity that promotes physical fitness through improved strength, endurance, coordination, flexibility, weight control, and cardiorespiratory fitness. These include all sports (e.g., basketball, softball, racquet sports, volleyball, football, martial arts, swimming, skiing), physical fitness activities (e.g., running, weight training, aerobics, cycling, calisthenics, yoga), and other recreational activities that promote improved physical fitness (e.g., skating, rock climbing, horseback riding).

**138. [Ask if Q137 > 0] How many of these injuries in the past 12 months came as a result of participating in sports, exercise, or recreational activities? To indicate none, enter "0".**

**139. [Ask if Q137 > 0 AND Q138 > 0] For your most serious injury that came as a result of sports, exercise, or recreational activities in the past 12 months, in what activity were you participating when the injury occurred? *Select one item from the list below.***

- Basketball
- Touch or flag football
- Softball or baseball
- Racquet sports (e.g., racquetball, tennis)
- Volleyball
- Soccer
- Running or jogging (outdoors)
- Calisthenics or gymnastics
- Martial arts
- Weight training
- Stationary aerobic equipment (e.g., bike, treadmill, elliptical machine)
- Water sports (e.g., water skiing, boating, swimming)
- Snow sports (e.g., skiing, snow boarding, sledding, tubing)
- Bicycling outdoors (not on a stationary bike)
- Skating (e.g., roller-skating, ice skating, roller-blading, skate boarding)
- Motorized sports (e.g., ATV, snowmobile, motocross)
- Horseback riding
- Outdoor recreation (e.g., hiking, mountain climbing, rock climbing)
- Brisk walking outdoors for exercise
- Other

**140. [Ask if Q137 > 0 AND Q138 > 0] What was your most serious injury that came as a result of sports, exercise, or recreational activities in the past 12 months? *Select one item from the list below.***

- Concussion
- Fracture (broken bone)
- Dislocation or separation of a joint
- Sprained joint
- Strained muscle
- Contusion (bruise)
- Tendonitis or bursitis
- Abrasion or laceration
- Blister
- Other

**[Ask if Q137 > 0 AND Q138 > 0 AND Q140 = "Other"] Please specify your most serious injury that came as a result of sports, exercise, or recreational activities in the past 12 months.**

**141. [Ask if Q137 > 0 AND Q138 > 0] For your most serious injury that came as a result of sports, exercise, or recreational activities in the past 12 months, what part of your body did you injure? *Select one item from the list below.***

- Head
- Neck
- Shoulder
- Arm or elbow
- Wrist or hand
- Back (upper or lower)
- Hip
- Thigh
- Knee
- Lower leg or calf
- Ankle
- Foot
- Other

[Ask if Q137 > 0 AND Q138 > 0 AND Q141 = "Other"] Please specify which part of your body you injured in your most serious injury.

142. [Ask if Q137 > 0 AND Q138 > 0] For your most serious injury from sports, exercise, or recreational activities in the past 12 months, how many total days of limited duty and quarters did you have?

143. [Ask if Q137 > 0 AND Q138 > 0 AND (Q139 = "Basketball" or "Touch or flag football" or "Softball or baseball" or "Racquet sports" or "Volleyball" or "Soccer" or "Martial Arts")] For your most serious injury playing sports, where were you playing when the injury occurred? **Select one item from the list below.**

- On post, unsupervised sports play (pick-up game)
- Off post, unsupervised sports play
- On post, scheduled unit-level leagues (MWR sponsored intramurals)
- Off post, league play (recreation or church league)
- Installation-level competitions (e.g., area, conference, All-Service)
- Unit-sponsored organizational days
- Other

[Ask if Q137 > 0 AND Q138 > 0 AND (Q139 = "Basketball" or "Touch or flag football" or "Softball or baseball" or "Racquet sports" or "Volleyball" or "Soccer" or "Martial Arts") AND Q143 = "Other"] Please specify where you were playing when your most serious injury occurred.

144. [Ask if Q137 > 0 AND Q138 > 0 AND (Q139 = "Running or jogging" or "Calisthenics or gymnastics" or "Stationary aerobic equipment" or "Bicycling" or "Weight training" or "Brisk walking for exercise")] For your most serious injury from exercise, where were you exercising when the injury occurred? **Select one item from the list below.**

- Unit level physical training, not at a post gym or fitness center
- Unit level physical training, at a post gym or fitness center
- Personal exercise, not at a post gym or fitness center
- Personal exercise, at a post gym or fitness center
- Other

[Ask if Q137 > 0 AND Q138 > 0 AND (Q139 = "Running or jogging" or "Calisthenics or gymnastics" or "Stationary aerobic equipment" or "Bicycling" or "Weight training" or "Brisk walking for exercise") AND Q144 = "Other"] Please specify where you were exercising when your most serious injury occurred.

145. [Ask if Q137 > 0 AND Q138 > 0] Which of the following factors were related to your most serious injury in sports, exercise, or recreational activities? **Mark "Yes" or "No".**

	Yes	No
a. I was out of shape for the activity. ....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
b. Playing, running, exercise, or other surface (e.g., court, field, baseball diamond, road, trail) was poorly maintained or inadequate (e.g., poorly constructed, slippery, uneven, rocky, pot holes) .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
c. Poor lighting for outdoor activity .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
d. Environmental factors (e.g., temperature, rain, snow) .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
e. Shoes and/or clothing were not appropriate for the activity (e.g., wearing running shoes to play basketball) .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
f. Too aggressive play by me or others .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
g. Inadequate or improper protective equipment (e.g., eyewear, mouth guards, mitt, glove, reflective vest/belt, shin guards, spotter, weight clamp) .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
h. Sports play was unofficiated (no referee or umpire) .....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
i. Improper use of exercise or recreational equipment by me or others.....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

	No
Yes	
j. Other.....	<input type="checkbox"/> <input type="checkbox"/>

[Ask if Q137 > 0 AND Q138 > 0 AND Q145 j = "Yes"] Please specify the other factors related to your **most serious** injury in sports, exercise, or recreational activities.

[Ask if Q137 > 1 AND Q138 > 1 AND Q146 = "Other"] Please specify in what other activity that you were participating when your **second most serious** injury occurred.

146. [Ask if Q137 > 1 AND Q138 > 1] For your **second most serious** injury that came as a result of sports, exercise, or recreational activities in the past 12 months, in what activity were you participating when the injury occurred? **Select one item from the list below.**

- Basketball
- Touch or flag football
- Softball or baseball
- Racquet sports (e.g., racquetball, tennis)
- Volleyball
- Soccer
- Running or jogging (outdoors)
- Calisthenics or gymnastics
- Martial arts
- Weight training
- Stationary aerobic equipment (e.g., bike, treadmill, elliptical machine)
- Water sports (e.g., water skiing, boating, swimming)
- Snow sports (e.g., skiing, snow boarding, sledding, tubing)
- Bicycling outdoors (not on a stationary bike)
- Skating (e.g., roller-skating, ice skating, roller-blading, skate boarding)
- Motorized sports (e.g., ATV, snowmobile, motocross)
- Horseback riding
- Outdoor recreation (e.g., hiking, mountain climbing, rock climbing)
- Brisk walking outdoors for exercise
- Other

147. [Ask if Q137 > 2 AND Q138 > 2] For your **third most serious** injury that came as a result of sports, exercise, or recreational activities in the past 12 months, in what activity were you participating when the injury occurred? **Select one item from the list below.**

- Basketball
- Touch or flag football
- Softball or baseball
- Racquet sports (e.g., racquetball, tennis)
- Volleyball
- Soccer
- Running or jogging (outdoors)
- Calisthenics or gymnastics
- Martial arts
- Weight training
- Stationary aerobic equipment (e.g., bike, treadmill, elliptical machine)
- Water sports (e.g., water skiing, boating, swimming)
- Snow sports (e.g., skiing, snow boarding, sledding, tubing)
- Bicycling outdoors (not on a stationary bike)
- Skating (e.g., roller-skating, ice skating, roller-blading, skate boarding)
- Motorized sports (e.g., ATV, snowmobile, motocross)
- Horseback riding
- Outdoor recreation (e.g., hiking, mountain climbing, rock climbing)
- Brisk walking outdoors for exercise
- Other

[Ask if Q137 > 2 AND Q138 > 2 AND Q147 = "Other"] Please specify in what other activity you were participating when your **third most serious** injury occurred.

**PERSONAL WORK EXPERIENCES**

**148. How much do you agree or disagree with each of the following statements?**

	Strongly disagree					
	Disagree				Neither agree nor disagree	
	Agree		Strongly agree			
a. The people I work with cooperate to get the job done.....	<input checked="" type="checkbox"/>					
b. I am given a real opportunity to improve my skills in my unit/command.....	<input checked="" type="checkbox"/>					
c. My work gives me a feeling of personal accomplishment.....	<input checked="" type="checkbox"/>					
d. I like the kind of work I do. ....	<input checked="" type="checkbox"/>					
e. I have trust and confidence in my supervisor. ....	<input checked="" type="checkbox"/>					

**149. Overall, how good a job do you feel is being done by your immediate supervisor/team leader?**

- Very good
- Good
- Fair
- Poor
- Very poor

**150. How much do you agree or disagree with each of the following statements?**

	Don't know					
	Strongly disagree				Disagree	
	Neither agree nor disagree		Agree			
	Strongly agree					
a. The workplace has the job-relevant knowledge and skills necessary to accomplish unit/command goals.....	<input checked="" type="checkbox"/>					

	Don't know					
	Strongly disagree				Disagree	
	Neither agree nor disagree		Agree			
	Strongly agree					
b. My work unit is able to recruit people with the right skills.....	<input checked="" type="checkbox"/>					
c. I know how my work relates to the military's goals and priorities.....	<input checked="" type="checkbox"/>					
d. The work I do is important. ....	<input checked="" type="checkbox"/>					
e. Physical conditions (e.g., noise level, temperature, lighting, cleanliness in the workplace) allow members/employees to perform their jobs well.....	<input checked="" type="checkbox"/>					
f. Supervisors/team leaders in my work unit support member's/employee's development.....	<input checked="" type="checkbox"/>					
g. My talents are used well in the workplace. ....	<input checked="" type="checkbox"/>					
h. My training needs are assessed. ....	<input checked="" type="checkbox"/>					

**151. How much do you agree or disagree with each of the following statements?**

	Don't know					
	Strongly disagree				Disagree	
	Neither agree nor disagree		Agree			
	Strongly agree					
a. Promotions in my unit are based on merit.....	<input checked="" type="checkbox"/>					

	Don't know					
	Strongly disagree					
	Disagree					
	Neither agree nor disagree					
	Agree					
	Strongly agree					
b. In my unit, steps are taken to deal with a poor performer who cannot or will not improve.....	<input checked="" type="checkbox"/>					
c. Creativity and innovation are rewarded.....	<input checked="" type="checkbox"/>					
d. In my most recent performance appraisal, I understood what I had to do to be rated at different performance levels (e.g., Fully Successful, Outstanding).....	<input checked="" type="checkbox"/>					
e. In my unit, differences in performance are recognized in a meaningful way.....	<input checked="" type="checkbox"/>					
f. Pay raises depend on how well members/employees perform their jobs.....	<input checked="" type="checkbox"/>					
g. My performance appraisal is a fair reflection of my performance.....	<input checked="" type="checkbox"/>					
h. Discussions with my supervisor/team leader about my performance are worthwhile.....	<input checked="" type="checkbox"/>					
i. Managers/supervisors/team leaders work well with members/employees of different backgrounds.....	<input checked="" type="checkbox"/>					

	Don't know					
	Strongly disagree					
	Disagree					
	Neither agree nor disagree					
	Agree					
	Strongly agree					
j. My supervisor supports my need to balance work and family issues.....	<input checked="" type="checkbox"/>					

**152. How much do you agree or disagree with each of the following statements?**

	Don't know					
	Strongly disagree					
	Disagree					
	Neither agree nor disagree					
	Agree					
	Strongly agree					
a. I have a high level of respect for my unit's senior leaders.....	<input checked="" type="checkbox"/>					
b. In my unit, leaders generate high levels of motivation and commitment in the workforce.....	<input checked="" type="checkbox"/>					
c. Managers review and evaluate my unit's/command's progress toward meeting its goals and objectives.....	<input checked="" type="checkbox"/>					
d. Members/employees are protected from health and safety hazards on the job.....	<input checked="" type="checkbox"/>					
e. Members have a feeling of personal empowerment with respect to work processes.....	<input checked="" type="checkbox"/>					
f. My workload is reasonable.....	<input checked="" type="checkbox"/>					

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	Don't know
g. Senior leaders communicate the goals and priorities of the unit/command. ....	<input checked="" type="checkbox"/>					
h. My unit has prepared members for potential security threats. ....	<input checked="" type="checkbox"/>					

**153. How satisfied are you with each of the following aspects of your job?**

	Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
a. Information you receive from management on what's going on in your Service. ....	<input checked="" type="checkbox"/>				
b. Your involvement in decisions that affect your work. ....	<input checked="" type="checkbox"/>				
c. Your opportunity to get a better job in your Service. ....	<input checked="" type="checkbox"/>				
d. Recognition you receive for doing a good job. ....	<input checked="" type="checkbox"/>				
e. Policies and practices of your senior leaders. ....	<input checked="" type="checkbox"/>				
f. Training you receive for your present job. ....	<input checked="" type="checkbox"/>				

**YOUR MILITARY WORKPLACE**

**154. To what extent do you agree or disagree with the following statements about your workplace?**

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
a. I know what is expected of me at work. ....	<input checked="" type="checkbox"/>				
b. I have the materials and equipment I need to do my work right. ....	<input checked="" type="checkbox"/>				
c. At work, I have the opportunity to do what I do best every day. ....	<input checked="" type="checkbox"/>				
d. In the last seven days, I have received recognition or praise for doing good work. ....	<input checked="" type="checkbox"/>				
e. My supervisor, or someone at work, seems to care about me as a person. ....	<input checked="" type="checkbox"/>				
f. There is someone at work who encourages my development. ....	<input checked="" type="checkbox"/>				
g. At work, my opinions seem to count. ....	<input checked="" type="checkbox"/>				
h. The mission/purpose of my Service makes me feel my job is important. ....	<input checked="" type="checkbox"/>				
i. My coworkers are committed to doing quality work. ....	<input checked="" type="checkbox"/>				
j. I have a best friend at work. ....	<input checked="" type="checkbox"/>				
k. In the last six months, someone at work has talked to me about my progress. ....	<input checked="" type="checkbox"/>				
l. This last year, I have had opportunities at work to learn and grow. ....	<input checked="" type="checkbox"/>				

**PERMANENT CHANGE OF STATION (PCS) MOVES**

**155. [Ask if Q4 = "Married" OR Q4 = "Separated" OR Q14 = "Yes"] Assuming you were going to PCS in the next 12 months, how desirable would each of the following assignments be to you in terms of quality of life?**

	Highly undesirable				
	Undesirable				
	Neither desirable nor undesirable				
	Desirable				
	Highly desirable				
a. Unaccompanied tour to Korea .....	<input checked="" type="checkbox"/>				
b. Accompanied tour to Korea .....	<input checked="" type="checkbox"/>				
c. Unaccompanied tour to Guam .....	<input checked="" type="checkbox"/>				
d. Accompanied tour to Guam .....	<input checked="" type="checkbox"/>				
e. Unaccompanied tour to Japan .....	<input checked="" type="checkbox"/>				
f. Accompanied tour to Japan .....	<input checked="" type="checkbox"/>				
g. Unaccompanied tour to Germany .....	<input checked="" type="checkbox"/>				
h. Accompanied tour to Germany .....	<input checked="" type="checkbox"/>				
i. Unaccompanied tour to Bahrain .....	<input checked="" type="checkbox"/>				
j. Accompanied tour to Bahrain .....	<input checked="" type="checkbox"/>				
k. Unaccompanied tour to Saudi Arabia .....	<input checked="" type="checkbox"/>				
l. Accompanied tour to Saudi Arabia .....	<input checked="" type="checkbox"/>				
m. Unaccompanied tour to Kuwait .....	<input checked="" type="checkbox"/>				
n. Accompanied tour to Kuwait .....	<input checked="" type="checkbox"/>				
o. Unaccompanied tour to Cuba .....	<input checked="" type="checkbox"/>				
p. Accompanied tour to Cuba .....	<input checked="" type="checkbox"/>				
q. Unaccompanied tour to Turkey .....	<input checked="" type="checkbox"/>				
r. Accompanied tour to Turkey .....	<input checked="" type="checkbox"/>				

**TAKING THE SURVEY**

**156. If you have comments or concerns that you were not able to express in answering this survey, please enter them in the space provided. Your comments will be viewed and considered as policy deliberations take place. Any comments you make on this questionnaire will be kept confidential, and no follow-up action will be taken in response to any specifics reported. Your feedback is useful and appreciated.**

**Status of Forces Surveys of Active Duty  
Members Long-Term Content Plan**

The long-term content plan outlines a six-survey, two-year cycle of content coverage. In addition to this coverage, there are a series of measures that are included on all surveys. These include demographics, Military OneSource use, overall satisfaction, retention intention, commitment, perceived readiness, stress, impact of time away, nights away, and overtime. There is also space on all surveys for additional items of interest at the time of administration.

In-Depth Coverage		
Spring—Odd Year	Summer—Odd Year	Fall—Odd Year
<p><b>1. Family Life</b></p> <ul style="list-style-type: none"> <li>- Family characteristics</li> <li>- Marriage and divorce</li> <li>- Personal stress</li> <li>- Marital/personal discord</li> <li>- Marital satisfaction</li> <li>- Programs for emotional support</li> </ul> <p><b>2. Military Life</b></p> <ul style="list-style-type: none"> <li>- Tempo—work level</li> <li>- Expectations/lifestyle</li> </ul> <p><b>3. General Financial Health</b></p> <ul style="list-style-type: none"> <li>- Financial readiness</li> </ul> <p><b>4. Safety</b></p> <ul style="list-style-type: none"> <li>- Safety practices and procedures, leadership's views and enforcement, and training</li> <li>- Work location</li> </ul>	<p><b>1. Programs and Services</b></p> <ul style="list-style-type: none"> <li>- Availability and satisfaction (on-base programs)</li> <li>- Schools for children</li> <li>- Detail on commissaries and exchanges</li> </ul> <p><b>2. Detailed Housing</b></p> <ul style="list-style-type: none"> <li>- On/off-base comparison</li> <li>- Satisfaction with housing</li> <li>- Characteristics of housing</li> </ul> <p><b>3. Health Care</b></p> <ul style="list-style-type: none"> <li>- Satisfaction with aspects of medical and dental benefits</li> </ul> <p><b>4. Military/Civilian Comparison</b></p>	<p><b>1. OPS/PERSTEMPO</b></p> <ul style="list-style-type: none"> <li>- Frequency and duration of deployments</li> <li>- Impact on career intention</li> <li>- Reasons for being away</li> <li>- Concerns while away</li> <li>- Communication with member/family during deployment</li> <li>- Top issues among returning service personnel</li> </ul> <p><b>2. Impact of Deployment</b></p> <ul style="list-style-type: none"> <li>- Effects of separation on relationships with children and spouse</li> <li>- Reunion phase of returnees</li> <li>- Concerns while away</li> </ul> <p><b>3. PCS Moves</b></p> <ul style="list-style-type: none"> <li>- Problems</li> <li>- Frequency</li> </ul> <p><b>4. Readiness</b></p> <ul style="list-style-type: none"> <li>- Unit and individual readiness</li> <li>- Perceptions of joint training</li> <li>- Training facilities</li> <li>- Use of technology</li> </ul> <p><b>5. Off-Duty Education for Service Members</b></p> <p><b>6. Location of Taking Survey/Computers Used</b></p>
Spring—Even Year	Summer—Even Year	Fall—Even Year
<p><b>1. Financial Health</b></p> <ul style="list-style-type: none"> <li>- Debt load and assets</li> <li>- Supplemental social/income programs</li> <li>- Financial planning (e.g., personal financial management)</li> <li>- Financial well-being</li> </ul> <p><b>2. Family Life</b></p> <ul style="list-style-type: none"> <li>- Family characteristics</li> <li>- Spouse employment</li> <li>- Child care</li> <li>- Education (spouse)</li> <li>- Access to technology</li> </ul> <p><b>3. Compensation</b></p> <ul style="list-style-type: none"> <li>- Retirement</li> <li>- Adequacy of compensation—relativity comparison to high school classmates</li> </ul>	<p><b>1. Retention</b></p> <ul style="list-style-type: none"> <li>- Incentives to keep</li> <li>- Perceptions of "up-or-stay"</li> <li>- Transition assistance programs</li> <li>- Promotion expectations</li> <li>- Active vs. passive steps toward leaving the military</li> <li>- Likelihood to recommend service</li> <li>- Impact of deployments on retention</li> <li>- Continuation factors</li> </ul> <p><b>2. Satisfaction</b></p> <ul style="list-style-type: none"> <li>- Service, lifestyle (e.g., assignments and travel), compensation, programs, etc.</li> </ul> <p><b>3. Transition Assistance</b></p> <ul style="list-style-type: none"> <li>- Awareness of transition benefits</li> </ul>	<p><b>1. Leadership</b></p> <ul style="list-style-type: none"> <li>- Perceptions of leadership</li> <li>- Satisfaction with supervision</li> </ul> <p><b>2. Mentoring</b></p> <p><b>3. Organizational Culture/Leadership</b></p> <ul style="list-style-type: none"> <li>- Zero-defect, micromanagement, and/or careerism</li> </ul> <p><b>4. Career Opportunities</b></p> <ul style="list-style-type: none"> <li>- Career development/expectations</li> <li>- Professional development programs</li> <li>- In-residence vs. correspondence evaluations</li> <li>- Occupational assignments</li> </ul> <p><b>5. Organizational Effectiveness</b></p> <ul style="list-style-type: none"> <li>- Job satisfaction and morale</li> <li>- Workgroup effectiveness</li> </ul> <p><b>6. Impact of Deployment</b></p> <ul style="list-style-type: none"> <li>- Effects of separation on relationships with children and spouse</li> <li>- Reunion phase of returnees</li> <li>- Concerns while away</li> </ul> <p><b>7. Location of Taking Survey/Computers Used</b></p>



APPENDIX D

LIST OF ACRONYMS

ACL	Anterior cruciate ligament
CAC	Common Access Card
CI	Confidence interval
DLD	Days of limited duty
DMDC	Defense Manpower Data Center
E	Enlisted
HRSAP	Human Resources Strategic Assessment Program
IRB	Institutional Review Board
JSPTIPWG	Joint Services Physical Training Injury Prevention Work Group
O	Officer
OR	Odds ratio
PMB	Department of Preventive Medicine and Biometrics
RSE	Relative standard error
SE	Standard error
SERA	Sports, exercise, and recreational activities
SM	Service member
SOFA0801	April 2008 Status of Forces Survey of Active Duty Members
SRIPTF	Sport/Recreation Injury Prevention Task Force
USACHPPM	United States Army Center for Health Promotion and Preventive Medicine
USAPHC	United States Army Public Health Command
USUHS	Uniformed Services University of Health Sciences

## APPENDIX E

### ACKNOWLEDGEMENTS

We would like to recognize the Defense Safety Oversight Council (DSOC) for its strong leadership and support of projects to reduce the number and severity of preventable injuries throughout the Department of Defense (DOD). The priority placed by the DSOC on attacking the biggest most preventable injury problems of the Military Services gave impetus to this project to determine the magnitude and nature of the problem posed by sports injuries. Because causes of injuries treated on an outpatient basis are not coded and entered into the electronic outpatient medical databases, a different source of information was required. The Status of Forces Survey provided the vehicle to determine that 25 percent to 30 percent of service members experience sports of exercise related injuries annually and that 40 percent to 50 percent of such injuries are due to running. This would have been unlikely to happen without the priorities established by the DSOC. A special thanks goes to Mr Joseph Angello (Office of the Secretary of Defense, Personnel and Readiness, and Executive Secretary of the Defense DSOC), his staff, and the support staff at the National Defense Center for Environmental Excellence who have provided exceptional leadership and support of initiatives to reduce preventable injuries, including injuries from sports, exercise and recreational activities, leading causes of injury among service members.