

# 2015 Health Related Behaviors Survey

## Health Promotion and Disease Prevention Among U.S. Active-Duty Service Members

The Health Related Behaviors Survey (HRBS) is the U.S. Department of Defense (DoD)'s flagship survey for understanding the health, health-related behaviors, and well-being of service members. Fielded periodically for more than 30 years, the HRBS includes content areas—such as substance use, mental and physical health, sexual behavior, and postdeployment problems—that may affect force readiness or the ability to meet the demands of military life. The Defense Health Agency asked the RAND Corporation to revise and field the 2015 HRBS.

In this brief, we review results for physical activity, weight status, routine medical care, complementary and alternative medicine (CAM), sleep health, and supplement use, as well as several health-related risk behaviors, including sedentary time (measured by hours of electronic game play), energy drink use, and texting or emailing while driving. We also note possible limitations to the data and implications of the findings. Collectively, we refer to these health outcomes as part of a larger process of health promotion and disease prevention, which themselves are related to readiness among service members. We make several comparisons to the overall U.S. population, including progress toward Healthy People 2020 (HP2020) objectives established by the U.S. Department of Health and Human Services. Because the military differs notably from the general population (e.g., service members are more likely to be young and male) and service members must be in good health to join the military, these comparisons are offered only as a benchmark of interest.

### Physical Activity

The armed forces have physical fitness and body fat standards that are designed to encourage service members to maintain their physical readiness. Those who do not maintain their physical readiness may be unable to complete assigned tasks; in addition, physical inactivity is associated with a range of chronic conditions that can adversely affect military readiness, individual quality of life, and health care utilization and costs.

### Methods:

RAND fielded the 2015 HRBS among active-duty U.S. military service members in the Air Force, Army, Marine Corps, Navy, and Coast Guard between November 2015 and April 2016. The survey used a random sampling strategy, stratified by service branch, pay grade, and gender (as obtained from Defense Manpower Data Center records). Respondents completed the anonymous survey online, with a response rate of 8.6 percent. This resulted in 16,699 usable surveys (of 201,990 invited to participate).<sup>1</sup> For some analyses, the number of usable surveys may differ because of differences in nonresponse for individual items. To represent the active-duty population, we weighted responses to account for the oversampling of service members in certain strata. In this research brief, we report point estimates and 95-percent confidence intervals (CIs).<sup>2</sup>

We tested differences in each outcome across levels of key factors or by subgroups—service branch, pay grade, gender, age group, race/ethnicity, and education level—using a two-stage procedure based on (1) a Rao-Scott chi-square test for overall differences across levels within a single factor and, if the overall test was statistically significant, (2) two-sample *t*-tests that explore all possible pairwise comparisons between levels of the factors (e.g., junior officers compared with noncommissioned senior officers). Readers interested in these differences should consult the full 2015 HRBS final report at [www.rand.org/t/RR1695](http://www.rand.org/t/RR1695).

This brief is one of seven, each corresponding to a different chapter in the full report. An eighth brief summarizes the entire report.

<sup>1</sup> When calculating response rates, we excluded service members whom we were unable to contact because of incorrect email or mailing addresses. The number we were unable to contact was 6,770, or 3.4 percent of the sample.

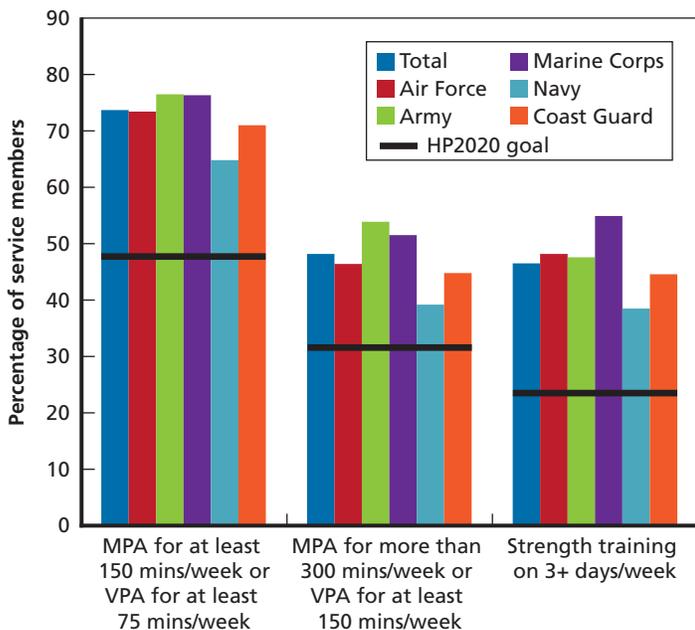
<sup>2</sup> CIs provide a range in which we expect the true population value to fall. They account for sampling variability when calculating point estimates but do not account for problems with question wording, response bias, or other methodological issues that, if present in the HRBS, might bias point estimates.

HP2020 sets objectives for moderate physical activity (MPA), vigorous physical activity (VPA), and muscle (or strength) training for the U.S. population. Those targets include the following:

- at least 47.9 percent engaging in MPA for at least 150 minutes per week or VPA for at least 75 minutes per week
- at least 31.3 percent engaging in MPA for more than 300 minutes per week or VPA for at least 150 minutes per week
- at least 24.1 percent engaging in muscle-strengthening activities on 2+ days per week.

Historically, active-duty service members have performed well against civilian recommendations for physical activity. In the 2015 HRBS, we found that service members exceeded each of the HP2020 objectives (see Figure 1). Levels of physical activity were highest in the Army and Marine Corps, and the most commonly cited reason for not exercising was work commitments, with 38.8 percent (CI: 37.3–40.3) of all service members endorsing this reason.

**Figure 1**  
**Physical Activity, by Service Branch**



NOTE: While the HP2020 goal for strength-training activities is at least two days per week, the 2015 HRBS measure identifies service members engaging in such activities at least three days per week. As a result, the HRBS measure underestimates the percentage of service members who met the HP2020 goal for strength training.

### Electronic Game Play

Electronic game play is associated with sedentary time, which is associated with increased risk for several cardiometabolic diseases and mortality independent of time spent exercising. The HRBS found that 80.5 percent (CI: 79.1–81.9) of active-duty service members played electronic games for less than two hours daily in the past month. Women (88.3 percent; CI: 86.9–89.6) were more likely than men (79.0 percent; CI: 77.4–80.7) to report playing electronic games for less than two hours daily.

### Weight Status

More than one-third of U.S. adults are obese, increasing their risks for early mortality and several chronic diseases. HP2020 sets objectives for weight status for adults aged 20 or older based on the following Centers for Disease Control and Prevention body mass index (BMI) categories:<sup>3</sup>

- underweight (less than 18.5 kg/m<sup>2</sup>)
- normal weight (18.5–24.9 kg/m<sup>2</sup>) (HP2020 target: at least 33.9 percent of the population)
- overweight (25.0–29.9 kg/m<sup>2</sup>)
- obese (30 or more kg/m<sup>2</sup>) (HP2020 target: no more than 30.5 percent of the population).

It is important to note that BMI is an indirect measure of body fat, and more-muscular service members may have been misclassified as overweight or obese.

Overall, the 2015 HRBS found that 51.0 percent (CI: 49.4–52.6) of service members were overweight, and an additional 14.7 percent (CI: 13.5–15.8) were obese. Although the military is meeting the HP2020 goal for obesity, the high percentage of overweight service members could be cause for concern. However, as noted, very muscular individuals may be incorrectly classified as unhealthy based on standard BMI cutoffs. One-third of active-duty service members were a normal (healthy) weight, and less than 1 percent were underweight. The percentage of service members categorized as obese was highest in the Army (Figure 2) and among senior enlisted personnel (E7–E9). Women were less likely to be obese than men.

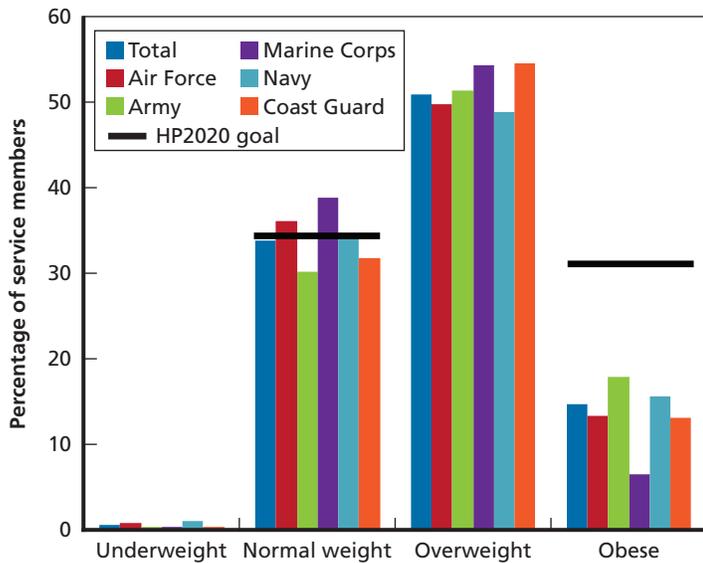
### Routine Medical Care

Routine medical care ensures receipt of age- and sex-appropriate screenings and helps identify health problems early. All active-duty service members have access to health care through the Military Health System and TRICARE.

DoD has established annual Periodic Health Assessments to evaluate the medical readiness of active-duty service members. In addition to assessing health-related military

<sup>3</sup> BMI is calculated as weight in kilograms (kg) divided by height in meters squared (m<sup>2</sup>).

**Figure 2**  
**Weight Status, by Service Branch**



readiness, these exams help identify early onset of chronic diseases, weight problems, and behavioral health issues.

The 2015 HRBS asked respondents when they last visited a doctor for a routine checkup (i.e., a general health examination, not an exam for a specific injury, illness, or condition). Current military policy requires service members to receive annually a face-to-face, clinical health assessment, so we estimated that failure to obtain a routine checkup within the previous two years suggests the need for a current medical reassessment. Overall, 93.2 percent (CI: 92.4–94.1) of respondents reported receiving a routine medical checkup in the past two years.

**Complementary and Alternative Medicine**

CAM consists of diverse practices (such as chiropractic, biofeedback, and meditation) that are not usually thought of as a traditional medical treatment or therapy modality. Research suggests that CAM use is more common in the military than in the U.S. adult population. The 2015 HRBS asked respondents whether they had used various types of CAM in the past 12 months.

Nearly half (47.6 percent; CI: 46.0–49.2) of HRBS respondents said they used one or more CAM modalities in the past year. CAM use was higher among officers of all ranks compared with junior enlisted service members: 54.9 percent (CI: 52.6–57.1) for junior officers and 54.4 percent (CI: 52.1–56.8) for mid-grade and senior officers compared with 43.1 percent (CI: 40.0–46.1) for junior enlisted. CAM use was also higher among women (64.2 percent; CI: 62.4–66.1) compared with men (44.5 percent; CI: 42.6–

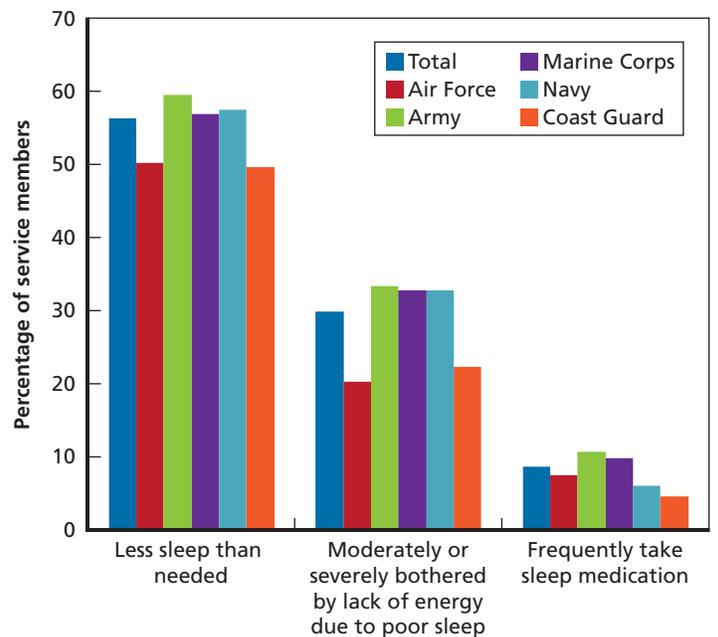
46.3). The most common types of CAM use reported were massage therapy (20.4 percent; CI: 19.2–21.6), relaxation techniques (18.2 percent; CI: 17.0–19.3), exercise/movement therapy (17.8 percent; CI: 16.7–18.9), and creative outlets (17.3 percent; CI: 16.1–18.5).

**Sleep Health**

Sleep problems, which are common among military personnel, are a typical reaction to stress and are symptoms of post-traumatic stress disorder, depression, anxiety, and traumatic brain injury. Insufficient sleep is also associated with adverse mental, physical, and cognitive functioning. Side effects of sleep medications used by service members may further limit service member functioning and military health readiness.

The 2015 HRBS asked respondents whether they got as much sleep as they needed, whether they had been moderately or severely bothered by a lack of energy due to poor sleep, and whether they used medications to help with sleep. Most respondents reported getting less sleep than they needed (Figure 3). Nearly one-third said they were bothered by lack of energy due to poor sleep. Those in the Army, Marine Corps, and Navy were more likely to report these answers than service members in the Air Force or Coast Guard. Enlisted service members were less satisfied with their sleep than officers were, and women were less satisfied than men.

**Figure 3**  
**Sleep Health, by Service Branch**



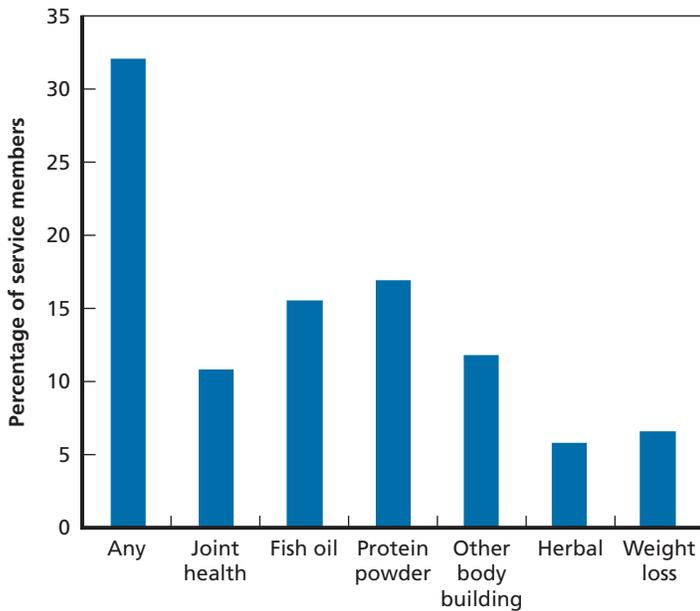
## Supplements and Energy Drinks

### Dietary Supplements

The percentage of U.S. adults who report using dietary supplements is increasing, and more than half of adults use at least one. Along with some in the medical and scientific communities, DoD has expressed concern about the safety and effectiveness of supplements; specific concerns include tainted supplements, the lack of scientific evidence for the benefits of supplements, and excessive nutrient and protein intake.

The 2015 HRBS asked respondents how often in the past 12 months they took any of the following six types of supplements: supplements for joint health, fish oil, protein powder, other legal body-building supplements, herbal supplements, and weight-loss products. Daily supplement use ranged from 5.9 percent (CI: 5.2–6.6) for herbal supplements to 16.9 percent (CI: 15.7–18.1) for protein powder, and 32.0 percent (CI: 30.6–33.5) reported using any supplement daily (Figure 4). On average, supplement use increased with rank and was greater for men than women.

**Figure 4**  
Supplement Use, by Type



### Energy Drinks

Energy drinks contain caffeine, and caffeine has demonstrated efficacy in operational situations for augmenting physical and cognitive performance. However, the high amount and concentration of caffeine in energy drinks has raised some concerns. Use of caffeine-containing energy drinks has been associated with alcohol consumption (among college students) and increased emergency department visits.

The 2015 HRBS asked respondents how often they drank energy drinks or shots (e.g., Red Bull, Monster, 5-Hour Energy, Power Shots) in the past 30 days. Altogether, 49.0 percent (CI: 47.4–50.6) of respondents reported not using energy drinks in the past month, 7.2 percent (CI: 6.3–8.0) reported doing so daily, 16.8 percent (CI: 15.5–18.1) reported use at least weekly but not daily, and 27.0 percent (CI: 25.5–28.5) reported use at least monthly but not weekly. Use was higher for respondents in the Marine Corps than in the other services, for service members in more-junior pay grades than those in more-senior pay grades (among both officers and enlisted), and for men than women.

### Texting or Emailing While Driving

Typing and reading while driving can adversely affect stimulus detection, reaction time, and other capabilities needed for safe driving, thereby contributing to injuries and mortality from motor vehicle accidents. Injuries and accidents associated with texting or emailing while driving, both on and off duty, have a direct influence on personnel health and therefore readiness. The 2015 HRBS asked respondents how many days in the past 30 they texted or emailed while driving a car or other vehicle. Overall, 87.2 percent (CI: 86.1–88.3) of service members reported *occasionally* (defined as five or fewer days in the past 30) texting or emailing while driving. Doing so *regularly* (defined as 20 or more days in the past 30) was reported more often by those in lower pay grades (among both officers and enlisted).

### Conclusions and Policy Implications

Although DoD and the Coast Guard are doing well in several areas related to health promotion and disease prevention, there are a few health outcomes and health behaviors that warrant immediate attention. These include the following:

- Almost two-thirds of service members were *overweight* or *obese*, and this is a potential cause for concern. However, because muscle mass can contribute to a heavier weight, it is not clear whether all service members categorized as overweight were actually unhealthy. DoD already has some remedial policies in place (e.g., the Healthy Base Initiative) to address the high percentage of overweight and obese service members. More-systematic tracking that better accounts for muscle mass (such as during routine physical examinations or physical fitness tests) may provide more-precise estimates of overweight and obesity among service members.
- Another source of concern is the *sleep problems* reported by service members. More than half reported that they get less sleep than they need, and about one-third said

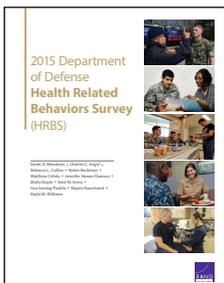
that they are moderately or severely bothered by lack of energy due to poor sleep. Insufficient sleep is associated with adverse health outcomes and has the potential to impair military readiness and, ultimately, performance.

- A third source of concern is the proportion—roughly one quarter—of service members who reported frequent (i.e., weekly or daily) *use of energy drinks*. Many energy drinks contain large quantities of caffeine, and studies suggest that energy drinks containing caffeine may be linked to emergency visits and other adverse health-related behaviors.

Finally, the results from the 2015 HRBS suggest that there are certain groups of service members, based on demographics, service branch, and so forth, that may need special attention to prevent negative health outcomes and to improve current health-related behaviors. Tailoring prevention messages for different cultural and demographic groups is a recommended public health strategy. For example, messages that resonate with 20-year-old, junior enlisted service members may not be as salient with 40-year-old officers. Similarly, messages appealing to those in the Army or Marine Corps may not work as well for those in the Air Force.

## Limitations

HRBS response rates were lower in 2015 than in prior iterations of the survey. Low response rates do not automatically mean that the results are biased, but they do increase the likelihood that service members who responded differ qualitatively from those who did not. Those differences, then, could bias our estimates of health and health-related behavior; however, it is impossible to know whether the potential bias would result in better or worse outcomes than those observed in the data. Thus, the results of this survey should be interpreted cautiously and in conjunction with other existing data. In addition, comparing the HRBS with other civilian populations (e.g., all U.S. adults) may be difficult to interpret because of both observed (e.g., demographic) and unobserved differences between the two populations. Finally, because we altered the wording of some questions in the 2015 HRBS, the results presented in this brief may not always be comparable to prior versions of the HRBS.



This brief describes research done in the Forces and Resources Policy Center of the RAND National Defense Research Institute and documented in *2015 Department of Defense Health Related Behaviors Survey (HRBS) of Active-Duty Service Members: Final Report*, by Sarah O. Meadows, Charles C. Engel, Rebecca L. Collins, Robin Beckman, Matthew Cefalu, Jennifer Hawes-Dawson, Molly Doyle, Amii M. Kress, Lisa Sontag-Padilla, Rajeev Ramchand, and Kayla M. Williams, RR-1695-OSD (available at [www.rand.org/t/RR1695](http://www.rand.org/t/RR1695)), 2018. To view this brief online, visit [www.rand.org/t/RB9955z2](http://www.rand.org/t/RB9955z2). The RAND Corporation is a research organization that develops solutions to public policy challenges to help make communities throughout the world safer and more secure, healthier and more prosperous. RAND is nonprofit, nonpartisan, and committed to the public interest. RAND's publications do not necessarily reflect the opinions of its research clients and sponsors. RAND® is a registered trademark.

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