

Editorial

Physical Activity and Chronic Illnesses among Gulf War Veterans

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The prevalence of physical inactivity and obesity is a serious threat to the health of Americans, including those who are military veterans, because of the increased risk of cancer of the breast, colon, and other sites; diabetes; cardiovascular diseases; arthritis; sleep apnea; premature mortality; and other adverse health consequences [1]. Along with maintenance of normal weight and consumption of healthy food, physical activity contributes to individual health and wellbeing [2,3]. Physical activity, nutrition, and energy balance are important determinants of weight loss and maintenance of healthy weight. However, many US adults do not meet the national guidelines for engaging in regular physical activity. Based on data from the 2013 Behavioral Risk Factor Surveillance System (BRFSS), only half of US adults (50.2%) met guidelines for physical activity and an additional 11.7% only partially met the guidelines (Yoo et al., unpublished). Approximately 35% of U.S. adults are obese [4,5].

Public health recommendations emphasize a lifestyle approach to increasing physical activity that includes brisk walking, climbing stairs, doing house work and yard work, and engaging in recreational activities [1]. Among persons living with chronic illness, physical activity and maintaining a healthy body weight can reduce the risk of disease progression or recurrence and improve quality of life.

Encouraging physical activity among middle-aged and older persons is essential, as they may suffer from one or more chronic illnesses and are at risk of declining physical fitness or unintended weight gain. The 2008 Physical Activity Guidelines for Americans emphasize that all adults should avoid inactivity [6]. Some physical activity is better than none, and adults who participate in any amount of physical activity gain some health benefits. For substantial health benefits, adults should do at least 150 minutes a week of moderate-intensity or 75 minutes a week of vigorous-intensity aerobic physical activity, or an equivalent combination of moderate- and vigorous-intensity aerobic activity. Such activity should be performed in episodes of at least 10 minutes and, preferably, spread throughout the week [6].

Studies have found that less than half of US veterans meet recommendation for physical activity and that the prevalence of

inactivity is particularly high among veterans who obtain their health care from Department of Veterans Affairs (VA) facilities [7]. Following military discharge, the percentage of former military service men and women engaging in moderate-to-vigorous physical activity declines substantially [8]. Substantial weight gain has also been associated with the time of military discharge [9]. Although active duty military personnel are more fit and less likely to be overweight or obese than civilians, no such differences have been observed in comparisons of veteran and non-veteran populations [9]. In an analysis of data collected in 2003-2005, Coughlin et al. [10] found that the percentages of Gulf War and Gulf Era veterans who were overweight (BMI 25 to \leq 29.9), were 46.8% and 48.7%, respectively. The percentages who were obese (BMI \geq 30) were 29.6% and 28.3%, respectively [10]. The prevalence of obesity is 37.4% in veteran patients seen at Veterans Health Administration medical centers [11].

Gulf War veterans who suffer from Gulf War Illness often experience chronic pain, fatigue, fatigue upon exertion, impaired cognition, and other debilitating symptoms. As a result, they are less likely to engage in regular moderate to vigorous intensity physical activity and are at risk of chronic conditions such as overweight, obesity, cardiometabolic diseases, and certain types of cancer. The VA Cooperative Study 470 Study Group conducted a randomized controlled trial from 1999 to 2001 among 1,092 Gulf War veterans who reported at least 2 of 3 symptom types (fatigue, pain, and cognitive) for more than 6 months [12]. The participants were randomized to receive usual care, cognitive behavioral therapy (CBT) plus usual care, exercise plus usual care, or CBT plus exercise plus usual care. The exercise sessions were 60 minutes for 12 weeks and were specifically designed to improve physical activity level by incorporating the patient's symptoms into the treatment regimen. The percentage of veterans with improvement in physical function at 1 year was 11.5% for usual care, 11.7% for exercise alone, 18.4% for CBT plus exercise, and 18.5% for CB alone. The participants were relatively noncompliant with both therapies, attending on average only 50% of the sessions [12]. About 13% - 15% did not attend any sessions. For secondary outcomes, exercise alone or in combination with CBT significantly improved fatigue, distress, and cognitive symptoms but not pain [12]. Predictors of compliance during treatment included less pain, greater age, and body mass index [13]. The results of the trial suggest that CBT and/or exercise can provide modest relief for some of the symptoms of Gulf War Illness. Cook et al. [14] found that GWI patients (n=15) who suffered from chronic musculoskeletal pain rate exercise as more painful and effortful and were more sensitive to heat-pain stimuli than healthy Gulf War veteran controls (n=17).

Additional research is needed to identify optimal physical activity regimens for veterans who suffer from GWI which take into account differences in patient symptoms (e.g., musculoskeletal pain), response

to moderate or vigorous intensity physical activity, comorbid health conditions, age, gender, and other factors. Published studies do not clarify what types of physical activity are most appropriate for patients suffering from GWI according to intensity level, duration, or frequency. As veterans who served during the 1991 Gulf War advance in age, they are at increasing risk of chronic conditions that are prevalent among men and women in the general US population including heart disease, diabetes, and common forms of cancer (e.g., colorectal cancer and breast cancer). Gaining additional scientific information about effective treatments for GWI and patient self-management techniques, such as tailored physical activity regimens, is essential for limiting disability and premature mortality in this important veteran population.

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