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Pilot Study to Determine Interest of Adult Civilian Dependents of Active Duty Military Personnel in Participation in a Weight Control Program

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ABSTRACT Adult civilian dependents of active duty military personnel (ADMP) may play a central role in influencing the home food environment and the risk of overweight and obesity in American Warfighters and military families. However, there is no information on whether this group would be receptive to weight control programs. We conducted a survey to determine the level of interest of adult civilian dependents of ADMP in participating in a group weight control program. Subjects were a convenience sample of 191 adult civilian dependents of ADMP (94% women, 6% men) based in Massachusetts and aged 33.8 ± 8.4 years, body mass index 25.5 ± 5.5 kg/m². Overall, there was a significant effect of body mass index on interest in program participation ($p = 0.004$). Eighty five percent of overweight participants and 100% of obese participants reported being Moderately Likely or Very Likely to participate in a provided weight control program. In overweight and obese survey respondents there was no significant effect of ADMP rank on interest in program participation ($p = 0.34$). These findings suggest that overweight and obese adult civilian dependents of ADMP may be very receptive targets for programs to control overweight and obesity in military families.

INTRODUCTION

The high national prevalence of overweight and obesity is one of the major public health challenges of our time.¹ Excess body weight not only increases the risk of chronic diseases and cognitive decline throughout adult life¹ but also dramatically increases health care costs.² As documented in several surveys, the disease burden associated with overweight and obesity is known to be substantial in active duty military personnel (ADMP).^{3,4,5,6,7} In addition to the known health risks of obesity, there are consequences of excess body weight in ADMP that may specifically impact military readiness. For example, obesity in ADMP impairs physical performance during strenuous activity,⁸ and increases risks of exertional heat illness,⁹ asthma,¹⁰ and depression.⁴ Furthermore, obese ADMP have increased rates of absenteeism¹¹ that, when combined with the unique health challenges that

impact military readiness, have created the concern that excess body weight in ADMP is a crisis for national security.¹²

Most ADMP live with families when not deployed or at work, and the family environment is known to influence the risks of obesity.¹³ Currently, there is no general consensus over how effective weight control can best be achieved in military family members including ADMP. Military installations typically provide individual counseling to ADMP who fail to meet military weight standards, and such programs are documented to have modest short-term success.^{14–23} However, the fact that rates of obesity in military personnel aged 20 years and older have risen over time,²⁴ rather than declined, suggests that new approaches are needed for sustainable weight control in ADMP. Recently, web-based support programs have been tested and programs that implement changes in available foods offered in base cafeterias have been initiated, but to date these newer approaches have not reported any significant beneficial effect on body weight.²⁵

Targeting the home environments of ADMP may potentially complement other efforts to facilitate sustainable weight control. In particular, interventions for the adult civilian dependents of ADMP may support healthy eating behaviors and lifestyle choices of ADMP, and thereby result in improvements in weight control and obesity-related health concerns. Consistent with this view, reports from research in civilian populations by us and others have documented that

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spouses and work colleagues of individuals enrolled in a weight loss program also lose weight even when not directly participating in the program.^{26,27,28} However, to our knowledge there have been no published surveys exploring whether adult civilian dependents of ADMP are interested in pursuing healthy weight control efforts, and thus the potential for beneficial effects of focusing on this group to achieve successful weight control in ADMP is uncertain. We therefore conducted a survey in adult civilian dependents of ADMP to determine their level of interest in participating in a group weight control program.

METHODS

Subjects

Subjects for this study were a convenience sample of 191 adult civilian dependents of ADMP based in eastern Massachusetts who were recruited for an anonymous survey. Inclusion criteria were ≥ 18 years of age and willing to complete the survey. Participants were not eligible to complete the survey if they were ADMP, or were dependents of a retired or reserve military personnel, or were under 18 years of age. To recruit subjects, investigators set up stations during 6 days in September 2012 at various military base locations including the local commissary, Base Exchange, school pick-up area, and waiting areas of a medical clinic (i.e., locations frequented by adult civilian dependents of ADMP). The study was approved by the Institutional Review Board at United States Army Research Institute on Environmental Medicine, Natick MA, and permission was also given by the local military base commander. Most individuals approached to complete the survey were willing to do so, and 202 individuals agreed to complete the survey, of whom four were excluded because they were not adult dependents of an ADMP and one record had age outside survey specifications. A further six records were retrospectively excluded because of missing data (missing height and/or weight data or ADMP's rank).

Protocol

The survey consisted of questions for demographic information including age, gender, height, and weight, their ADMP's place of work, ADMP's rank, and level of interest in participating in a cost-free group weight control program (Table I). Subjects were asked to record their relative level of interest in participating in a cost-free weight control program as Very Likely, Moderately Likely, Moderately Unlikely, or Unlikely (Table I). The questionnaire was a scannable paper-and-pencil form, with no personal identifiers. For the purposes of this survey all eligible participants regardless of their body mass index (BMI) status were enrolled because level of interest in relation to BMI was the primary outcome of interest.

Statistical Analysis

Differences between the adult dependents of Enlisted Personnel and Officers were assessed by using χ^2 tests for homogeneity

TABLE I. Weight Management Survey for Adult Military Dependents.

Please answer the following questions by filling in the circles that corresponds with your answer. All the information you provide will be kept confidential. Thank you.

1. If a Cost-Free Weight Control Program (1 Hour Per Week) Was Provided to Dependents of Military Personnel at This Military Base, How Likely Would You Be to Participate?
 - a. Very Likely
 - b. Moderately Likely
 - c. Moderately Unlikely
 - d. Unlikely
2. Are You an Adult Dependent of a Military Personnel?
 - a. Yes
 - b. No
3. At What Military Base Does Your Military Sponsor Currently Work? (Mark Only One)

Four Bases Were Listed.^a
4. What Rank is Your Military Sponsor? Fill in "0" Under the Appropriate Rank if You Are Not Sure of the Level.
 - a. Enlisted (0, 1, 2, 3, 4, 5, 6, 7, 8, 9)
 - b. Officer (0, 1, 2, 3, 4, 5, 6, 7, 8, 9)
 - c. Warrant Officer (0, 1, 2, 3, 4, 5, 6, 7, 8, 9)

Background Questions

5. Gender
 - a. Male
 - b. Female
6. What is Your Age Today?

Age (Years) _____
7. Your Height in Inches (Without Shoes/Boots)

Feet _____ Inches _____
8. Your Weight in Pounds (Without Clothes)

Pounds _____

These questions were originally formatted for a computer scannable form that was completed by participants.

^aBase location names have been eliminated to protect confidentiality.

neity of proportions for categorical variables and Student's *t* test for independent samples for quantitative variables. Analysis of variance was used to assess level of interest (Very Likely, Moderately Likely, Moderately Unlikely, Very Unlikely) by BMI and rank of ADMP. For some of the analyses interest in participation was recoded as "yes" or "no" by combining the likely categories as a yes and the unlikely categories as no. Fisher's Protected Least Significant Difference and Tukey's Honestly Significant Difference were used post hoc to assess differences between the categories of willingness to participate. Analyses were performed by using SAS for Windows, version 9.3. Observed significance levels (*p* values) less than 0.05 were judged to be statistically significant. All statistical tests were two sided.

RESULTS

Information on demographic and interest in participation in a weight control program was obtained from 191 completed surveys (Table II). Most of the participants were women (94%). The mean age of the participants was 34 years, and

TABLE II. Demographic Profile of Adult Civilian Dependents of ADMP Participating in the Survey

	Enlisted ADMP Dependents <i>N</i> (%), or Mean ± SD	Officer ADMP Dependents <i>N</i> (%), or Mean ± SD	All ADMP Dependents <i>N</i> (%), or Mean ± SD	<i>p</i> Value
Employment of ADMP	107 (56)	84 (44)	191 (100)	
Gender				
Female	100 (93)	79 (94)	179 (94)	1.000
Male	7 (7)	5 (6)	12 (6)	
Age Group (Years)				
18–29	47 (44)	18 (21)	65 (34)	0.002
30–39	43 (40)	40 (48)	83 (43)	
40–49	11 (10)	22 (26)	33 (17)	
50+	6 (6)	4 (5)	10 (5)	
Age (Years)	33 ± 9.0	36 ± 7	34 ± 8	0.017
Height (cm)	164.4 ± 7.7	165.0 ± 7.2	164.7 ± 7.5	0.569
Weight (kg)	71.3 ± 15.8	66.2 ± 15.8	69.1 ± 16.0	0.027
BMI Category (kg/m ²)				
<18.5	4 (4)	6 (7)	10 (5%)	0.192
18.5–24.99	45 (42)	46 (55)	91 (48%)	
25.0–29.99	32 (30)	21 (25)	53 (28)	
30.0–34.99	17 (16)	7 (8)	24 (12)	
≥35.0	9 (8)	4 (5)	13 (7)	
Mean BMI (kg/m ²)	26.4 ± 5.5	24.3 ± 5.3	25.5 ± 5.5	0.008

p Values are two-sided. Comparing Enlisted with Officer. Officer includes Warrant Officer category as well.

47% of the respondents were overweight or obese based on Centers of Disease Control and Prevention guidance.²⁹ Adult civilian dependents of Enlisted Personnel had a significantly higher mean BMI than adult civilian dependents of Officer level personnel (26.4 versus 24.3 kg/m², *p* = 0.008). The age of the adult civilian dependents of Officers was significantly higher than the adult civilian dependents of Enlisted Personnel (36 versus 33 years, *p* = 0.017). Interest of adult civilian dependents of ADMP for participating in a weight control program by level of BMI and rank of military sponsor is shown in Table III. There was no significant difference

between adult civilian dependents of Enlisted versus Officer ADMP in their overall interest in participation in a cost-free weight control program (*p* = 0.59), and among the subset of respondents who were overweight or obese there was no significant effect of their ADMP’s rank on interest in participation (*p* = 0.34). When all subjects were combined, level of interest in participating in a weight control program was significantly different by category of BMI (*p* = 0.004); of those who reported being obese 73% were Very Likely to participate versus 53% of those who were overweight, 39% of those who were normal weight, and only 10% who were

TABLE III. Interest of Adult Civilian Dependents of ADMP in Participating in a Weight Control Program, by level of BMI and Rank of Military Sponsor

ADMP Category	BMI Category	Very Likely % (<i>n</i>)	Moderately Likely % (<i>n</i>)	Moderately Unlikely % (<i>n</i>)	Unlikely % (<i>n</i>)
Enlisted ADMP Dependents (<i>N</i> = 107)	Underweight	0.0	25.0 (1)	0.0	75.0 (3)
	Normal	37.8 (17)	37.8 (17)	11.1 (5)	13.3 (6)
	Overweight	59.4 (19)	28.0 (9)	6.3 (2)	6.3 (2)
	Obese	76.9 (20)	23.1 (6)	0.0	0.0
Officer ADMP Dependents (<i>N</i> = 84)	Underweight	16.7 (1)	33.3 (2)	16.7 (1)	33.3 (2)
	Normal	39.1 (18)	39.1 (18)	4.3 (2)	17.4 (8)
	Overweight	42.9 (9)	38.0 (8)	14.3 (3)	4.8 (1)
	Obese	63.6 (7)	36.4 (4)	0.0	0.0
All (<i>N</i> = 191)	Underweight	10.0 (1)	30.0 (3)	10.0 (1)	50.0 (5)
	Normal	38.5 (35)	38.5 (35)	7.7 (7)	15.3 (14)
	Overweight	52.8 (28)	32.1 (17)	9.4 (5)	5.7 (3)
	Obese	73.0 (27)	27.0 (10)	0.0	0.0

BMI categories: underweight BMI <18.5 kg/m²; normal BMI 18.5–24.99 kg/m²; overweight BMI 25.0–29.99 kg/m²; obese BMI ≥30.0 kg/m² using CDC guidelines.²⁹ Officer includes Warrant Officer category as well. The sub categories have been collapsed for some of the analyses such as in the comparison of differences in the likelihood of participation between “enlisted” and “officers” and also with all participants combined, interest in participation was recoded as “yes” or “no” by combining the likely categories as a “yes” and the unlikely categories as “no” and also for some comparisons using the weight status “underweight and normal weight” were collapsed and “the overweight and obese” were collapsed into one and the calculated *p* values reflect the comparison of the respective two categories of interest.

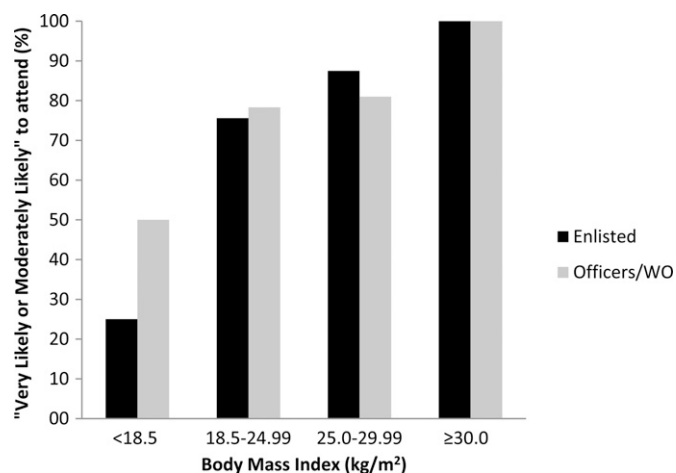


FIGURE 1. Interest in participation in a weight control program in relation to BMI and employment status of military sponsor.

underweight. Combining Very Likely and Moderately Likely categories into one Likely category, 100% (95% confidence intervals [CI] 86, 100%) of all survey participants who were obese reported being likely to participate in a weight control program compared to 85% of overweight dependents (CI, 73, 93%). Figure 1 shows Likely interest in participation in relation to BMI and rank of adult civilian dependent's military sponsor. In a combined Very Likely and Moderately Likely category of interest, rank did not influence interest in program participation ($p = 0.59$), and also did not influence the difference in interest level between obese and overweight survey participants versus normal weight and underweight survey participants ($p = 0.33$). There was a significantly greater interest in participation in overweight or obese compared to normal weight or underweight respondents ($p = 0.004$).

DISCUSSION

To our knowledge, this is the first survey to determine level of interest in participation in a group weight control program in adult civilian dependents of ADMP, and the survey participants reported an extremely high rate of interest. Among individuals who were obese, more than two-thirds reported being Very Likely to participate in a weight control program, and more than half of those who were overweight reported being Very Likely to participate. Overall 100% of obese and 85% of overweight survey participants reported being Likely to participate. These values are higher than rates of interest documented in national surveys. For example, in the 2002–2008 National Health and Nutrition Examination Survey, only 64% of American adults were interested in weighing less and only 48% were pursuing weight control strategies.³⁰ Thus, the results of this survey suggest that adult civilian dependents of ADMP may be extremely receptive to programmatic health initiatives designed to reduce obesity.

The high reported level of interest in weight control programs in adult civilian dependents of ADMP was consistent

with reports that other groups with high-stress occupations, such as police and firefighters, are also particularly receptive to weight loss programs and have low rates of drop out from offered programs.³¹ Another noteworthy finding from this survey was that there was no significant difference in the level of interest in participating in a weight control program between adult civilian dependents of Enlisted versus Officer Personnel. Socioeconomic status and income have been generally recognized to impact perception of overweight and obesity among civilian population, and specifically individuals of lower socioeconomic class and income have a reduced perception of the need to lose weight relative to degree of overweight.³² That finding was not replicated in our comparison of adult dependents of Enlisted versus Officer Personnel, and indeed there was a strong interest in participation in a group weight control program across all employment levels. The reason for this high level of interest in a weight control program independent of the employment status of the ADMP is not known, but one potential explanation may be a greater awareness of obesity-related health issues in military families because of the well-known military body fat standards^{33,34,35,36} and obesity awareness campaigns targeting military families.³⁷ It is also possible that the survey results were influenced by the fact that the question posed in the survey asked about a cost-free weight control program, an intentional component that was designed to eliminate financial factors from reported interest levels and to test the concept of a program that could be offered without payment. Further studies are clearly needed to determine whether the high rates of interest in weight control programs found in this study translates into actual program enrollment in cost-free programs, and whether offering programs without cost or for cost influences sign up rates in this challenged population.

A surprising finding in this study was the observation that a high number of normal weight individuals (BMI 18.5–24.99), 39%, and a high number of underweight individuals (BMI < 18.5), 10%, also expressed strong interest in participation if a weight control program was offered to them. The reason for this interest in participating in a weight control program among people who do not need to lose weight for health reasons is not known, but may be because of the young age of the population and/or related to the obesity awareness campaigns initiated for military families,³⁷ or may be unique to the culture in military families. In addition, although the survey described the program as a weight loss program, the actual question that ascertained the level of interest used the term “weight control”; it is likely that in individuals with a healthy weight, being from military families where the emphasis on healthy weight is high, this interest likely represents an overall interest in weight management for themselves as well as their families. Further research in this area to clarify reasons for interest in weight control in individuals with a healthy BMI is clearly needed.

Some limitations of this study included the fact that a convenience population was used to administer the survey,

which means there is uncertainty in the extent to which the results are generalizable to other military groups. In addition, most of the individuals were women and the extent to which the results are representative of men is uncertain at this time. Moreover, the survey did not determine how many individuals would actually enroll in a weight control program, only the percentage that was interested in doing so. Nevertheless, such surveys are necessary to determine likely interest in a weight control program, and the consistently strong association observed between BMI category and level of interest in the program suggests that there is a strong interest in weight control programs in adult civilian dependents of ADMP, which may exceed level of interest in such programs in nonmilitary families.

In conclusion, there appears to be a high level of interest in cost-free group weight management programs among adult civilian dependents of ADMP. Level of interest is particularly strong for the individuals who would most benefit from such programs (47% of our sampled population)—namely those who are overweight and particularly those who are obese—and both adult dependents of Officers and adult dependents of Enlisted Personnel show equivalent levels of interest. Because of the potential for an obesogenic home environment to negatively impact weight control programs directly targeting ADMP, and the need to reduce the health care burden and medical costs of obesity in all military family members, effective weight management programs for this population are urgently needed. This survey suggests that adult dependents of ADMP are likely to take advantage of such programs if they are offered, and the benefits of program participation may potentially apply to both program participants and the ADMP they live with.

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REFERENCES

1. U.S. Department of Health and Human services. The surgeon general's vision for a healthy and fit nation January 2010. Available at <http://www.surgeongeneral.gov/initiatives/healthy-fit-nation/obesityvision2010.pdf>; accessed April 10, 2013.
2. Center for Disease Control and Prevention. Overweight and obesity: causes and consequences. 2012. Available at <http://www.cdc.gov/obesity/adult/causes/index.html>; accessed April 11, 2013.
3. Gantt CJ, Neely JA, Villafana IA, Chun CS, Gharabaghi SM: Analysis of weight and associated health consequences of the active duty staff at a major Naval medical center. *Mil Med* 2008; 173(5): 434–40.
4. Kress AM, Hartzel MC, Peterson MR: Burden of disease associated with overweight and obesity among U.S. military retirees and their dependents, aged 38–64, 2003. *Prev Med* 2005; 41(1): 63–9.
5. Smith TJ, Marriott BP, Dotson L, et al: Overweight and obesity in military personnel: sociodemographic predictors. *Obesity* 2012; 20(7): 1534–8.

6. Health Program Analysis and Evaluation Directorate. Overweight in the military: issue brief. 2010. Available at <http://www.tricare.mil/survey/hcsurvey/issue-briefs/issuebriefCY05Q1.pdf>; accessed July 18, 2013.
7. McGraw LK, Turner BS, Stotts NA, Dracup KA: A review of cardiovascular risk factors in US military personnel. *J Cardiovasc Nurs* 2008; 23(4): 338–44.
8. Vogel JA: Obesity and its relation to physical fitness in the U.S. military. *Armed Forces Soc* 1992; 18(4): 497–513.
9. Bedno SA, Li Y, Han W, et al: Exertional heat illness among overweight U.S. Army recruits in basic training. *Aviat Space Environ Med* 2010; 81(2): 107–11.
10. Young SY, Gunzenhauser JD, Malone KE, McTiernan A: Body mass index and asthma in the military population of the northwestern United States. *Arch Intern Med* 2001; 161(13):1605–11.
11. Kyrolainen H, Hakkinen K, Kautiainen H, Santtila M, Pihlainen K, Hakkinen A: Physical fitness, BMI and sickness absence in male military personnel. *Occup Med* 2008; 58(4): 251–6.
12. Packnett ER, Niebuhr DW, Bedno SA, Cowan DN: Body mass index, medical qualification status, and discharge during the first year of US Army service. *Am J Clin Nutr* 2011; 93(3): 608–14.
13. Crossman A, Anne Sullivan D, Benin M: The family environment and American adolescents' risk of obesity as young adults. *Soc Sci Med* 2006; 63(9): 2255–67.
14. Stewart T, Han H, Allen RH, et al: H.E.A.L.T.H.: efficacy of an internet/population-based behavioral weight management program for the U.S. Army. *J Diabetes Sci Technol* 2011; 5(1): 178–87.
15. Dennis KE, Pane KW, Adams BK, Qi BB: The impact of a shipboard weight control program. *Obes Res* 1999; 7(1): 60–7.
16. Simpson M, Earles J, Folen R, Trammel R, James L: The Tripler Army Medical Center's LE3AN program: a six-month retrospective analysis of program effectiveness for African-American and European-American females. *J Natl Med Assoc* 2004; 96(10): 1332–6.
17. Trent LK, Stevens LT: Evaluation of the Navy's obesity treatment program. *Mil Med* 1995; 160(7): 326–30.
18. Davis MK: A comprehensive weight-loss program for soldiers. *Mil Med* 1996; 161(2): 84–8.
19. Smith TJ, Sigrist LD, Bathalon GP, McGraw S, Karl JP, Young AJ: Efficacy of a meal-replacement program for promoting blood lipid changes and weight and body fat loss in US Army soldiers. *J Am Diet Assoc* 2010; 110(2): 268–73.
20. James LC, Folen RA, Earles J: Behavioral telehealth applications in the treatment of obese soldiers: a feasibility project and a report on preliminary findings. *Mil Psychol* 2009; 13(3): 177–86.
21. Robbins AS, Chao SY, Baumgartner N, Runyan CN, Oordt MS, Fonseca VP: A low-intensity intervention to prevent annual weight gain in active duty Air Force members. *Mil Med* 2006; 171(6): 556–561.
22. Bowles SV, Picano J, Epperly T, Myer S: The LIFE program: a wellness approach to weight loss. *Mil Med* 2006; 171(11): 1089–94.
23. Sanderson PW, Clemes SA, Biddle SJ: The correlates and treatment of obesity in military populations: a systematic review. *Obes Facts* 2011; 4(3): 229–37.
24. Bray MB, Pemberton M.R, Hourani L.L, Witt M: 2008 Department of defense survey of health related behaviors among active duty military personnel. A component of the Defense Lifestyle Assessment Program (DLAP)2009. Available at <http://www.tricare.mil/tma/2008HealthBehaviors.pdf>; accessed June 3, 2013.
25. Sproul AD, Canter DD, Schmidt JB: Does point-of-purchase nutrition labeling influence meal selections? A test in an Army cafeteria. *Mil Med* 2003; 168(7): 556–60.
26. Gorin AA, Wing RR, Fava JL, et al: Weight loss treatment influences untreated spouses and the home environment: evidence of a ripple effect. *Int J Obes* 2008; 32(11): 1678–84.
27. Matsuo T, Kim MK, Murotake Y, et al: Indirect lifestyle intervention through wives improves metabolic syndrome components in men. *Int J Obes* 2010; 34(1): 136–45.

28. Salinardi TC, Batra P, Roberts SB, et al: Lifestyle intervention reduces body weight and improves cardiometabolic risk factors in worksites. *Am J Clin Nutr* 2013; 97(4): 667–76.
29. Centers for Disease Control and Prevention. Division of Nutrition, Physical Activity, and Obesity, National Center of Chronic Disease Prevention and Health Promotion. About BMI for adults. 2011. Available at http://www.cdc.gov/healthyweight/assessing/bmi/adult_bmi/index.html; accessed October 28, 2013.
30. Yaemsiri S, Slining MM, Agarwal SK: Perceived weight status, overweight diagnosis, and weight control among US adults: the NHANES 2003–2008 Study. *Int J Obes* 2011; 35(8): 1063–70.
31. Winick C, Rothacker DQ, Norman RL: Four worksite weight loss programs with high-stress occupations using a meal replacement product. *Occup Med* 2002; 52(1): 25–30.
32. Paeratakul S, White MA, Williamson DA, Ryan DH, Bray GA: Sex, race/ethnicity, socioeconomic status, and BMI in relation to self-perception of overweight. *Obes Res* 2002; 10(5): 345–50.
33. Jones D: Air Force Guidance Memorandum for AFI 36-2905, Fitness Program. Headquarter United States Air Force, Department of the Air Force, 2013. Available at http://static.e-publishing.af.mil/production/1/af_a1/publication/afi36-2905/afi36-2905.pdf; accessed July 18, 2013.
34. U.S Department of Homeland Security. Coast Guard Weight and Body Fat Standards Program Manual, Command Instruction M1020.8H. U.S Department of Homeland Security, United States Coast Guard. Washington, DC, 2012. Available at http://www.uscg.mil/directives/cim/1000-1999/CIM_1020_8H.pdf; accessed July 18, 2013.
35. Department of the Army. Army Regulation 600-9: The Army Weight Control Program. Department of the Army. Washington, DC, 2006. Available at http://armypubs.army.mil/epubs/pdf/r600_9.pdf; accessed July 18, 2013.
36. Department of the Navy: OPNAV Instruction 6110.1J. Physical Readiness Program. Department of the Navy. Washington, DC, 2011. Available at <http://doni.daps.dla.mil/Directives/06000%20Medical%20and%20Dental%20Services/06-100%20General%20Physical%20Fitness/6110.1J.pdf>; accessed July 18, 2013.
37. Sanchez E: New campaign aims to improve troops, families' health. 2012. Available at <http://www.defense.gov/news/newsarticle.aspx?id=67129>; accessed July 18, 2013.