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*original research*

# Self-Reported Health and Fitness Habits of Certified Athletic Trainers

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***Context:*** As health care providers, certified athletic trainers (ATs) should be role models for healthy behaviors.

***Objective:*** To analyze the self-reported health and fitness habits of ATs.

***Design:*** A cross-sectional, cluster random sample.

***Setting:*** Online questionnaire.

***Patients or Other Participants:*** Of a sampling frame of 1000 potential participants, 275 ATs completed the questionnaire.

***Main Outcome Measure(s):*** Health habits and activity were based on a typical 7-day week.

***Results:*** A total of 41% of the participants met the exercise recommendations of the American College of Sports Medicine; 7% reported being sedentary. Differences were noted between the sexes for fitness habits ($P < .035$) and composite health score ($P < .001$). None of the ATs reported meeting the Daily Reference Intake for all 5 food groups. Seven percent of female ATs consumed more alcohol than recommended, compared with 2% of males. However, 80% of males and 93% of females reported consuming 5 or fewer drinks per week. Only 0.8% reported currently smoking.

***Conclusions:*** This sample of ATs had better health and fitness habits than the general population but did not meet professional recommendations set forth by the American College of Sports Medicine or the United States Department of Agriculture. Thus, these ATs were not ideal role models in demonstrating healthy behaviors.

***Key Words:*** role models, exercise, nutrition

**Key Points**

- Although athletic trainers demonstrated better health and fitness habits than the general population, they did not display ideal role model behaviors.
- Female athletic trainers reported higher levels of physical activity than male athletic trainers.
- No athletic trainers met the Daily Reference Intake for all 5 food groups during a typical week.
- Athletic trainers reported positive role model behaviors for alcohol and tobacco use.

Health and fitness lifestyle factors have garnered much attention over the past decade as obesity has become increasingly prevalent in America. According to the United States Department of Agriculture (USDA),[1] caloric imbalance from physical inactivity and poor diet are the major causes of obesity in our society. Obesity increases the risk of coronary artery disease, diabetes, and osteoporosis while decreasing cardiovascular and respiratory function. However, a lifelong practice of physical activity can decrease these risks and improve a person's quality of life.[2]

Health professionals are considered health and fitness behavior role models because many people assume that they will apply their professional knowledge to their own lifestyle. When it comes to exercise, both physicians and physical therapists have higher levels of physical activity than the general population: 60% to 93% of physicians and 64.5% of physical therapists reported participating in regular physical activity.[3–5] Physicians consume about the same amount of alcohol as the general population (90% consume alcohol and 35% do so nightly). Physicians (1.6%) smoke cigarettes at rates lower than the general population (20.9%).[3,6,7] Similarly, physical therapists smoke at rates lower than the general population.[4]

Health educators also engage in regular exercise, with 88% reporting regular participation in physical activity.[8] Health care professionals are more likely to educate their patients and discuss the importance of physical activity and proper nutrition if they themselves practice these healthy lifestyle habits.[9] Given this implicit responsibility as health care providers, certified athletic trainers (ATs) should be role models and proponents for healthy dietary and physical activity habits.

Cuppett and Latin's[10] work on physical activity levels of ATs revealed higher total activity levels by females than males, with 16% of total ATs reporting no physical activity. However, they did not look at any lifestyle habits other than fitness. Although literature is available on health and fitness habits of practitioners within various health care professions, similar research on ATs is limited. Therefore, the purpose of our study was to extend the work of Cuppett and Latin[10] by examining ATs' health and fitness habits using a broad range of dietary and behavioral factors with nutrition, alcohol, and tobacco use as variables. The question guiding this study was, Do ATs engage in healthy lifestyle practices pertaining to fitness, nutrition, alcohol, and tobacco? We compared the ATs' habits with those of the general

population as well as to health practices recommended by the American College of Sports Medicine (ACSM) and the USDA. Employing Cuppett and Latin's[10] methods, we compared ATs by employment setting, age, sex, and in-season versus out-of-season sports coverage.

## METHODS

### Participants

Our study was approved by the human subjects institutional review board at the institution. We then submitted an application to District 4 and to the National Athletic Trainers' Association to solicit participants from the Great Lakes Athletic Trainers' Association, which included 6 states. Following standard protocol for research applications, the National Athletic Trainers' Association Information Technology Coordinator randomly selected 1000 participants from the District 4 member database who were ATs. We e-mailed the informed consent document with the link to the online questionnaire to the Information Technology Coordinator, who then sent the document to the participants.

### Questionnaire

We developed a questionnaire based upon the instrument Health Behaviors of Health Educators: A National Survey, developed by Jenkins and Olsen.[8] We modified it using additional validated health and fitness questionnaires[11,12] and only addressed lifestyle behaviors over which an individual has choice and control. Our modifications, such as the addition of minutes spent performing fitness activities and the deletion of sections such as stress and relaxation (which were not applicable to our study) allowed us to examine habits in addition to fitness to analyze overall health. Our final questionnaire consisted of 23 questions divided into 4 sections: fitness, 6 questions; nutrition, 6 questions; alcohol and tobacco, 3 questions; and demographics, 8 questions.

The fitness section addressed participants' exercise frequency, intensity, and time in cardiovascular, resistance, and flexibility training. The nutrition section quantified the number of meals eaten, as well as the types of food, caffeine, supplements, and vitamins consumed in a week. The alcohol and tobacco section assessed participants' usage patterns. The demographics section included questions on education, employment setting, sex, age, height, and mass. We designed the final questionnaire online using SurveyMonkey (Portland, OR).

### Pilot Study

We asked 25 ATs who were not in the sampling frame to participate in the pilot study; 17 completed questionnaires were collected (68% return rate). Pilot study participants read the questions for clarity and provided feedback on item appropriateness. Minimal editing was performed to improve item readability and clarity. We then conducted reliability analyses on the pilot data using SPSS (version 11.5; SPSS Inc, Chicago, IL). The questionnaire had a reliability coefficient of .73, meeting the minimum recommended value of .70.[13]

### Procedures

Initial contact with participants via e-mail included an invitation to participate in the study, a copy of the informed consent document, and a link to the online questionnaire. The questionnaire was available online for 5 weeks, and volunteers were asked to follow the online link to complete it. Questionnaire submission was evidence of agreement to participate in the study. Because survey completion was anonymous, follow-up reminders were e-mailed to all 1000 participants at weeks 2 and 4. After initial contact, 221 questionnaires were completed. Six were collected after the 2-week follow-up, and the final 69 were completed after the 4-week follow-up. Of the 1000 e-mail invitations to participate, 1.4% (n = 14) were returned as undeliverable, 2.1% (n = 21) were returned incomplete and therefore not useable, and 275 of the remaining 986 invitations were completed to comprise the final sample (27.9% response rate). Typical response rates for similar studies conducted using District 4 data were between 20% and 30% (R. Hess, written communication, March 2007).

Although e-mail surveys do not produce the highest response rates, they are practical due to the cost efficiency and the ability to contact a large sample. Many factors could influence response rates, but Sheehan[14] found that only the year the survey was conducted and the number of follow-up notices provided had effects on the response rates. Response rates for e-mail surveys have decreased from 1986 (61.5%) to 2000 (24%).[14] With a response rate of 28.6%, our survey produced a higher response rate than the average from 8 years ago. Our follow-up e-mail contacts fit recommended procedures for increasing response rates. Multiple follow-ups lead to higher response rates than do single reminders, and an e-mail reminder has been found to increase response rates by 25%.[14]

### Composite Health Score

In 1973, Belloc[15] reported 7 health practices that were associated with a general index of physical health: hours of sleep, physical exercise in leisure time, alcohol consumption, cigarette usage, obesity, eating between meals, and having regular breakfasts. These variables were the basis of our composite health score, which was calculated for each participant using the individual's responses from the fitness, nutrition, alcohol and tobacco sections. These scores were then compared with the recommendations from the ACSM for fitness habits and the USDA for dietary, alcohol, and tobacco habits. We assigned each participant a 1 if he or she met the recommendation and a 0 if he or she did not, to create a composite health score ranging between 0 and 10.

The ACSM recommends at least 30 minutes of exercise, 5 or more days per week[16]; the USDA recommendations include eating 4 servings of fruit, 5 servings of vegetables, 6 servings of grains, 2 servings of meat or beans, and 3 servings of dairy per day, as well as consuming alcohol in moderation (1 drink per day for females, 2 drinks per day for males) and avoiding tobacco.[1] Because these lifestyle variables are associated with health status, disease prevention, and mortality rates, they provide a good indication of overall health.

Participants were assigned 1 or 0 for each of the following variables: exercise, body mass index (BMI), grains, fruits, vegetables, protein, low-fat dairy, caffeine,

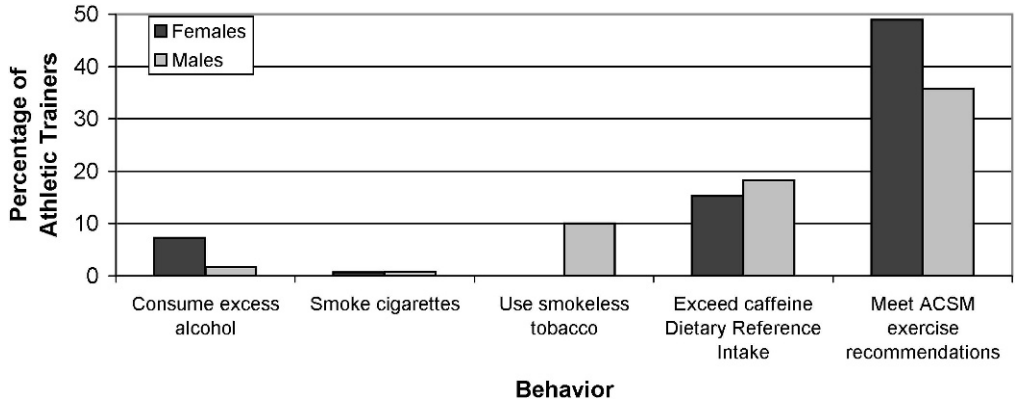


**Figure 1. Health and fitness behaviors by sex.**

alcohol use, and tobacco use. The variables were equally weighted. We also calculated BMI from self-reported height and weight responses for inclusion in the composite health score. We used BMI in this study because it is the most common method of determining if a person is overweight or obese and is an indicator for hypertension and diabetes.[17,18] Although not a perfect measurement and limited to a gross assessment of body mass, BMI is an easily obtained and widely understood measure of the ratio of height to mass. Given the familiarity most health care professionals have with the BMI measure and the ease of collecting the data, it was chosen as the most practical measure of body mass.

### Statistical Analysis

Results were downloaded from SurveyMonkey to a spreadsheet for input into SPSS. The reliability coefficient for the results was .70, meeting the minimum recommended value of .70.[13] Descriptive statistics, including frequencies and measures of central tendency, were calculated. We conducted a 1-way analysis of variance (ANOVA) on the composite health score and each of the following: employment setting, sex, and in-season versus out-of-season ATs. Tukey post hoc tests were calculated for the composite health score and age. Chi-square analyses were conducted on sex and fitness, sex and smoking, employment and smoking, employment and exercise, and in-season versus out-of-season ATs and exercise.

## RESULTS

### Demographics

Of the 275 respondents, 50% (n = 137) were female, 44% (n = 120) were male, and 7% (n = 18) did not specify sex or complete the demographic section. Respondents' mean age was 34.4 ± 10 years, with a range of 22 to 64 years. To simplify analyses, age ranges were categorized in 10-year increments, with more than 40% of participants in their 30s. The sample included participants who were employed in a variety of professional settings, with one-fourth working in a college or university setting.

The mean BMI for participants was 25.78 for females and 27.97 for males. Of the female respondents who completed the survey, 53% (n = 72) had a BMI in the healthy range, 25% (n = 34) were overweight, and 22% (n = 31) were obese based on the guidelines of the Centers for Disease Control and Prevention.[16] Of the male participants, 26% (n = 31) had a healthy BMI, 50% (n = 60) were overweight, and 24% (n = 29) were obese.

### Seasonal Differences

We hypothesized that differences would exist in health and fitness habits between in-season and out-of-season ATs, because work commitments vary by season and personal habits could be affected by time constraints and stress. Out-of-season ATs were defined as those whose primary sport was not in the normal competitive season. In-season ATs were those whose primary sport was in the normal competitive season. Participants without seasonal variation included ATs covering multiple sports with no seasonal differences and those working in settings such as a clinic. A 1-way ANOVA revealed a difference between mean health scores of out-of-season ATs (3.53) and those who reported not having a season (4.21) ($F_{2,72} = 4.43$, $P < .013$, $\beta = .76$). Of the 111 participants who were in season, 43% (n = 48) reported consistent health habits in season and out of season, and 45% (n = 50) reported healthier habits out of season. Of the 88 participants who reported being out of season, 47% (n = 41) reported no difference in habits between seasons, and 36% (n = 32) reported healthier habits out of season.

### Fitness

The questionnaire included items pertaining to individual fitness habits during a typical 7-day week. Of the 275 ATs who responded to the questions pertaining to fitness, 41% (n = 112) met the ACSM exercise recommendations. Of those respondents indicating sex, 39% (n = 43) of those meeting the fitness guidelines were male and 61% (n = 67) were female (Figure 1). Chi-square tests revealed a difference between male and female ATs ($\chi^2 = 4.46$, $P < .035$), with females reporting higher levels of physical activity. Of all participants, only 7% (n = 19) reported not participating in any physical activity. Those employed by a health or fitness club reported the highest rate of physical activity, with 80% (4 of 5) meeting the ACSM recommendations. Independent contractors reported the lowest rate of physical activity, with only 25% (3 of 12) meeting the recommendations. However, no differences were found among employment settings.

Participants aged 20 to 29 years reported the highest rate of physical activity, with 49% (n = 44) meeting the ACSM

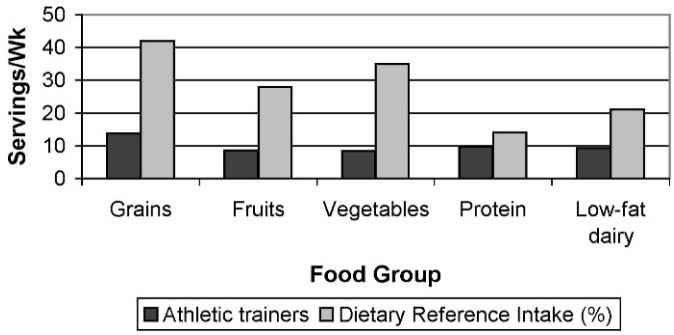


**Figure 2. Athletic trainers' nutritional intake versus daily recommended intake.**

recommendations. No differences were found among the remaining age groups.

## Nutrition

In general, ATs did not follow the recommendations for nutritional habits. Although some ATs reported meeting the USDA's Dietary Reference Intake (DRI) for individual food groups in a typical 7-day week, none reported meeting the DRI for all 5 food groups during a typical 7-day week. The food group recommendation met most often by ATs was protein, with 27% of participants (n = 73) meeting the DRI. Grains had the fewest ATs meeting the DRI, with only 4% of participants (n = 10) consuming sufficient intake (Figure 2). It does not appear that ATs regularly substituted these nutritious foods with discretionary foods, however, as they only reported eating fried foods, high-fat foods, high-fat dairy foods, and sweets 3 to 5 times in a typical 7-day week.

## Alcohol and Tobacco

A total of 7% (n = 10) of female ATs consumed more alcohol than is recommended by the USDA, compared with only 2% (n = 2) of male ATs. The DRI for females is 0 to 1 drink per day, while for males it is 1 to 2 drinks per day. However, males averaged more drinks per 7-day week (2.63) than females (2.28). Of all participants, 11% (n = 57) of ATs (21% female, n = 30; 19% male, n = 23) reported that they do not consume alcohol (Figure 3) compared with 45% of the general population. (Four participants who did not indicate their sex reported that they did not consume alcohol.)

When asked about their tobacco habits, 1% (n = 2) of ATs reported that they currently smoked cigarettes and 8% (n = 21) reported having previously smoked. The current smokers were employed by a hospital or clinic and a secondary school. No difference was noted between cigarette use and employment setting. All ATs who reported using smokeless tobacco (4%, n = 12) were males.

## Composite Health Score

**Sex.** Of a possible score of 10, a mean composite health score of 3.8 was calculated, with a range of 0 to 9. A 1-way ANOVA revealed that mean composite health scores were higher for females (4.34) than males (3.37) ($F_{1,225} = 17.41$, $P < .001$).

**Age.** A 1-way ANOVA ($F_{4,250} = 2.54$, $P < .04$) revealed a difference by age group on the composite health score. Tukey post hoc tests showed that the mean composite health score for the 20- to 29-year age group (4.24) was different than the 50- to 59-year age group (3.21).

## DISCUSSION

Physical activity is widely accepted as beneficial for health and disease prevention. Cardiorespiratory endurance, muscular endurance, muscular strength, body composition, and flexibility are the 5 components of physical fitness, which has been defined as the ability to carry out one's daily tasks with energy to enjoy leisure activities and meet unforeseen emergencies.[2] Our study was designed to extend the work of Cuppett and Latin[10] by adding health habits to their original focus on ATs' fitness habits. We compared ATs' habits based on demographics with those of the general population.

Because of their involvement with the health and fitness of the general population, health professionals have been investigated by previous authors to determine their own health status. Health professionals are often perceived as proponents of a healthy lifestyle, and health educators not only promote a healthy lifestyle but also motivate members of the general population to do the same.[8] Athletic training is a growing health care profession and ATs have emerged as primary health care providers for athletes and physically active populations. Accordingly, ATs should engage in a healthy lifestyle to lead by example in their various employment settings. The function of both health educators and coaches as role models has been documented.[8] Consid-

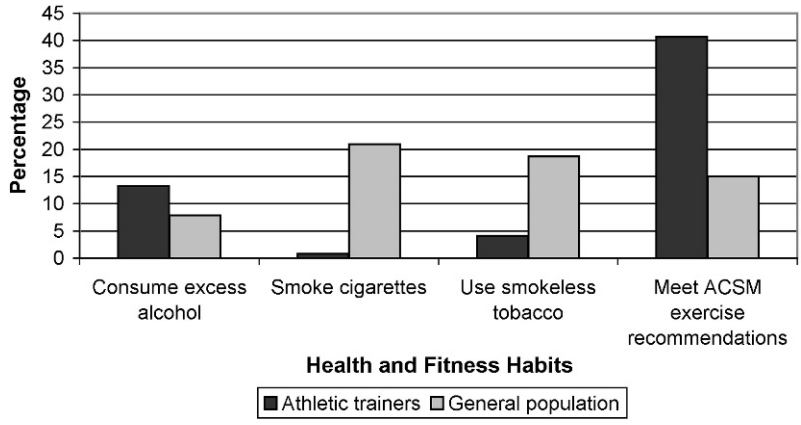


**Figure 3. Health and fitness habits of athletic trainers versus the general population. ACSM indicates American College of Sports Medicine.**

ering this, we agree with Cuppett and Latin's[10] assertion that ATs should serve as physical activity role models and proponents for their clientele.

## Fitness

The ACSM and the Centers for Disease Control and Prevention both recommend at least 30 minutes of moderate-intensity physical activity on most, if not all, days of the week.[2,19] The ATs participating in this study were more physically active than the general population; of the latter, 15% met the ACSM recommendations and 25% were sedentary.[2] Only 7% of ATs were sedentary, which suggests that although the majority of participants were not meeting the recommendations, most were getting some regular physical activity.

Our results differed from reported activity levels in the literature. Among nursing students, 17.4% of first-year students and 19.7% of final-year students met the ACSM recommendations. For students studying subjects other than nursing, that figure rose to 25%.[9]

In a study of physicians, 60% of participants exercised several, if not all, days a week, whereas 10% had not exercised at all in the past 6 months.[5] Among physical therapists, 64.5% reported regular physical activity and only 3% reported a sedentary lifestyle.[4] Similarly, Cuppett and Latin[10] reported that 16% of their respondents were sedentary and that women were more physically active than men. These sex differences are consistent with our results, in which women reported higher levels of physical activity than men; however, they differ from studies on the general population, in which physical inactivity is more prevalent among women (25.9%) than men (21.4%).[2,20]

A possible explanation for this difference is that many ATs work long hours, usually more than 40 and sometimes more than 60 hours a week, and are often not in control of their schedules due to games and practices.[9,21,22] Some jobs also require early morning, late night, and weekend coverage as well as travel.[21,22] This can lead to difficulty balancing professional and personal time.[22] As a result, personal time is sacrificed, which can lead to difficulty maintaining regular exercise routines and, therefore, reduced levels of physical activity.[10] Long work hours can also lead to high levels of personal stress.[23] Males and females cope with stress in different ways, even when presented with an identical situation.[24] Therefore, females may use physical activity as a stress reliever, whereas males may find other ways to relieve stress.

Our results showed no differences in fitness habits across employment settings, although those employed by a health or fitness club reported the highest rate of physical activity. Cuppett and Latin[10] also found no differences in levels of physical activity across employment position levels, but they reported that of all job settings, those employed in a clinical setting were the most physically active, with time being the most common barrier given for not participating in physical activity.

Our results showed the highest rates of physical activity among 20- to 29-year-old participants. This finding is similar to that of the general population: about half of young people and 15% of adults report engaging in regular vigorous physical activity. Similarly, only 14% of young people reported a sedentary lifestyle, compared with 25% of adults in the general population.[2]

Fitness is an area in which most ATs have a reasonable level of professional training and understanding; however, more than one-half of our participants reported not meeting professional recommendations. Regular physical activity is important in maintaining health and well being and should be part of a daily routine for professionals who are responsible for others' health and fitness.

## Nutrition

Healthy dietary practices are not based on one's food intake for a single meal or even a day but rather on a pattern of food intake over an extended period of time.[1] As a population, Americans consume too many calories and do not follow a healthy or balanced diet. Nutrition guidelines are designed to help individuals maintain a healthy lifestyle through healthy eating patterns that include all 5 food groups. A healthy diet helps maintain a healthy body weight and desirable cholesterol, lipoprotein, and blood pressure levels, whereas a poor diet has been linked to cardiovascular disease, hypertension, dyslipidemia, type II diabetes mellitus, overweight and obesity, osteoporosis, anemia, malnutrition, and some cancers.[1,9] Healthy eating requires individuals to keep caloric intake under control while consuming a variety of nutrient-dense foods from the basic food groups and limiting the consumption of saturated fats, trans fats, cholesterol, added sugars, salt, and alcohol.[1] The USDA's recommendations include choosing foods from the 5 basic food groups (grains, vegetables, fruits, milk products, and meat and beans) and participating in regular physical activity. These recommendations are based on DRIs that encompass the Upper Level Intake Level for each nutrient, the Recommended Dietary Allowance, or Adequate Intake, as some nutrients do not have Recommended Dietary Allowances.[1] The food guide pyramid is a realistic tool, and its recommendations can be met within normal energy consumption along with most nutrient intake recommendations if discretionary calories are kept to a minimum.

Many Americans consume more calories than needed by eating processed foods and foods of little nutritious value while not meeting the recommended intakes for a number of nutrients. Nutrients that are of concern for adults include potassium, calcium, fiber, magnesium, and vitamins A, C, and E. Adults need to choose foods with greater nutrient densities that include the aforementioned nutrients, such as fruits, vegetables, milk products, whole grains, nuts, legumes, and lean meats. These foods will help individuals meet the recommended intakes and limit extra calories to maintain or decrease weight.[1]

In our study, ATs did not follow the USDA's nutritional recommendations. None of the ATs met the DRI for all 5 food groups during a typical 7-day week. Three ATs met the DRI for 4 of the 5 food groups, and 6 met the DRI for 3 of the 5 food groups. Protein was the food group DRI most often met (27%), whereas grains were the food group least often met (4%). In another study examining health professionals, female nursing students' carbohydrate intake was also found to be below the recommended values.[9] Research on other health professionals has shown nutrient imbalance and lack of diversity in meals due to schedules

that cause meals to be eaten away from home.[9] Those ATs with limited time may find it easier to purchase fast foods that can be consumed quickly or may be forced to eat at fast-food restaurants while traveling with teams.

We also found that ATs consumed low amounts of discretionary foods. These habits differ from those of the general population, as the latter has a higher fat intake than the DRI.[1] The ATs' nutritional habits also differed from those of health educators, who were within USDA ranges for consumption of fruits, vegetables, and whole grains; ATs did not meet the DRI for these 3 groups, and their intake of whole grains was limited.[8]

A well-balanced diet leads to sound nutritional intake and also promotes maintenance of a healthy body weight.[1] Participants' reported intakes of the 5 food groups seemed to be inadequate when compared with the USDA's DRI. Thus, ATs should examine their nutritional habits in order to align them more closely with the USDA's recommendations.

## Alcohol and Tobacco

Alcohol provides little to no nutritional value. However, it has beneficial effects on the heart when consumed in moderation, as the lowest all-causes mortality rates occur at an intake of 1 to 2 drinks per day.[1] Drinking in moderation does not negatively affect the diet, nor does it increase the risk for developing drinking-related problems. For women, *moderation* is defined as up to 1 drink per day, and for men, up to 2 drinks per day. Different DRIs are based on weight and metabolism differences between the sexes.[1] The ATs followed the recommendations of moderation rather closely, as only 4% of participants (n = 12) consumed more than the DRI. Compared with the general population (45%), few ATs (20%, n = 55) reported that they did not consume alcohol, whereas 11% of physicians reported no alcohol consumption.[5]

Our results showed that more females than males exceeded the DRI for alcohol; yet males consumed more alcohol (2.63 drinks) in a typical 7-day week than females (2.28). This finding is consistent with Jenkins' and Olsen's[8] work, which revealed that more males than females consumed 6 to 10 drinks per week and only males consumed more than 11 drinks per week. Similarly, Unruh et al[25] found that male athletic training students consumed more drinks than female athletic training students. Chambers and Belcher's[26] study of physicians and teachers showed similar results; fewer female physicians (10.6%) than male physicians (14.8%) consumed alcohol daily, and only 4.7% of female versus 10.5% of male practitioners consumed more than 14 drinks per week. In the same study, female teachers also consumed less alcohol than their male counterparts, with 5.2% of females and 18.3% of males consuming more than 14 drinks per week.

Tobacco has no known health benefits, and cigarette smoking has been linked to depression and unhealthy nutritional habits. Smokers reported a higher intake of fat, alcohol, and overall calories, as well as a lower fiber intake than nonsmokers.[27] Also, Hemenway et al[28] found a positive correlation between cigarette smoking and depression and suicide.

In 2004, 20.9% of the general population smoked cigarettes (males, 23.4%; females, 18.5%).[7] Only 0.8% of all participants in our study reported smoking, and the prevalence did not differ between males (0.8%) and females (0.7%). Although we found no difference among employment settings, the ATs who were employed in a hospital or medical setting constituted the highest percentage of current smokers (3%). Similarly, Garfinkel and Stellman[6] noted that hospital employees, specifically 23.4% of nurses, reported high smoking rates. According to Linn et al,[5] 9% of hospital employees reported smoking at least once a month. Only 4.1% of ATs, all of whom were male, reported using smokeless tobacco. These results were lower than those of the general population, of which 18.7% of Americans used smokeless tobacco.[29]

Of the areas examined in this study, participants reported the most sound health practices with respect to alcohol and tobacco use. The ATs met the professional recommendations and avoided excessive alcohol consumption and tobacco use entirely. Based on these findings, we suggest that ATs in this study reported positive alcohol and tobacco use role model behaviors.

## Composite Health Score

Previous authors[5,9] have shown that physical fitness and nutritional habits are associated with one's own attitude toward health promotion. Comprising responses regarding exercise, BMI, dietary intake, and use of caffeine, alcohol, and tobacco, the mean composite health score was 3.8 of a possible 10. This means that on average, participants met professional recommendations for nearly 4 of the 10 categories. Given these results, ATs should be more aware of their own health and fitness as well as how they promote these aspects of daily living as role models based on their level of authority and perceived knowledge.

## Limitations

A questionnaire is by no means the "gold standard" for measuring personal habits; however, it is the most practical method when examining a large population.[30] A questionnaire holds the respondent accountable for the information given, while also allowing conclusions to be drawn from the information reported. Other limitations of this study were the inherent constraints to self-reported data and the phrasing of questions on food consumption times as interchangeable with servings. Additional limitations included the low response rate (28.6%), the demographic area (District 4) in which the survey was administered, and the use of BMI (which is based on height and mass rather than body composition). A more in-depth examination of ATs' dietary habits in other geographic regions, including measures of body composition and further study of composite health scores, would be useful. Further research is also warranted to determine barriers to practicing recommended health and fitness habits and the reasoning for the failure of ATs to meet health and fitness guidelines.

## Conclusions

In order to serve as positive role models for their athletes, patients, and clients and to encourage healthy lifestyles, ATs should choose positive health and fitness behaviors. We found that ATs demonstrated positive role model behaviors for alcohol and tobacco habits and reported better health and fitness habits than the general population, but they did not meet professional recommendations set by the ACSM or

USDA. These professional recommendations include eating a balanced diet based on the food guide pyramid, exercising 5 days a week for at least 30 minutes, consuming alcohol in moderation, and abstaining from tobacco use.[1] To lead by example and improve role model behaviors, ATs need to adopt these guidelines as part of their daily routines. As health professionals, ATs are not only aware of the benefits of exercise but should encourage these and other healthy behaviors, such as consuming a properly balanced diet. However, our findings suggest that despite their knowledge, not all ATs apply their understanding to themselves. Poor health habits may lead to health issues and diseases associated with obesity that may affect job performance.

To improve health and fitness, ATs should incorporate exercise into their daily routine and adjust their diets to reflect the 5 basic food groups. We recommend that ATs examine their personal behaviors and consider improving their health habits based on professional guidelines and recommendations in order to serve as role models to positively influence athlete and client behaviors.

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