Use of the Go-for-Green Nutrition Labeling System in Military Dining Facilities Is Associated with Lower Fat Intake

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ABSTRACT

Point-of-purchase nutrition labeling is a potential tool to help consumers choose healthier foods. The objectives of our study were to survey soldiers on their use of the Go-for-Green nutrition labeling system in dining facilities and compare characteristics of users and nonusers. The study population consisted of 299 US Army active duty soldiers at two US Army installations. The frequency of use of food labels and characteristics were calculated and differences in characteristics of label users and nonusers were compared using χ^2 and regression analyses. Forty-seven percent of soldiers reported using nutrition labels to make food choices always or sometimes. Users were more likely to be following a special diet ($P=0.04$) and to take a multivitamin or protein supplement ($P<0.001$) than nonusers. Users consumed a mean of 32% of energy from fat vs 36% for nonusers ($P<0.0001$) after adjusting for reported use of special diets. Use of the Go-for-Green nutrition labeling system is encouraging and should be further investigated to determine whether the program is actually influencing dietary choices in broader military settings.
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POINT-OF-PURCHASE NUTRITION LABELING IS OF interest to nutrition policy makers as a potential tool that may help affect the obesity epidemic. The Food and Drug Administration is implementing rules for calorie labeling of foods sold in restaurants and vending machines as mandated by the Health Care and Education Affordability Reconciliation Act of 2010.[1] The Food and Drug Administration is also monitoring "front-of-package" nutrition labeling used by the food industry and retailers that consists of brief nutrient-specific information such as calorie content in a serving or a summary symbol representing overall quality.[2]

A recent review of the literature concluded that consumers have a better understanding of labels that incorporate traffic-light color coding (ie, green, amber, and red) than labels that only contain nutrient information, and that text indicating high, medium, and low levels of nutrients enhances consumer understanding.[3] Most research on traffic-light labeling has been conducted outside of the United States. Prior research has shown that food label users tend to be older, women, and have specific health issues.[3]

Despite the US military being a relatively young and healthy population, a 2008 survey of military personnel reported that 60% were overweight or obese.[4] Military personnel assigned in the United States are free to eat wherever they choose and face the same unhealthy food environment as the general population (ie, fast food and excess portion sizes); however, about 30% of US Army personnel eat a breakfast or lunch meal in a military dining facility at least twice per week,[4] so a nutrition labeling initiative could potentially affect dietary choices of numerous personnel. Some military dining facilities have implemented lower-fat and lower-energy choices, although these initiatives are somewhat limited to specific situations such as basic training or hospital cafeterias. During 2009, the US Army implemented the Go-for-Green (G4G) nutrition labeling program in its dining facilities. Traffic-light colored labels provide soldiers a quick overall assessment of the nutritional value of the food and a recommendation for consumption frequency based on the influence the food can have on a soldier's performance. It is important to evaluate whether military personnel are using the G4G system and whether the system is helping them make food choices that translate into healthier dietary intake. Such information can help inform future modifications to the system and targeted educational needs.

Our study was designed to examine soldiers' use of G4G labels in dining facilities at Fort Bliss, TX, and White Sands Missile Range, NM, and to test the hypothesis that soldiers using the G4G labels would have healthier dietary behaviors and intake than those not using the labels. The study determines the percentage of soldiers using the labeling system and compares dietary behaviors and other characteristics of soldiers who do and do not use the G4G system. To our knowledge, ours is the first published study evaluating use of the G4G labeling system.

METHODS

Study Population

The study population was a convenience sample of active duty soldiers eating in five dining facilities at Fort Bliss, TX, and one facility at White Sands Missile Range, NM, during May and June 2012. The target number of completed surveys was 300, which is powered to detect an effect size of approximately 0.3 for difference in fat intake between label users and nonusers, or a difference of 17 g fat based on our calculation of a standard deviation of 52 g fat/day from the National Health and Nutrition Examination Survey (NHANES) 2007-2008 for men and women aged 19 to 50 years. Research assistants asked soldiers upon entering the dining facility whether they were willing to complete a survey on the nutrition labeling system, although the number of soldiers approached was not recorded. Approximately 400 to 450 surveys were distributed to soldiers, approximately 325 were returned to research assistants, and 299 were complete (275 from Fort Bliss; 24 from White Sands). The study population does not necessarily represent the entire Fort Bliss and White Sands populations (approximately 33,000 and 600 active duty personnel, respectively), approximately 30% of whom eat in dining facilities. The study was approved by the Institutional Review Board at William Beaumont Army Medical Center, Fort Bliss, TX.

Description of the Labels

Examples of labels for menu items are depicted in the Figure. Green labels signify high-performance foods that are nutrient dense and should be eaten frequently, amber labels signify medium-performance foods that are higher in energy and fat and should be selected less frequently, and red labels signify low-performance foods that are highest in energy and fat and should be limited in the diet. The nutrient criteria for color designation are provided at http://www.quartermaster.army.mil/jccoe/Operations_Directorate/QUAD/nutrition/Program_Criteria_g4g_Approved_Version_2013.pdf.

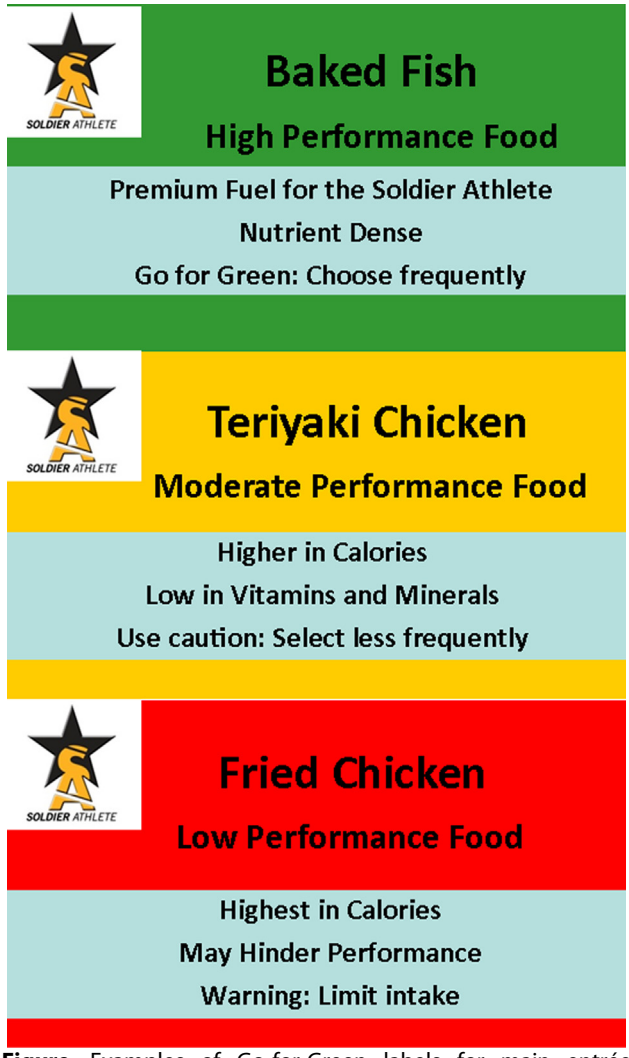

Figure. Examples of Go-for-Green labels for main entrée items.

Survey Instrument

The eight-page questionnaire consisted of questions on demographics (ie, age, sex, race and ethnicity, weight, and height), use of the G4G labels, dietary behavior, and dietary intake of fats and fruits and vegetables (F/V).

Respondents were asked whether they noticed the G4G labels in the dining facility and whether they looked at the labels. A series of questions asked about making food choices based on the labels, in general and for food types. Responses were on a 4-point scale: never, rarely, sometimes, or always. Respondents were categorized as users of the labels if they responded "sometimes" or "always" to the question, "In general, do you make food choices in the dining facility based on the Go-for-Green labels?"

Respondents were asked whether they were following a special diet for health-related issues, and if so, to specify the type of diet. Respondents were asked whether they took dietary supplements, specifically multivitamins, single vitamins or minerals, or protein powder or performance-enhancing supplements, and the frequency of use.

Dietary intake of fat and F/V was assessed using two brief validated dietary screeners.[5,6] The Block Fat Screener consists of 17 questions on frequency of consumption of high-fat foods, and an algorithm was provided under license agreement by NutritionQuest to convert frequencies into grams of fat consumed and the percent energy from fat. The National Cancer Institute's F/V screener (Eating at America's Table Study all day screener) consists of 10, two-part questions on frequency and amount of consumption of F/V, and an algorithm is provided to calculate MyPyramid cup equivalent servings per day (available at http://riskfactor.cancer.gov/diet/screeners/fruitveg/scoring/allday.html).

Data Analysis

Means and frequencies of survey responses were described using SAS (version 9.2, 2008, SAS Institute, Inc). Univariate analyses were performed to test for differences in characteristics between users and nonusers of the G4G system using generalized linear models for continuous variables and χ^2 test for categorical variables. The Kruskal-Wallis test was used to compare continuous variables that were not normally distributed (number of meals eaten in dining facility and F/V