2007

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ATHLETES HAVE BECOME more aware over the years of the importance of nutritional status. Most of them understand the importance of hydration, but making healthy food choices is still challenging. Despite what is known about the limitations of supplements, athletes continue to look for a "magic bullet" to improve performance. Unless the athlete enrolls in a nutrition class, basic nutrition fundamentals are not understood and the role of the supplement may take priority over proper food choices. For example, during training, athletes may experience symptoms such as fatigue or loss of energy. Their solution: ingest extra iron pills or vitamins. The athlete may ingest a supplement that is promoted for management of the symptoms, rather than change food intake. Many athletes can recite a list of supplements, their ingredients, and the claims made by the product supplier, which they take on a regular basis; however, many of these athletes cannot readily explain the importance of food choices. An assessment of an athlete's nutritional status could reveal that he or she does not obtain enough kilocalories (kcal) from food or is eating foods that may not represent healthy choices. Encouraging athletes to meet the 2005 Dietary Guidelines and to review food labels are two ways to assist them in making healthy food choices. Many athletes may read a label, but quite often they focus on the number of grams from fat or protein and disregard the percentage daily values. They may not know whether or not a given food item is a healthy choice, because they do not understand the minimum or maximum levels of nutrients, and some terms that appear on a food product can be very confusing (i.e., fortified, enriched, "lite" or low fat). This report reviews dietary guidelines and food label information.

Dietary Guidelines

The food guide pyramid[1] was designed to help meet nutritional needs for carbohydrates, protein, fat, vitamins, and minerals, but it doesn't provide information that is specific to dietary planning for a healthy lifestyle. The dietary guidelines released in 2005 cover 23 recommendations for all healthy Americans 2 years of age or older; they are organized into nine categories. Athletes should meet these guidelines first, and then address other more specific nutritional requirements. Table 1 presents the nine categories of dietary considerations, and some of the suggestions for healthy choices within each category. Additional information is available at: www.healthierus.gov/dietaryguidelines.[2]

Food Labels

The U.S. Department of Agriculture (USDA) Center for Food Safety and Applied Nutrition provides a detailed guide for understanding and utilizing the nutrition facts label,[2] which can help athletes meet the Dietary Guidelines and MyPyramid recommendations. The Food and Drug Administration (FDA) requires labeling of all foods that are not regulated by the USDA. The USDA is responsible for monitoring the safety and quality of meat, poultry, and eggs. All packaged food must be labeled, unless the package is too small, the food is produced by a small business, the food is served in a restaurant, or is classified as ready-to-eat food. Raw fruits, vegetables, fish, meat, and poultry are not required to carry individual labels.[3]

Six Mandatory Components on a Food Label

The FDA regulates the content of a food label, which includes six mandatory components:

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TABLE 1. KEY RECOMMENDATIONS OF THE 2005 DIETARY GUIDELINES FOR AMERICANS

1. **Adequate nutrients within kilocalorie need**—Consume a variety of nutrient-dense foods and beverages within and among the basic food groups while choosing foods that limit the intake of saturated and trans fats, cholesterol and added sugars, salt and alcohol.

2. **Weight management**—Maintain body weight in a healthy range; balance kcalories consumed from foods and beverages with kcalories expended.

3. **Physical activity**—engage in regular physical activity (at least 60-90 minutes most days of the week) and reduce sedentary activities.

4. **Food groups to encourage**—Consume a sufficient amount of fruits and vegetables while staying within energy needs, consume 3 or more one ounce-equivalents of whole-grain products, and consume 3 cups per day of nonfat or low-fat milk or equivalent milk products.

5. **Fats**—Consume less than 10% of kcalories from saturated fatty acids and less than 300 mg/day of cholesterol, and keep trans fatty acid consumption as low as possible.

6. **Carbohydrates**—choose fiber-rich fruits, vegetables, and whole grains often.

7. **Sodium and Potassium**—consume less than 2300 mg (approximately 1 tsp of salt) of sodium per day.

8. **Alcoholic beverages**—Alcoholic beverages should be avoided by individuals engaging in activities that require attention, skill, and coordination.

9. **Food safety**—Know how to prepare, handle, and store food safely.

1. Product identity: displays a common or usual name of the product.
2. Net contents: indicates the number of servings per container. This is very important to note, because in many cases, a product may contain two servings. An athlete may think the package or bottle contains only one serving. The number of calories and all nutrient amounts listed on the top half of the label are based on one serving.
3. Ingredient list: Ingredients are always listed in descending order by weight. The ingredient list will aid the athlete in making healthy food choices. If the first ingredient is high fructose sugar, the product should not be considered a sports drink. Additionally, the ingredient list can be used to avoid certain additives or foods to which the athlete may be allergic or intolerant.
4. The nutrition facts panel provides the number of calories per serving, total calories, calories from fat (saturated and trans), carbohydrate and protein, vitamin and mineral information, and percent daily values (which facilitate comparison of brand A to brand B).
5. Manufacturer information includes the name and address of the manufacturer, packer, or distributor.
6. Nutrient content claim provides a legal definition of a product with respect to "low fat" or "product has been shown to be high in fiber." Definitions for nutrition content descriptors, such as low fat, have been established by the FDA. Each descriptor is associated with definite criteria.[4] Table 2 provides definitions of terms (food descriptors) found on a food label.

What Is Meant by Daily Values?

Daily values are used to express the nutrient content of foods for the nutrient facts on food labels (which are not age-specific or gender-specific). For each nutrient listed, there is a Daily Value (DV), a Percentage DV, and a recommended dietary goal. For example:

Nutrient	DV	Percent DV	Goal
Total Fat	65 g	100%	Less than

The content of a particular nutrient within the food product is listed on the label as the Daily Value. Two

TABLE 2. FOOD DESCRIPTORS LISTED ON A FOOD LABEL

Food Descriptor	Definition
Low fat	3 or less grams (g) per serving
No fat or fat free	Less than ½ g of fat per serving
Reduced or less fat	At least 25% less per serving than reference food
Saturated fat free	Less than 0.5 g per serving and the level of trans fatty acids does not exceed 0.5 g per serving
Low calorie	40 kcalories (kcal) or less kcal per serving
No calorie or calorie free	Less than 5 kcal per serving
Reduced or fewer calories	At least 25% fewer kcal per serving than reference food
Cholesterol free	Less than 2 mg of cholesterol and 2 g or less of saturated fat per serving
Low Cholesterol	20 mg or less per serving and 2 g or less of saturated fat per serving
Low sodium	140 mg or less per serving
Sodium free	Less than 5 mg per serving
Reduced or less sodium	At least 25% less per serving than reference food
Sugar free	Less than 0.5 g of sugar per serving
No sugar added	*** See below
Reduced sugar	At least 25% less sugar per serving than reference food
Low-saturated fat	1 g or less per serving
High fiber	5 g or more per serving: foods making high-fiber claims must meet the definition for low fat or the level of total fat must appear next to the high-fiber claim.
Food source of fiber	2.5 to 4.9 g per serving
More or added fiber	At least 2.5 g more per serving than reference food
Natural	The food must be free of food coloring, synthetic flavors or any other synthetic substance.
Lite	1/3 less than comparable product and ½ less fat or the sodium content of a low-calorie; low-fat food has been reduced by 50%.
High	A food contains 20% or more of the Daily Value for a particular nutrient.
Lean	Less than 10 g of total fat, less than 4.5 g of saturated fat, and less than 95 mg of cholesterol per serving
Extra lean	Less than 5 g or fat, 2 g of saturated fat, and 95 mg of cholesterol per serving
Fortified	Addition of nutrients not originally present in the food
Enriched	Replaces nutrients that were lost in processing of the food (i.e., Vitamin D added to pasteurized milk)
Good source	A food contains 10-19% of the daily value for a particular nutrient.
Heathy	A food which is low in fat and low in saturated fat and has no more than 360-480 mg of sodium or 60 mg of cholesterol per serving and at least 10% of Vitamin A or C protein, calcium, iron, or dietary fiber
Organic	Ingredients do not use chemical fertilizers or pesticides, genetic engineering, sewage sludge, antibiotics, or irradiation in their production. At least 70% of ingredients must meet these guidelines to be labeled "organic" on the front of the package.

*** No sugars were added during processing or packing, including ingredients that contain sugars (for example, fruit juices, applesauce, or jam). Processing does not increase the sugar content above the amount naturally present in the ingredients. (A functionally insignificant increase in sugars is acceptable for processes used for purposes other than increasing sugar content.) The food that it resembles and for which it substitutes normally contains added sugars. If the food doesn't meet the requirements for a low- or reduced-calorie food, the product bears a statement that the food is not low calorie or calorie reduced and directs consumers' attention to the nutrition panel for further information on sugars and calorie content.

sets of dietary standards are used to set the Daily Value: Reference Daily Intakes (RDI) for vitamins and minerals and Daily Reference Values (DRV) for established nutrient standards (sodium, protein, saturated fat, etc.). Yet, we do not see RDI and DRV on a label. Thus, Daily Value is a combination of the RDI and the DRV that is based on a caloric intake of 2,000 kcal/day.

The percent Daily Value (percent DV) is based on the Daily Value recommendations for key nutrients, but only for a 2,000 kcal/day diet. It can be used as a reference, regardless of whether an athlete consumes more or less than 2,000 kcal/day. The percent DV provides a quick means for assessment of the total daily intake of nutrients by putting them all on the same scale for the day (0-100% DV, rather than units of weight). The percent DV for various nutrients does not add up to 100%. Instead, the amount of each nutrient is based on 100% of the daily requirements for that nutrient (for a 2,000 kcal/day diet).[5] The percentages serve as a point of reference for evaluating the nutrient content of the food item and how it fits into the diet. Let's say one cereal product has 4% of the DV for dietary fiber, but you choose a second product that has 20% DV for dietary fiber. That may be the only information you want for product comparison, but percent DV can also allow one to view the total daily intake of nutrients. If the percent DV for fiber in the foods eaten during the day total 100%, the recommended DV for fiber will have been met. Daily Values are not listed for every vitamin and mineral, because the health risk associated with a deficiency of many vitamins and minerals has been deemed too low for required inclusion. There is no percent DV for protein, because it would require testing for protein quality within each product, which has been deemed too expensive. Because there is no RDI for sugar, there is no percent DV; however, 8 g per serving is recommended. Table 3 provides a quick reference for general recommendations concerning total fat, sodium, fiber, sugar, and iron, which are listed on food labels.

TABLE 3. QUICK REFERENCE CHECK FOR FOOD LABEL INGREDIENTS

Total fat	3 grams or less
Sodium	Less than 250 mg/serving
Fiber	5 grams or more /serving
Sugar	Less than 8 grams/serving
Iron	25% from the daily value

Application

I. Percentages. Although the math is done for us on a food label, understanding the meaning of the percentages can guide dietary planning. For example, if Joe consumed 15% of the adult RDI for Vitamin C (RDI is 60 mg), how many mg of Vitamin C did Joe consume? Fifteen percent of 60 mg is 9 mg of Vitamin C.

Determining percentages of fats, carbohydrates, and protein can be easily calculated if you do not have a food label, but you know the number of calories and grams. Remember the 9-4-4 rule: One gram of fat equals 9 calories, one gram of carbohydrate equals 4 calories and one gram of protein equals 4 calories. If the total number of calories (1980 kcal) and the number of grams from each nutrient are known, you can determine the percentage of each from the total calories in the food item.

For example, if a food item has a total of 1980 calories with:

290 g of CHO

290g × 4 kcal/g = 1160 calories divided by 1980 = 59%

60 g of fat

60 g × 9kcal/g = 540 calories divided by 1980 = 27%

70 g of PRO

70 g × 4kcal/g = 280 calories divided by 1980 = 14%

II. Food Label Comparison. To test your knowledge of how to read a food label, refer to the chart in Table 4.

Choose three commonly used food labels, compare the food products using the dietary guidelines in Table 1, the food descriptors in Table 2, and the quick reference in Table 3, then answer the seven questions below the chart.

Conclusion

Understanding the Dietary Guidelines and how to read a food label can assist athletes in making good food choices. Awareness of the label contents can help to prevent excessive intake of specific food ingredients and encourage consumption of nutrients that are

TABLE 4. DETERMINE THE BEST NUTRITIONAL FOOD CHOICE BASED ON YOUR FOOD ITEM. PRODUCT(S): A____ B____ C____												
Product	Serving Size	Servings per container	Number of Calories	Calories from fat	Total fat	Saturated trans	Cholesterol	Sodium	Carbohydrates Dietary fiber Sugars	Protein	Vitamins	Minerals
A												
B												
C												

1. When would this product be included in the dietary guidelines?
2. Did the product meet a nutritional guideline, i.e., fiber, low saturated fat, etc.?
3. Was the packaging attractive to your eye?
4. Would you make this food choice on a daily basis as part of your dietary plan?
5. Were there any ingredients you couldn't pronounce?
6. Were the descriptors on the label? Did they meet the criteria in Table 2?
7. Were you able to determine if the food item is a healthy choice?

needed in larger amounts to meet recommended daily intake. When planning meals, remember that there isn't a food that is good or bad. There are foods that are just better food choices.

References

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