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## Practical suggestions for vegetarian athletes

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# Practical Suggestions for Vegetarian Athletes

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**M**ANY ATHLETES state that they are vegetarians or that they are eating vegetarian foods and consequently are vegetarians. In the purest sense of the word, however, vegans are the only true vegetarians. Vegans consume plant products and avoid all foods of animal origin and their derivatives such as gelatin, stocks, and bases. Examples of food items that they avoid are dairy products, eggs and egg by-products, sauces made of butter or cream, white cane sugar, honey, yeast, and finally some soy, which can contain casein or whey (a beef by-product). The goal of a vegetarian's diet is to consume neither too few nor too many calories to maintain a healthy weight from products that employ humane farming practices. Vegetarians mainly rely on plant foods such as grains, vegetables, fruits, seeds, nuts, legumes, and soybean products. With this restricted diet, nutrients that might be limited are vitamin D, iron, calcium, riboflavin, vitamin B<sub>12</sub>, and high-quality protein. The physiological and nutritional demands of a sport can make it difficult for an athlete to be a true vegan. Many athletes who choose a vegetarian style of eating usually include a combination of dairy and eggs in their diet.

## Categories of Vegetarians

Vegetarians can be categorized by the types of foods that they consume. The semivegetarian/plant-based diet consists primarily of vegetables, fruits, grains, and other foods from plant sources. It might include a modest amount of meat with an abundance of vegetables and fruits. Ovovegetarians include eggs but not milk in their diet, as well as fruits, vegetables, and grains, and they might only eat eggs from free-range hens. Vitamins and minerals possibly lacking in this diet include iron, vitamin D, calcium, and riboflavin. Lacto-ovovegetarians avoid eating animal flesh but con-

sume dairy products and eggs in addition to vegetables and grains. This diet possibly lacks sufficient iron. Lacto-vegetarians consume vegetables, grains, and dairy products but avoid eating animal flesh and eggs. They prefer products from certified organic farms employing humane farming practices. As with lacto-ovovegetarians, they might be limited in their iron intake.

## Caloric Intake and Protein Needs

For any athlete, vegetarian or nonvegetarian, the number of calories consumed is influenced by the demands of the sport along with athlete's weight, body composition, gender, and training program. The Web site [www.nat.uiuc.edu](http://www.nat.uiuc.edu) provides a method for athletes to assess their diet and calculate their energy intake.<sup>1</sup> Of the six basic nutrients, protein, fat, vitamin, and mineral intake are different for vegetarian athletes; carbohydrates and water are the same as for nonvegetarian athletes. Whole-grain foods, dark green leafy vegetables and legumes (beans), and tofu are examples of nutrient-dense food choices for vegetarian athletes. With proper planning, vegetarian athletes can obtain the nutrients necessary for a healthy diet. Dairy products, meat, fish, and poultry contain all nine essential amino acids and are considered complete proteins. Vegetarians can obtain complete protein by consuming tofu, tempeh, and soy milk. Plant foods, nuts, and fruit are considered incomplete proteins.

It was thought that vegetarians needed to complement their diet by eating one type of food with another at the same sitting to obtain adequate protein. We now know that vegetarians do not need to complement their protein at each sitting, but they do need to consume a variety of foods to obtain an adequate amount of protein in their daily diet. A vegetarian needs six meat "exchanges" daily. One meat exchange equals 4 oz

**TABLE 1. RESOURCES FOR VEGETARIANS**

Type	Provider	Resource	Location
Web site	Department of Food Science and Human Nutrition, University of Illinois	Nutrition analysis tools (NAT)	www.nat.uiuc.edu
Position paper	American Dietetics Association and Dietitians of Canada	Appropriate dietary guidance for the vegetarian athlete	June 2003, Vol. 103(6)
Web site	Dietetic Practice Group of the American Dietetic Association	Guidelines for vegetarian athletes	www.andrew.edu (accessed April 10, 2006)
Web site	Vegetarian Resource Group	Resources for the vegetarian	www.vrg.org (accessed April 19, 2006)

of tofu, two egg whites, and 2 tablespoons of peanut butter or half a cup of cooked beans, peas, or lentils.

Some vegetarians consume too much saturated fat and cholesterol by choosing high-fat dairy products as their protein source. Soy products are a healthier source of protein and contain ingredients that might also protect against heart disease and cancer.

### Vitamins and Minerals

A vegetarian diet requires foods fortified with iron, riboflavin, calcium, vitamin D, folate, and, especially, Vitamin B<sub>12</sub>. Vitamin B<sub>12</sub> is only found in animal sources. Foods such as sea vegetables and spirulina might contain vitamin B<sub>12</sub> analogs, but neither these nor fermented soy products can be counted on as reliable sources of active vitamin B<sub>12</sub>. Lacto-ovo vegetarians can get adequate vitamin B<sub>12</sub> from dairy foods and eggs if they consume them on a regular basis. Vitamin B<sub>12</sub> is important because it plays a key role in folate metabolism. A deficiency in vitamin B<sub>12</sub> can lead to a folate deficiency, which can lead to anemia. According to Herrmann et al.,<sup>2</sup> the vegetarian diet is typically high in folic acid, which can mask the hematological symptoms of a vitamin B<sub>12</sub> deficiency.

Anemia can be a problem for any athlete, but vegetarian athletes are more susceptible to it, so their blood profiles should be monitored closely. A balance of nutrients is vital to prevent anemia. In addition to anemia, stress fractures and fatigue might result if a vegetarian athlete does not pay close attention to

his or her intake of the aforementioned vitamins and minerals.

O'Connor et al.<sup>3</sup> reported that vegetarian diets are more common among adolescents with eating disorders than in the general adolescent population. Recent studies suggest, however, that adopting a vegetarian diet does not lead to eating disorders; rather, a vegetarian diet might be selected to mask an existing eating disorder.<sup>4</sup> Thus, athletic trainers should be concerned if symptoms of eating disorders surface in an athlete who states that he or she is a vegetarian. Nonetheless, with careful dietary planning (see Table 1 for helpful resources), vegetarian athletes can successfully perform at all levels of competition. ■

### References

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