

## Winning the Race on a Vegetarian Diet

by Scott Jurek, MA, PT

You don't need to be an champion athlete to utilize the wealth of information in the area of sports nutrition. I consider anyone who exercises regularly to be an athlete. From the casual to the professional athlete, sports nutrition concepts link nutrition and exercise to develop a picture of total health.

### The Myth

Haven't you heard that a vegetarian diet is inferior to an meat-based diet? How can you get enough protein to build and support muscle? How can you consume enough calories? How can you have enough endurance? How can a vegetarian athlete receive the necessary amounts and types of vitamins and minerals? All these questions stem from the common myth that a vegetarian diet is inferior and insufficient to match an meat-based diet.

Over the last century, many endurance and strength athletes have excelled on a vegetarian diet. Dave Scott, four-time champion of the Hawaii Ironman Triathlon (2.4 mile ocean swim, 112 mile cycle ride, and 26.2 mile run) is deemed to be the fittest man on the earth. His performances were achieved while on a vegetarian diet. Six-time Ironman champion, Ruth Heidrich, continues to excel into her sixties on a vegetarian diet. Both Billie Jean King and Martina Navratilova have amazed tennis fans with their astounding tennis careers. They too are vegetarian. What about power and strength events? Bill Pearl, Mr. America and champion bodybuilder, and Edwin Moses, 400-meter hurdle gold medalist, are prime examples that muscular power and strength can be developed on vegetarian fuel.

I also have been utilizing a vegetarian diet since 1998. All five of my Western States 100 Mile Endurance Run victories (1999-2003) were fueled by a vegetarian diet. I have noticed improvements in recovery time, stamina, endurance and strength during my demanding training sessions. I've also noticed an improved vitality in my everyday life and a greater appreciation for the consciousness of choosing healthy foods.

### Defining a vegetarian diet

*Properly* and *balanced* are key words to consider when speaking of nutrition in general and this should be a focus in a vegetarian diet as well. Vegetarian diets sometimes get a bad name due to people eating poorly balanced vegetarian diets. It is common for new and experienced vegetarians alike to consume high quantities of heavily processed and low-quality foods such as those high in refined sugar, white flour, and hydrogenated oils. These ingredients are found in almost all processed foods today.

I consider a properly balanced vegetarian diet to be one that consists of whole foods (foods in their unrefined state), is organic (has been grown without the use of pesticides, herbicides, chemical fertilizers and genetically modified organisms) and

is sufficient in quantity appropriate to the individual athlete. This diet will enable you to achieve optimal health and performance.

### **Quantity**

The quantity of food for athletes is as important as the quality. With activity, energy needs increase due to a greater number of burned calories. The actual number of calories burned varies with the mode, amount, and intensity of the exercise. Resting metabolism can also increase by up to 30% with regular exercise. With both of these factors increasing an athlete's daily caloric needs, energy requirements of an athlete can soar to as high as 4,000-8,000 calories per day!

The athlete's body needs sufficient quantities of energy (calories), vitamins and minerals for optimal performance, repair and recovery. Exercise places added stress on the body. This stress is necessary for developing endurance, strength, power and coordination. In order for the body to deal with this added load of stress, a sufficient quantity of fuel is paramount for optimal functioning. Many vegetarian athletes complain of decreased energy and often blame this on lack of protein, and more specifically, lack of animal protein. Although these athletes could be lacking protein intake, the more important and more common area they may be falling short is total caloric consumption. If these athletes increased their caloric intake they would see their stamina and energy levels return to normal and possibly increase.

If caloric intake is low, athletes can experience a decrease in metabolic rate. This decrease in metabolic rate causes inefficient fuels such as protein (from muscles) to be used as fuel, and decreases the energy available for the body's use. Therefore an athlete may actually use protein in their muscle mass for fuel rather than building a stronger and healthier body. Many athletes fear that they are going to increase their body weight when they increase their caloric intake. They then avoid obtaining a sufficient caloric intake, at the expense of performance. Optimal performance and health require sufficient caloric intake!

### **Carbohydrates**

A properly balanced vegetarian diet for an athlete should consist of a high percentage of carbohydrates. According to the American Dietetic Association and the American College of Sports Medicine, both vegetarian and nonvegetarian athletic diets should consist of 60-70% carbohydrate.

For decades, research has shown that a high-carbohydrate diet can enhance an athlete's endurance. When an adequate quantity of carbohydrates is consumed on a daily basis, athletes maximize glycogen stores in their muscles. It is these glycogen stores that are accessed quickly for energy and allow the athlete to surge or produce an explosive burst of energy for a sustained amount of time. Daily carbohydrate intake spares protein in the muscle from being used for energy. Both strength and endurance athletes will want to use stored and ingested carbohydrate and stored fat sources for fuel while exercising and recovering. Carbohydrates and fats are the most efficient fuel sources.

### *Carbohydrate benefits for the athlete*

- Improve endurance and speed.
- Maximize glycogen stores in muscles.
- Most efficient fuel to consume during exercise.
- Spares protein in muscle from being used for fuel, thus increasing strength.

### *Carbohydrate quantity*

60-70% of total caloric intake.

### *Sources of carbohydrates*

Whole foods such as fruits, vegetables, whole grains and legumes offer a wide variety of carbohydrate sources. Minimize intake of refined and processed carbohydrates such as those made with “white” flour and “white” sugar. Low glycemic carbohydrates, those that cause a minimal insulin response, are also preferable (see Andrew Weil’s *Eating Well for Optimal Health*).

Be creative! Carbohydrate sources do not have to be limited to bread and noodles. Try cooking with different varieties of grains. (See the article “The Well-Stocked Kitchen” for further ideas.)

## **Fat**

Fat is something that many athletes fear. These athletes assume ingested fat will directly increase body fat and minimize performance. This is not the case. Fat is a necessary energy source used to fuel endurance activities and supply the body with energy when not exercising. Athletes who are able to use fat for fuel as much as possible are able to conserve glycogen stores for when they are needed most. Essential fatty acids (a fat that is needed by the body and is only obtained through the diet) are often low in modern-day diets. Some of these essential fatty acids play a role in minimizing the inflammatory process, which may occur during the rigors of training.

### *Fat Benefits for the Athlete*

- Major fuel source for endurance activities and daily life.
- Makes up cell membranes.
- Transports the fat soluble vitamins (A, D, E, and K).
- Essential fatty acids aid in recovery and minimize the inflammatory process.
- Cushions the organs and body tissues.

### *Fat Quantity*

Fat intake will vary from 15% to 30% of calories depending on the level of endurance required.

### *Sources of fat*

High quality fats are those that are mostly monosaturated, less refined, and are not heated excessively. The best sources are cold-pressed, extra virgin olive oil, avocados, almond butter, and canola oil. Essential fatty acids should be a daily priority and

should come from flax seeds and flax seed oil, pumpkin seeds, hemp seeds, walnuts, and sunflower seeds. Omega-3 fatty acids are of particular importance and are most abundant in flax seeds, walnuts and hemp seeds. Avoid saturated fats in your total fat intake.

### **Protein**

Protein intake is essential for construction and repair of tissues in the body. Athletes are constantly stressing the body and stimulating the construction and repair processes. Proteins maintain the structure and function of our body tissues so they can achieve optimal function. A small percentage of protein is occasionally used for fuel, although protein is not an efficient fuel source and the body prefers to use it for rebuilding purposes.

Muscle mass is essential for all athletic pursuits and during basic activities such as walking up stairs and squatting. Contrary to popular belief, muscle mass is not achieved by increasing protein intake. Total caloric intake maintains and allows for increases in muscle mass by sparing the protein within the muscles. Although our bodies can synthesize certain amino acids to build proteins, ten amino acids are termed essential and must be supplied through the diet. Athletes do require a slightly higher amount of protein than sedentary individuals; however protein remains a much smaller percentage of the total caloric intake compared to carbohydrate and fat.

For athletes, most sources recommend 15% to 20% of total caloric intake come from protein depending on the type and amount of activity, size of the athlete and caloric requirements.

#### *Protein Benefits for the Athlete*

- Enhances and speeds recovery.
- Maintains structure and function of body tissues.
- Can be used for fuel during ultra long events, although should be minor source.

#### *Protein Quantity*

1.0-1.2g/kg\* for standard athletes

1.2-1.7 g/kg\* for endurance athletes

1.2-2.0 g/kg\* for power and speed athletes

*\* High fibrous protein sources such as legumes, nuts and seeds, may require an increase in protein intake by 10-15% due to reduced digestibility of these sources.*

#### *Sources of Protein*

Despite what many people believe, a vegetarian diet has many options when it comes to protein sources. Vegetarian protein sources are devoid of the many toxins and additives utilized in many animal protein sources. Dense and mildly processed soy foods such as tofu and tempeh are important protein staples for athletes.

Legumes are a great protein source and are abundant in low-glycemic carbohydrates as well—excellent fuel for athletes! Although lower in protein than soy products and legumes, nuts and seeds can be included as a protein source and have beneficial

fatty acids. Try to incorporate a variety of protein sources and use soy protein powders as needed if the above sources are not prevalent in your diet.

### **Vitamins and minerals**

Vitamins and minerals are involved in many vital functions and processes within the body. They are especially important for athletes who demand much from the body. If an athlete includes a high percentage and wide variety of whole foods including fruits and vegetables into their diet, the vitamin and mineral content should be sufficient for high performance and health. Actually, an athlete's vegetarian diet can be higher in vitamins and minerals than a non-vegetarian diet. In addition, organic foods have been shown to have higher amounts of vitamins and minerals than their non-organic counterparts. Overall, a vegetarian athlete who incorporates a wide variety of organic whole foods should have minimal supplementation needs.

The following vitamins and minerals are of particular importance to the vegetarian athlete and requirements may be increased due to the demands of exercise and training: Vitamin B12, Vitamin D, iron, calcium, zinc, magnesium, potassium, chromium and copper. For more information on these vitamins and minerals I would recommend consulting additional sources such as vegan sports nutrition texts and registered dieticians.

Due to free radical production during exercise, athletes may want to incorporate antioxidant supplementation. These antioxidants (beta-carotene, Vitamin C, Vitamin E and selenium) help to reverse the damage done by free radicals. Although it is possible for the body to process higher amounts of some of these vitamins and minerals without risk of toxicity, excesses should be avoided.

### **In summary, a vegetarian athlete's diet should be**

- Properly balanced with a variety of organic whole foods.
- Adequate in caloric intake.
- High in quality carbohydrates.
- Abundant in premium protein sources.
- High in quality fats, low in less desirable fats.
- High in vitamin- and mineral-rich foods.
- Delicious and enjoyable.
- Affordable and cost-effective.

*To find out about the author, please see "About the Contributors" on pages 181-183.*