



# Where Do Vegetarian Athletes Get Their Protein?

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## about the AUTHOR

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Achieving optimum nutrition is something every serious athlete strives for every day. Many people believe that maintaining the appropriate level of nutrition is harder for vegetarian athletes than it is for their omnivorous counterparts. As this article will explain, a vegetarian athlete can be energized well enough to perform maximally with a diet which is diverse and well-rounded.

A vegetarian is one who does not consume meat or any products containing meat. Vegetarians can range from the very strict vegan who, in addition to not eating meat, does not eat any animal products (including dairy, egg, and honey), to the lacto-ovo-vegetarian who will add dairy, egg, and other common animal products to their otherwise non-animal based diet. Vegetarian athletes that include eggs in their diet but not dairy would be classified as ovo-vegetarian. Whereas, vegetarian athletes that include dairy in their diet but not eggs would be classified as lacto-vegetarian.

For most athletes, a high-carbohydrate, low-fat diet is recommended to maintain a healthy body weight and also to promote a high-quality sports performance (2). This is no different for the vegetarian athlete. Constructing meals which meet this general recommendation is not particularly difficult for the vegetarian. For instance, most fresh fruits, vegetables, and grains are by nature high-carb, low-fat foods. It is these foods that are the staple of any proper vegetarian diet. So if finding foods that are high in carbs and low in fats is not a problem, where is it that a vegetarian athlete needs to be more attentive? The answer lies within the amino acid building blocks of the protein. This macronutrient takes a little more consideration and knowledge for vegetarians to ensure appropriate amounts in the daily diet.

Essential amino acids are those that the body is not able to produce, and so must be consumed through the diet. The essential amino acids are: isoleucine, leucine, lysine, methionine, phenylalanine, threonine, tryptophan, and

valine. It is commonly thought that plant-based sources of protein are deficient in one or more of the essential amino acids (termed an incomplete protein). According to some studies, plant-based sources are complete, the issue is that some sources have amounts too low to be considered adequate sources on their own (3). Therefore, a vegetarian needs to become knowledgeable about protein sources. For instance, even though some plant-based sources have reduced amounts of particular amino acids, one can combine foods to fill in these "amino acid gaps." If one food is low in lysine for example, then it should be combined with a food that is high in lysine. Some examples of appropriate combinations are:

- Grains and legumes (beans, peas, and lentils)
- Legumes and seeds (sunflower and sesame)
- Grains and dairy products

Previously, it was believed that complementary proteins needed to be included in the same meal. It has been realized that as long as the foods are consumed in the same day, one will receive the same benefits (3). By including complementary proteins as a part of the daily diet, a vegetarian can be confident that they are obtaining all of the essential amino acids. Research indicates that a diet containing diverse plant foods can provide all essential amino acids (1,3). To make things a little easier on vegetarian athletes, there are a couple of sources which will by themselves offer a complete protein. These sources are egg and soy protein. Egg protein is the most complete source of protein.

Vegetarians may require a slightly higher amount of protein than the Recommended Dietary Allowance (RDA), because some plant-based sources of protein are harder to digest than those from animal sources (1). Whey and soy smoothies are a great addition to the diet of a vegetarian athlete. These easy-to-make drinks are a great source of protein for any athlete, as most offer higher protein content than found in a single serving of other foods. Soy

smoothies would be the choice for vegans as whey protein is derived from a dairy protein.

The American Dietetic Association observes that a vegetarian diet offers high levels of dietary fiber, carotenoids, flavonoids, and various phytochemicals. The ADA also recently announced in 2009, that the typical protein intake of lacto-ovo-vegetarians (and vegans) appears to meet or even exceed requirements. In addition to this, the ADA affirmed that athletes obtaining protein from plant-based diets are able to achieve their protein needs. The American Dietetic Association listed the following as typical benefits of a vegetarian diet:

- Lower blood pressure levels
- Lower blood cholesterol
- Lower risk of hypertension
- Lower risk for Type II diabetes
- Lower BMI (Body Mass Index)

It appears the vegetarian diet has many health benefits. As this article shows, athletes who are following a vegetarian diet can achieve adequate amounts of protein. The well-rounded vegetarian diet is able to successfully energize athletes by providing all the necessary protein requirements in addition to offering a high-carb, low-fat diet. ■

## References

1. American Dietetic Association. Position statement of the American Dietetic Association: vegetarian diets. 109(7): 1,266 – 1,282. 2009.
2. Bergstrom J, et al. Diet, muscle glycogen and physical performance. *Acta Physiologica Scandinavica*. 71: 140 – 150. 1967.
3. Young VR, and Pellett PL. Plant proteins in relation to human protein and amino acid nutrition. *The American Journal of Clinical Nutrition*. 59(5): 1,203S – 1,212S. 1994.



The graphic features the NSCA logo in the top left corner. The letters 'SSTC' are rendered in large, bold, yellow font. Each letter contains a different athlete in action: the first 'S' shows a football player in a red jersey running with the ball; the 'S' shows a baseball player in a blue jersey swinging a bat; the 'T' shows a soccer player in a red jersey kicking a ball; and the final 'C' shows a soccer player in a red jersey heading a ball. The background is a stylized cityscape with green buildings and a blue sky.

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