

Monitoring nutrient intake can help vegetarian athletes stay competitive

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A balanced plant-based diet provides the same quality of fuel for athletes as a meat-based diet, provided vegetarians seek out other sources of certain nutrients that are more commonly found in animal products, according to a presentation at the 2013 Institute of Food Technologists (IFT) Annual Meeting & Expo.

The research was compiled by Dilip Ghosh, Ph.D., director of Nutriconnect in Sydney, Australia. He was unable to attend the meeting, so his presentation was given by Debasis Bagchi, Ph.D., director of innovation and clinical affairs at Iovate Health Sciences International Inc. in Oakville, Ontario, Canada.

Ghosh's research noted that vegetarian athletes have been present throughout history. Perhaps most notably, analysis of the bones of Roman Gladiators indicate they may have been [vegetarians](#). There are several notable vegetarian athletes today, such as marathon runners Bart Yasso and Scott Jurek, and pro Ironman triathlete Brendan Brazier.

The key to success, Ghosh found, is that vegetarian athletes must find ways within their [diet](#) to reach the acceptable macronutrient distribution for all athletes, which he breaks down as carbohydrates (45-65 percent), fat (20-35 percent) and protein (10-35 percent).

"Vegetarian athletes can meet their dietary needs from predominantly or exclusively plant-based sources when a variety of these foods are consumed daily and energy intake is adequate," Ghosh wrote in his

presentation.

Vegetarians should find non-meat sources of iron, creatine, zinc, vitamin B12, vitamin D and calcium because the main sources of these typically are [animal products](#) and could be lacking in their diets.

Vegetarian women, in particular, are at increased risk for non-anemic iron deficiency, which may limit endurance performance. In addition, vegetarians as a group have lower mean muscle creatine concentrations, which may affect high-level exercise performance.

These deficiencies can be avoided or remedied through several food sources acceptable to the vegetarian diet, such as orange/yellow and green leafy vegetables, fruits, fortified breakfast cereals, soy drinks, nuts and milk products (for vegetarians who consume dairy).

Ghosh noted that his conclusions are based on observational and short-term interventional studies, but there needs to be a well-controlled long-term study to further assess the impact of a vegetarian diet on athletic performance.

The presentation also included a discussion of nutrition for bodybuilders, defined as athletes whose primary goals are to maximize muscle size, optimize fat and minimize body fat.

Phil Apong, senior formulation specialist/researcher at Iovate Health Sciences, said dietary recommendations for bodybuilders depend on many factors, such as genetics, age, gender and body size. But in general the current recommendation is 1.4 to 2.0 grams of protein per kilogram (g/kg) of body weight—about 1 gram per pound. Ideally a bodybuilder should seek to eat that amount in increments of 20 to 25 grams of high-quality protein throughout the day to maximize protein synthesis in muscle in response to training.

However, Apong noted those benefits did not exist past the limit of 2.4 g/kg.

"This is important because it seems to indicate there is an upper cap of protein intake that seems to promote protein synthesis to the maximum level and if you exceed this upper cap of protein level intake, you will not be pushing [protein synthesis](#) any further," Apong said. "In fact, you're going to be oxidizing [protein](#) for energy production."

Provided by Institute of Food Technologists

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