



## Nutrition and the Injured Athlete

Injuries are often an unavoidable aspect of participation in physical activity. It's true that nutrition can do little to prevent injuries related to overuse or improper training, but they can play a role in how fast a student athlete recovers.<sup>1</sup> Though little research exists to prove a direct relationship between nutrition and injury prevention, it is clear that poor nutrition can lead to conditions that increase the risk of injury. Exercise related fatigue, which is characterized by an inability to continue exercise at the desired pace or intensity, is just one example. Nutritional causes of fatigue in athletes include inadequate total energy intake, glycogen depletion, dehydration, and poor iron status.<sup>2</sup>

Prevention of dehydration and muscle glycogen depletion necessitates maximizing muscle glycogen stores prior to and during exercise, as well as beginning activity euhydrated. Following a proper hydration schedule also helps maintain that hydration status.

Although iron deficiency can occur in both male and female athletes, it has been estimated that approximately 60% of female college athletes are affected by iron deficiency.<sup>3</sup> Many factors can contribute to iron loss in the female athlete including menstruation, inadequate dietary iron intake, gastrointestinal bleeding, and sweat loss, among others.<sup>3</sup> An iron adequate diet minimizes the consequences associated with iron deficiency, which are impaired athletic performance, immune function, and cognitive function.<sup>3</sup>

For female athletes there is yet more to consider. Research shows there is a positive relationship among injury, disordered eating, menstrual dysfunction, and low bone mineral density.<sup>4</sup> A recent update on stress factors in female athletes suggests that early screening for the female athlete triad and other nutrition strategies be part of the preventative strategies against the overuse injury.<sup>5</sup>

For nutrition to aid in injury prevention, the body must meet its daily energy needs. Insufficient daily overall calories will limit storage of carbohydrate as muscle or liver glycogen while poor food choices day after day that can lead to the deficiencies resulting in chronic conditions, such as iron deficiency or low bone mineral density.<sup>2</sup> Therefore, total dietary intake over the course of days, weeks, and months must be adequate. Whether the focus is injury prevention or rehabilitation, getting adequate calories, carbohydrates, protein, fluids, and vitamins and minerals are all important.

Many student athletes faced with an injury are quick to worry about their body composition. Fears such as gaining weight or muscle turning to fat are common. These are legitimate concerns considering an injury and likely leads to a drastic change to a student athlete's training. To reduce the risk of unwanted weight (fat) gain and to help the athlete minimize loss of lean mass, special nutritional considerations must be paid to the injured athlete. Energy intake and distribution will need to be reevaluated to match a decreased volume and intensity or to aid in rehabilitation and recovery.<sup>5</sup>

There are a wide range of athletic injuries that can take student athletes out of the game and the nutritional concerns can vary greatly for each. Bearing an injury requires making modifications to training so that proper rest and recovery can occur. Because an athlete's nutrition plan directly supports the training plan, this also requires modification to the amount of food that is consumed. During rehabilitation and recovery, the specific nutrient needs are similar to those for an athlete desiring muscle growth, with the most important consideration being to avoid malnutrition or nutrient deficiencies.

Here are the specifics on how to eat for optimal recovery and healing while preventing weight gain.

- Focus on energy balance. Calories are necessary for the healing process and consuming too few will likely slow the healing process. However, to prevent weight gain while training is on hold, the total daily caloric intake likely needs to decrease.
- Focus on a variety of whole foods. Many athletes are accustomed to consuming additional calories through convenience foods and drinks such as sports drinks, bars, shakes or gels. These sources of fuel are better left for times of intense training and higher energy needs. Instead focus on a whole food foundation that includes lean proteins, fiber rich whole grains, fruits, vegetables, low-fat dairy, and healthy fats such as nuts and seeds.
- Avoid foods with high amounts of simple sugars or dietary fats. These foods tend to be less nutrient-dense as compared to whole food choices.
- Student athletes should be reminded to consult with a board certified sports dietitian prior to taking any form of supplementation.

### **Author**

This article was written for the Sport Science Institute by SCAN Registered Dietitians (RDs). For advice on customizing an eating plan for injury prevention or after injury, consult an RD who specializes in sports, particularly a Board Certified Specialist in Sports Dietetics (CSSD). Find a SCAN RD at [www.scandpg.org](http://www.scandpg.org)

## References

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