
Sports Nutrition To Prevent Or Help Heal Injuries

Abstract

For a professional athlete, the risk of getting injured is a liability that comes with the job, and most will sustain at least one performance haltering injury in their athletic career. Given the high risk of injury that comes with being a professional athlete it is understandable the huge amount of interest in factors that have the ability to reduce the risk, as well as faster recovery time, nutrition being one of them. This literature review examines the different teachings of sports nutrition in context to rehabilitation and injury prevention among athletes at a professional level. This review also investigates alternative diets in context to injury prevention and focuses on injuries such as muscle-, tendon-, ligament-, and skeletal-injuries. To compose this review, information was gathered through peer-reviewed journals, websites, and research papers.

A key point to being a great athlete is staying healthy and staying away from injuries and sickness. Athletes who spend less amount of time being injured spend more time on conditioning their bodies and refining their sport skills, which therefore makes them better themselves as athletes. However, sometimes injuries can't be avoided. When an athlete is hurt, he or she will work with an athletic trainer and/or a physical therapist to treat and rehabilitate the injury. The 'Good Athlete' will rely on treatment such as; ice, heat, electrical stimulation, massage, and rehabilitation to get back into training. However, the 'Great Athlete' will in addition to that use sports nutrition to heal his or her body quickly. Using sports nutrition during injury recovery in combination with a treatment plan from a trained professional is a great way to gain an edge over the competition and get cleared from the injury sooner.

No one can question the effect that poor nutrition will have on recovery and healing of an injury. Protein and energy deficiency are two key topics that are discussed in almost every research done in the field of the effect of nutrition on injuries and recovery, as they impair the body's natural inflammatory reaction and slows down healing.

Literature Review

First and foremost to consider during an injury, is the athlete's overall energy intake, and making sure that it is appropriate to the energy expenditure of the individual. Often the athlete's first impulse is to reduce the caloric intake since the amount of exercise and training is reduced. However, this can be detrimental to the healing of the injury as too few calories can decrease the rate at which healing occurs. Although the total energy expenditure of an athlete is likely to decrease during an injury, it is not certain. This is greatly dependent on which limb is injured, and what alternative exercises are provided to the injured athlete during his/her time of recovery. It is extremely important that the athlete is involved in some sort of exercise that does not involve the injured limb as a more subtle decrease of exercise may restrict reduced protein turnover. In order to safely reduce or increase the energy and caloric intake during injury, there are certain factors that need to be considered. First of all, during an injury to any body part energy expenditure increases due to the need of healing. This is particularly seen in the early stages of the healing process. According to Tipton, professor and researcher at the university of Sterling, this energy expenditure can increase "by up to approximately 20%. So, whereas

overall energy expenditure still may be less than normal, the total is not as low as many would at first assume.” (Tipton, 2015) This meaning that even though energy expenditure would decrease due to a decreased level of activity, the injury itself can create an increased need for energy. Therefore, athletes need to be careful when decreasing their caloric intake during injuries as it may harm their ability to recover at a normal pace.

A second factor to take in consideration when altering caloric intake for an athlete during injury, is the cost of ambulation. Or the energy cost of walking with an injury in simpler terms. According to Tipton, an injury that results in the necessity to use crutches increases the energy cost of walking dramatically. “Ambulation with crutches results in energy expenditures in the range of 2-3 times that of regular walking.” (Tipton, 2015) Therefore, depending on how much walking an athlete is doing with crutches, one may need to alter caloric intake accordingly.

The other key concept discussed in the many articles in the subject is the effect of protein intake on recovery. Just like the deficiency in total caloric intake will impede recovery from an injury, so will the deficiency of proteins. It is a widely accepted belief that proteins boost the adaptive process to exercise, and therefore it is a common theory that increased protein consumption will speed up recovery of an injured muscle. However, evidence to support this theory is lacking. According to Close, Sale, Baar, and Bermon (authors of the scholarly review Nutrition for the Prevention and Treatment of Injuries in Track and Field Athletes), “evidence suggests that protein supplements taken acutely, despite increases in protein synthesis and anabolic intracellular signaling, provide no measurable reductions in exercise-induced muscle damage and enhanced recovery of muscle function.” This absence of positive results however is not enough to contradict the theory that an excess intake of protein may benefit healing time of an injury, and more research in the subject needed.

Another aspect to take a look at when discussing nutrition and injuries is the effects of antioxidants and vitamins on recovery time and healing. Since the main job of antioxidants is to stop or limit the damage of our cells done by free radicals, a low amount of antioxidants can lead to oxidative stress, which can put athletes at risk for fatigue, injury, and muscle damage. However, not only can antioxidants help the body prevent muscle damage, it may also aid in recovery once injury occurs. (Buschmann, 2018) Further evidence however is needed to determine whether or not an excess amount of antioxidants equal faster recovery.

Methods

The purpose of this literature review was to examine different ways in which to treat and prevent injuries in athletes. To conduct this review information was gathered through peer-reviewed journals, websites, and research papers.

Results

As stated earlier in this literature review, much is still unknown in the field of sports nutrition and how to use a nutritional strategy to increase the efficiency and speed up the healing process from exercise-induced injuries. Some studies praise certain nutrients for being able to speed up healing and decrease the possibility of injury in an individual, however, direct evidence in these studies is lacking. From the research examined in this review, it is clear that a thorough assessment of each individual's circumstance must be conducted in order to make an

observation regarding whether or not there are nutritional improvements that can be done to speed up recovery and prevent injuries all together. The status of the individual's nutrition and energy needs should be assessed throughout recovery and nutrient consumption regulated correspondingly, and deficiencies (specifically those of energy, protein, and micronutrients) should be avoided at all cost.

Discussion

The best suggestion found in the research for anyone using nutrition as a way to prevent injuries, would be to implement a 'first, do no harm' tactic. The use and amount of each nutrient should be considered in the context of a risk/benefit ratio. Even if the benefit is uncertain, it may be worth trying if no risks can be identified. Otherwise, if there is a risk of doing harm with use of a particular nutrient, then perhaps that nutrient should be avoided. As always, the basis of nutritional strategy for an injured exerciser should be a well-balanced diet based on a diet of whole foods from nature (or foods made from ingredients from those foods) that are minimally processed. Whereas this advice may be considered mundane, boring, and lacking insight, it seems still to be the best course of action.

References

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