Sports And Performance Nutrition

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Lecture-30: Sports injury and dietary interventions

Hi everybody, what are few of the common sports injuries seen in athletes? What role does nutrition play in the injury management? Let us learn more. Some injuries are unfortunate can happen all of a sudden while the other types of injuries can be due to over training and over use of a certain part of the body or the muscle. Injuries last on the list where the athlete is least planned for. With an unexpected injury an athlete's training is stalled. With no training and immobilization there is a shift in focus to lower calorie intake and yet keep it adequate for the wound to heal. The focus is not only on managing weight but also ensuring there is no loss of muscle mass.

To hasten the wound healing process and to help the athlete go back to training is the utmost focus of nutrition management. The common injuries seen in athletes which require nutritional intervention are those of tissue borne and sometimes impact injuries. Tissue strain and sprain is not uncommon to an athlete. The primary approach to address injury is RICE protocol.

Resting and taking time off from training is the only way out. In fact the PRICE protocol has come to the fore where you want to protect and prevent an injury in the first place. Under the bone injury a bone fracture or dislocations are sometimes seen in sports. Shoulder impingement, rotator cuff injury, several muscle strain and sprain can deviate the athlete's training regime. Sometimes an intense impact on the head can lead to brain injury like concussion.

A high intake of protein in daily diet can keep the tissues in optimal strength when coupled with training. But sometimes as I just discussed with over training and a strain there can be tissue injuries to ligaments and tendons. The use of collagen can help in the recovery of these injured tissues. Intensey helps in the uptake of collagen so when they are taken combined together it can have a better absorption. Collagen is derived from bones of animals.

It forms a part of the connective tissue in the human body. It is like a cementing material that holds cells together. Collagen and gelatin are low quality or low biological value proteins. Collagen is what helps the hair, skin, strengthens tendons and ligaments. There is loss of collagen due to the aging process.

Harsh sun rays and cigarette smoking also damages collagen. A high consumption of sugary foods and highly processed refined carbohydrates like maida can also lower collagen. So in injury rehabilitation since there is a need for a large collagen intake you need to supplement in addition to intake of bone broth or non-vegetarian foods. A bovine source is from animal bones. Collagen is also got from the skin and the hooves of chicken.

Marine source of collagen is from the scales of fish and for those individuals who do not like to consume collagen from an animal source it can be prepared by putting together some amino acids which can be a vegan or a vegetarian source. In fact the body can make collagen from a couple of amino acids and if you remember I did discuss this in the fundamentals of protein where the body has an amino acid pool of the non-essential amino acids where one amino acid can be changed to another. For a tissue injury management the typical combination of a supplement taken from the pharmacy has a very negligible or a very low amount of collagen present in it. In fact you need to consume a very large amount of collagen to strengthen tissue. The ideal intake is about 10 to 20 grams of collagen.

You need to consume a collagen supplement with about 500 mg of vitamin C. Also to strengthen the tissue taking collagen just for a few days like a week may not be adequate. You must ensure that you consume it over 2 to 3 months to get the maximum benefit. Also there is a catch you need to ensure collagen is taken 1 hour before exercise or the mobility sessions and in any injury consuming omega 3 and antioxidants can help in the healing process. In the chapter or lectures related to vitamins and minerals I had highlighted how ensuring adequate levels of vitamin D can strengthen bones.

The uptake of calcium or its absorption is dependent on vitamin D. Very low levels of vitamin D can increase the risk of bone fracture in athletes. A fracture can happen when least expected if there are inadequate levels of these nutrients and any impact can lead to the breaking of a fragile bone if there is a low mineral density. Additionally you have to address high amount of calcium and vitamin D intake for bone healing. Vitamin D is best consumed in the day which does not disrupt sleep.

Also if you remember vitamin D is a fat soluble vitamin and if you are skimping on fat to lower weight because you are not training will not be helpful. In any injury being immobilized can actually lead to calcium reabsorption from the bones which is more harmful. In fact the calcium supplement is best taken 1 or 2 hours before rehabilitation exercise or prior to training. Vitamin D is very sparse in food source. An athlete with low levels of vitamin D or during injury management may require very high doses sometimes between 5000 to 10000 IU a day.

Oily fish, egg yolks, sun grown mushroom are a good source of vitamin D. In food if you remember other than the dairy products tofu, till, poppy seeds, almonds, broccoli, cauliflower, kale, bok choy are good source of calcium. Almonds and dark green leafy vegetables are a good source of magnesium. Magnesium is a very important mineral for absorption of vitamin D. For bone healing vitamin K is a very important nutrient and dark green leafy vegetables are a good source and of course when you consume a supplement you could consider a combination with vitamin K in it.

Vitamin K supports bone formation. Zinc is also a very important micro mineral for wound healing. In a few impact sports an intense knock on the head can lead to traumatic brain injury. This is called concussion. Impact sports like football, hockey, rugby pose a high risk for this kind of impact injury.

From loss of consciousness, confusion to even nausea and vomiting concussion can have varied symptoms based on the intensity of impact. So it is best for the athlete to rest and be kept under observation for a day or two and only when there are no symptoms and on reevaluation by a sports physician can the athlete go back to training. In head injury

rehabilitation omega 3 has a very important role to play for an athlete to go back to training. High doses of up to 3000 mg of omega 3 a day can have an anti-inflammatory effect. If you remember omega 3 is made up of icosa pentanoic acid and docosa hexanoic acid and a part of the brain is made up of DHA or docosa hexanoic acid.

Hence omega 3 has a very important role in combination and brain function. If you remember the chapter or the lecture on supplements we have discussed how creatine monohydrate supplement is not only helpful for athletes to get bursts of energy for high intensity workouts. Creatine monohydrate is also an antioxidant and helps in brain function. So in impact sports during the injury management creatine monohydrate can be very useful and you may not necessarily have to load up to 20 g a day for a week even consuming 3 to 5 g of creatine monohydrate with a high carbohydrate meal as a split dose for several weeks can be useful in injury management. Just not to forget the importance of balanced meals with fine tuning the glycemic index of carbohydrates, high quality protein, omega 3, plenty of non-starchy vegetable intake and salads to moderate weight and to augment the intake of healthy meals with the necessary supplements can help the athletes recovery and return to training.

Injury management and the healing process also consumes calories and if you recollect energy availability to cut calorie intake less than 30 kilo calories per kg of fat free mass is absolute. High quality protein from dairy and animal sources or even in vegetarian athletes from soya like tofu or soya chunks can help add large amount of protein in each meal. If the athlete is consuming antibiotics adding probiotics containing lactobacilli and Bifidobacterium can be very useful to prevent antibiotic induced gastrointestinal issues such as loose stool and also help colonize good bacteria in the gut. During a low training load or the lack of training sessions please ensure to consume plain water and calorie free fluids. Adapt healthy cooking practices like boiling, steaming, grilling where there is lesser intake of calories, spread protein throughout the day to help offer satiety and delay digestion.

Consuming adequate fruits, vegetables and antioxidants can lower the inflammation of an injury and hasten the healing process. So to summarize, maintaining optimal levels of nutrient in daily diets for a training day itself can preempt injury. Collagen supplement in the right quantity and timing with other nutrients consumed before the rehabilitation exercise can strengthen tissue. High amount of omega 3 supplement helps improve injury of impact sports. If you have any feedback or any questions please do connect with us on the forum and we will be very happy to engage with you.

Thank you for listening. Hi, my name is Rujala. I am a competitive swimmer from the past 6 years. I do sprints to long distance in freestyle. A few months back I had a wrist inflammation which was a huge challenge for me since I had my states coming up. I could not train properly and it hampered my performance in the states.

Later it was diagnosed as tendonitis in the wrist and GitaMam suggested a good quality marine collagen to be consumed daily for 3 months with vitamin C. Taking collagen helped me in the quick recovery and I was able to get back into training.