

PIVOT POINTS

Winter 2019



Cramping in Athletics

What causes muscle cramps in athletes? What can be done to prevent cramping and how can muscle cramps be treated when they do occur?

Many athletes experience exercise-associated muscle

cramps (EAMC) during activity, and while the condition is very common, it is often poorly understood. In the research article “Cramping in Sports: Beyond Hydration” cramps are defined as “painful, spasmodic, involuntary contractions of skeletal muscle during or immediately after exercise.” Hydration, or lack of hydration, has been argued as the main cause of muscle cramping for over 100 years. Originally, researchers observed miners and determined their cramps occurred after periods of profuse sweating that led to the belief that the miners cramps were related to fluid loss and retention. However, recent literature suggests that hydration is not actually the primary cause of cramping. Literature suggests that the primary cause of EAMC is muscle fatigue and that hydration may not play such a significant role. The main factors found to increase the prevalence of EAMC are:

1. having a history of cramping
2. a genetic predisposition
3. competing at a faster/ higher intensity than training pace/ intensity

It has been theorized that damage to muscle motor neurons during the fatigued period causes the neurons to fire spontaneously causing cramping. Despite the recent dismissal of hydration as a primary influence to cramping, the importance of proper hydration, electrolyte, and carbohydrate balances prior to activity for optimal performance and health is still undeniable. Maintaining fuel levels before and during activity will increase the time before muscles run out of energy supply, leading to fatigue, and possible cramping. Proper hydration, nutrition, along with an adequate stretching regiment before and after activity will also help prevent cramping during activity. If cramping does take place during activity it is important to lightly stretch and massage the muscle to alleviate the spasm. Ice massage has also been found to be an effective remedy to resolve spasms.

Meet a PIVOT Athletic Trainer



Preston Anderson MS, LAT, ATC

Preston joined the Pivot staff in 2013 and is the athletic trainer at Thomas Johnson High School in Frederick, MD. He is also the Regional Coordinator for Frederick and Montgomery County athletic trainers.

The most rewarding part of his job is the ability to work with an athlete throughout their entire injury. Both on the sideline when they are initially injured, to the moment they are fully recovered and can return to playing the sport they love.

Fun Fact: Preston was a part of his undergrads collegiate cycling team and had the opportunity to travel and race all over the country in multiple National Championships.



The Importance of Sleep in Athletes

Athletes need approximately 9-10 hours of sleep a night, and it has been found that only 20% of student-athletes get appropriate quantities of rest.

Many students in general report tiredness due to their academic responsibilities and workload. Student-athletes have even more on their plates when it comes to their daily mental and physical energy requirements. Without proper amounts of sleep, student-athletes put not only their health and development at risk, but also their physical ability to perform well during sport. An article by Children's Hospital Colorado outlines the importance of sleep, ways sleep impacts performance, and strategies to help improve sleep.

How Sleep Impacts Performance:

- 1) Accuracy & Reaction Times
- 2) Endurance
- 3) Motor Memory & Cognitive Function
- 4) Injury Risk & Recovery

Some strategies discussed in the article to help improve sleep were to develop a consistent sleep and training regiment, avoid prescription sleep aids, and avoid napping. Consistency with training times and duration, as well as having a routine bed time each night will help the body get into a routine to improve ones ability to fall and stay asleep. If you or your family are traveling, it is important to attempt to switch up the usual sleep routine a couple days before travel if possible to adjust to a new time zone as opposed to a more abrupt transition. Avoiding prescription sleep medication is also important because these types of medications can create a dependance to the medicine to sleep. Napping is also not a quality substitute for a good nights sleep. One should only use napping as a last resort for rest, and it should only be for a duration of either 20 minutes or 2 hours as to not interrupt natural periods of sleep cycles that can lead to post-nap grogginess.

Reference Articles:

https://journals.lww.com/nsca-scj/Abstract/2014/10000/Cramping_in_Sports_Beyond_Dehydration.5.aspx

<https://www.childrenscolorado.org/conditions-and-advice/sports-articles/sports-safety/sleep-student-athletes->

Contact Us:

athletictrainer@pivoths.com
www.pivotphysicaltherapy.com