

# What Really Causes Cramps

Muscle cramps are painful, sustained involuntary contractions of the muscles that can occur in many people, including both athletes & non-athletes, young & old, during pregnancy & as a consequence of specific medical conditions or medications used in their treatment. Amongst athletes, the most common form of cramping is known as exercise associated muscle cramps (EAMC), characterised by cramping of specific muscles during or soon after exercise. For rugby athletes, it's one of the most common conditions requiring medical attention during a game, often resulting in the athlete having to be substituted off the field. Given this, prevention is key.

## *What causes EAMC*

A number of mechanisms have been proposed as the cause of EAMC, including dehydration, electrolyte imbalances & exercise in hot conditions. While each sounds good in theory, none are backed up by research. Despite this, an emerging market of sports supplements proclaimed to help prevent muscle cramps are promoted widely within the sports supplement industry. What we do know is that EAMC are associated with fatigue, somewhat explaining why cramping tends to be more prevalent during trial matches & games at the start of the season when rugby athletes are still developing their game fitness. Cramping is also more common in the hotter, more humid pre-season training months.

## *Preventing EAMC*

Given that the onset of a muscle cramp during a game can result in an early shower, is there anything you can do to help prevent a future cramp? Given that cramps can be a consequence of several factors, it's also important to explore the range of issues that can be at play. Use the following tips to help minimise your potential of experiencing cramps during the season ahead.

## *Tips for reducing the potential of cramping...*

1. Incorporate some game intensity work into your training program, it's key to developing game fitness.
2. Start exercise well hydrated, making use of chilled sports drinks to keep fatigue at bay. Your muscles are most sensitive to carbohydrate ingestion during exercise, reducing fatigue associated with fuel availability. Chilled drinks & ice slushies are able to better maintain body temperature, further reducing fatigue, when training & playing on hot conditions.
3. Check in with your doctor & physio to explore any underlying medical causes of cramping. They may also have some other strategies to help prevent EAMC such as quinine.
4. Stretch vulnerable muscles (typically lower body amongst rugby athletes) on a regular basis, helping you to reset muscle reflexes.

### ***Other treatment options***

**Magnesium supplements** are widely advocated for the prevention of EAMC, with several sports supplement companies including magnesium in many of their products. This has presumably emerged based on research in the mid 90's showing benefit from magnesium supplementation among pregnant females experiencing night-time cramps. To date there is no evidence supporting the use of magnesium for the prevention of EAMC. Given this, rugby athletes are best to focus on other strategies with the potential of reducing the incidence of EAMC.

**High electrolyte solutions**, rich in sodium or salt, have also been proposed as a method of combating EAMC. While there is some anecdotal evidence suggesting benefit from this strategy, research backing this approach up is limited to whole body cramping, which likely has a different reason for onset compared to the muscle specific cramping that occurs during or soon after exercise.

**If a cramp does develop during training or a game, passive stretching of the affected muscles is key.** Preliminary research recently published suggests there may be some benefit from more novel strategies in the treatment of a cramp that presents during a game, including hyperventilation (deep, frequent breaths at a rate of 20-30 breaths per minute) & the consumption of pickle or gherkin juice (approx 1 ml/ kg body mass). While follow up research needs to be undertaken, these strategies could at least be trialed amongst athletes vulnerable to cramping. However the key remains with preventing cramps if you don't like the thought of an early shower come game day. For most athletes, that means working hard throughout the pre-season.