

# Muscle Cramping: Cause, Treatment and Prevention

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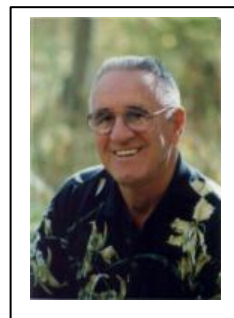
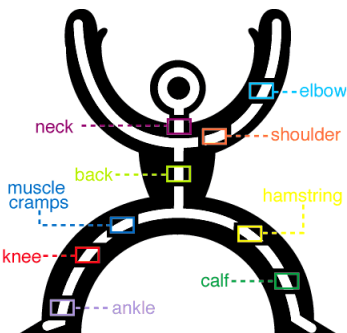
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Very few things will frustrate an athlete or coach more than muscle cramps. They can come during competition, after competition, or even at night during a deep sleep. Muscle cramps are also frustrating for scientists because they have not been able to totally determine their cause, or how to treat or prevent them.

## Cause of Muscle Cramps

Early research suggested that muscle cramps were caused by disturbances in fluid and electrolyte (salt) balance associated with high rates of sweating. Although this might be the cause of some, more recent research suggests that **fatigue** appears to cause a lack of nervous center control of the Golgi tendon organs and muscle spindles (the control centers for muscle contraction).

The function of the Golgi tendon organs is to protect muscle and connective tissue from injury. These tiny sensory receptors, which connect to muscle fibers and ligaments of joints, monitor muscle activity and when they detect extreme tension they depress activity and reduce tension in the muscle fibers.



## Definition and Treatment

Muscle cramps are defined as painful, spasmodic, involuntary contractions of skeletal muscles that occur during or immediately after exercise. Cramps during sleep may or may not be associated with exercise.

Most exercise-induced or exercise-associated muscle cramps are unrelated to disease or any medical disorder.

Treatment includes:

**rest**

**passive stretching** of the affected muscles or muscle groups

holding the muscle in a **stretched position** until muscle activation is relieved

**fluids** should also be taken if dehydration and electrolyte loss is suspected.



## Heat Cramps

Heat cramps are probably brought on by my **mineral loss** and **dehydration** but a cause-effect relationship has not been fully established. Treat by moving to a **cooler location** and administer **fluids** or a **saline solution**.

## Prevention of Muscle Cramps

To prevent exercise-induced muscle cramps the athlete should:

be **well conditioned** to reduce muscle fatigue

**regularly stretch** cramp-prone muscles

maintain **fluid and electrolyte** balance and **carbohydrate** stores

**reduce** exercise **intensity** and **duration** if necessary.

## Hydration the Football Way

Here is an interesting quote from the book **"You're Okay, It's Just a Bruise"** by Dr. Rob Huizenga, M.D. former Team Physician for the Los Angeles Raiders of the NFL (now once again the Oakland Raiders):

"To my surprise, given all the hype surrounding Gatorade and like products, chilled water was still the expert's beverage of choice for brief stretches of strenuous activity in hot sun. The going theory was that football players, who ate huge numbers of calories per day (up to five or six thousand), were getting more than enough salt in their diet and would not run low on salt or potassium during the course of a game. Players of football size need to drink literally gallons of liquids during a game. Since water tends to quench thirst better than the sweet "salty" sport drinks, it was the logical first choice for football sideline hydration. And plenty of ice would make the drinks go down easier, get them absorbed quicker, and even help cool the athlete. I later found out that the Professional Football Athletic Trainers Society had a deal with Gatorade. **Only their beverage was allowed on the sidelines, so we had to put the ice water in large Gatorade buckets.**"