

# CRAMPS & STITCHES

Just about everyone who has ventured onto the exercise arena has experienced either a cramp or a stitch at some time. These complaints can range from mildly uncomfortable to severely debilitating and are a great source of frustration to everyone from recreational exercisers to serious athletes. Unfortunately, scientists know very little about the two conditions and how to avoid them. Consequently, there is a lot of folklore surrounding the topic, making it difficult to know exactly how to deal with these problems.

## What is a cramp?

Cramp is a sudden, tight and intense pain that most commonly occurs in the leg muscles especially the gastrocnemius (calf), hamstrings (back of thigh) and quadriceps (front of thigh). It can range from a slight twinge to an excruciating pain, and may last for a few seconds or several minutes. A cramp can be a one-off occurrence or repeat several times before the muscle relaxes and the pain goes away.

## What causes a cramp?

A cramp is caused when a muscle involuntary and forcibly contracts and does not relax. While this seems to be due to an abnormal stimulation of the muscle, the exact mechanism is unknown. However, the following are the leading theories of the root causes of them.

## Suggested Causing Factors

### Muscle Fatigue & Exercise

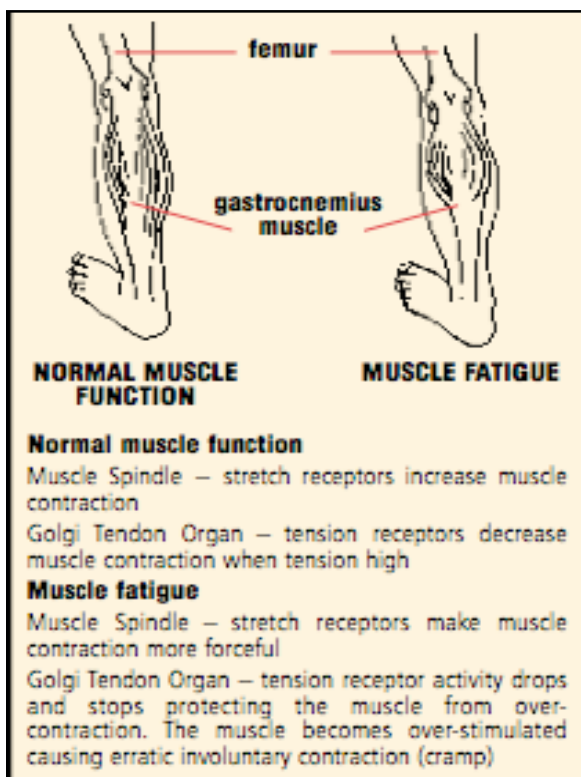
Exercise can cause an abnormal stimulation of the muscle causing an involuntary and forceful contraction and is more likely to occur in the tired muscle. Therefore poor fitness or exercising at high workloads can increase the likelihood of cramps. Inadequate stretching may also contribute.

### Dehydration & Sodium Loss

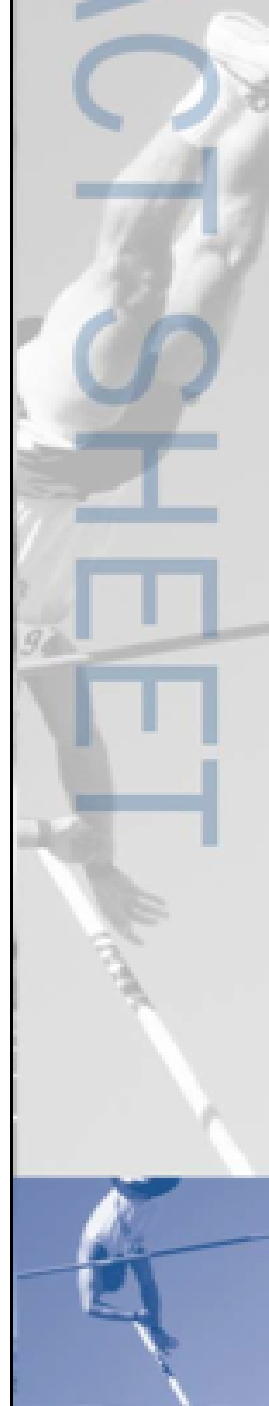
This may contribute to cramps especially when fluid and sodium losses are high. Sodium is key not only to maintain blood volume but also to help nerves fire and work. Sodium depletion short-circuits the coordination of nerves and muscles as muscles contract and relax. A deficit of sodium and fluid may "irritate" muscles causing them to contract uncontrollably.

### Potassium / Magnesium Loss

Cramp has been attributed to the depletion of potassium and minerals such as calcium and magnesium. However, this idea does not have strong support as very little potassium, calcium and magnesium is lost during exercise. Also deficiency is rare as these substances are abundant in the diet. It has been suggested that magnesium is relocated in the body during exercise rather than lost in sweat. Therefore, a magnesium imbalance in relation to other electrolytes (sodium and potassium) may be involved.



FACT SHEET





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## How can I avoid cramps?

1. Increase your strength and fitness. Stronger, fitter muscles are more resilient to fatigue and therefore cramp. Be cautious when changing speed or intensity especially during the later stages of exercise. Fatigued muscles take longer to adapt to increased workloads.
2. Allow adequate recovery and rest for muscles after hard training sessions.
3. Stay well hydrated during exercise by drinking appropriate amounts of fluid. For most players, a balanced diet containing some salty foods and proper hydration with a sports drink will stave off cramping.
4. Stretch before and after exercise to prepare your muscles for workout and gain flexibility.
5. When running, wear proper clothing. Loose comfortable clothes are best. Tight fitting clothes can reduce blood flow to muscles making them more susceptible to cramps.

## Treating Muscle Cramps

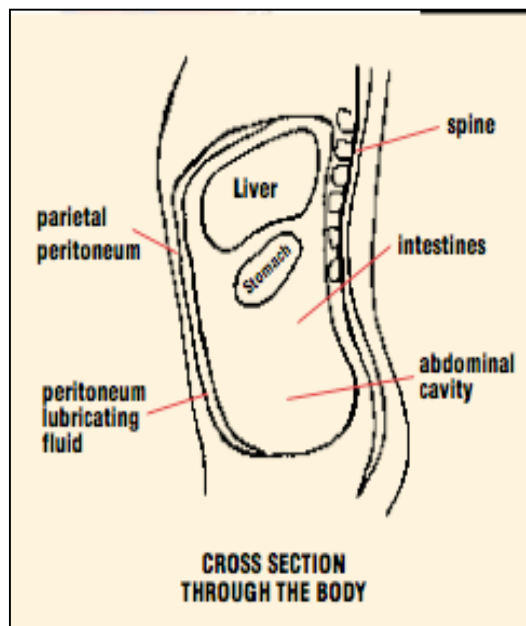
First, stop the activity that triggered the cramp in the first place.

Second, gently stretch the effected muscle or muscle group. For example, if cramping occurs in the calf muscle, grab the toes and ball of your foot and pull them towards the kneecap. The effect of stretching the muscle increases the tension in the muscle, which in turn stimulates the tension receptors to increase their activity, and that signals the stretch receptors to decrease muscle contraction. This greatly relieves muscle pain as the muscle relaxes.

Third, keep the area moving with light activity and gently massaging the area.

## What is a stitch?

Stitch is a localized pain usually felt on the side, just below the ribs. A stabbing pain in the shoulder joint sometimes accompanies it. The pain can range from sharp or stabbing to mild cramping, aching or pulling. Sometimes people can exercise through the pain however, usually the sufferer is forced to slow down or cease exercise.





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## Suspected Causes of a Stitch

Scientists are unsure of the exact cause of stitch. The suspected causes of stitch include:

Reduced blood flow to the diaphragm. It was thought that during exercise, blood was shunted away from the diaphragm and redirected to exercising muscles in the limbs. This theory has now lost favor with scientists.

Jolting motion causing stress on the ligaments connecting the abdominal organs to the diaphragm

None of these theories can explain the stitch in all people. For example, some athletes suffer stitch in the lower abdomen, which is far removed from the diaphragm. Also, swimmers get the stitch despite their sport not involving a significant jolting action. Others have experienced 'shoulder stitch', a painful shoulder without any obvious cause.

There is recent evidence that pain actually starts at the parietal peritoneum in the abdomen. Lining the inside front of the abdominal cavity are two layers of membrane, collectively called the peritoneum. One layer covers the abdominal organs and the other attaches to the abdominal wall (parietal peritoneum). Between the two layers is lubricating fluid that allows the two surfaces to rub against each other during sport and digestion without pain.

## How should stitches be treated?

Sometimes the stitch eases if you slow down and drop your intensity for a period. However, the most common way to alleviate stitch is to bend forward while pushing on the affected area and breathing deeply. Sometimes this can be done while exercising but usually the pain eases more quickly when exercise is ceased.

Stretching may also relieve a cramp. Raise your right arm straight up and lean toward the left. Hold for 30 seconds, release, then stretch the other side.

## How can I prevent stitches?

Be well hydrated and consume small, frequent amounts of fluid during sport to reduce the risk of over-stretching the stomach walls.

Avoid highly concentrated drinks, such as soft drinks, during sport as they seem to increase the risk of the stitch. They will empty slowly from the stomach, leaving it distended for longer and increasing the amount of friction generated. Choosing fluids that empty quickly from the stomach (water or sports drinks) reduces the risk of friction and subsequent pain.

***Overall, well-trained and well hydrated athletes are at least risk of muscle cramps!***

