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### **Quick Tips for Cramps & Stitches:**

- Hydrate and replace sodium that might be lost through sweat
- Stretch cramped muscle
- Recover and rest after training sessions.
- Don't eat a big meal close to training session.
- For a stitch- slow down and breathe deeply

## CRAMPS AND 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 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. A cramp is more likely to occur in tired muscles therefore poor fitness or exercising at high workloads can increase the likelihood. Inadequate stretching may also contribute.

Dehydration may contribute to cramp especially when fluid and sodium losses are high. Sodium is involved in initiating nerve signals that make muscles contract. A deficit of sodium and fluid may "irritate" muscles causing them to contract uncontrollably. Cramps have also been attributed to potassium depletion. Therefore, it is important to make sure water and sodium and potassium is being replenished before during and after workouts.

The use of creatine has been linked to cramps, based on anecdotal reports from athletes, and the hypothesis that a creatine-loaded muscle cell may become so "full" with the storage of creatine and fluid, that the integrity of the membrane is disrupted. Although this theory is interesting, studies that have followed the cramping and injury outcomes of groups of athletes have not found any difference in the prevalence of problems occurring in creatine users and non-users.

### **How should a cramp be treated?**

Stretching helps to decrease the muscle contraction and allow the muscle to relax. Massaging the area may help to alleviate pain. Rest and replacing fluid losses will also bring improvement. You should always see your doctor if cramps are severe, occur regularly, fail to improve with simple treatment or are not related to obvious causes such as strenuous exercise.

### **How can I avoid a cramp?**

- Allow adequate recovery and rest for muscles after hard training sessions.
- Increase 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.
- Wear comfortable, unrestrictive clothing and footwear.
- Stay well hydrated during exercise by drinking appropriate amounts of fluid. A fact sheet on fluid guidelines are available through USSA. Or speak to a Sports Dietitian if you are concerned about your electrolyte levels or are an ultraendurance athlete. Sports drinks are a good option as they help to replace sodium losses, especially when sweating at high rates.



## What is stitch?

Stitch is a localised pain usually felt on the side, just below the ribs. It is sometimes accompanied by a stabbing pain in the shoulder joint. 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. The pain usually eases within a few minutes after ceasing exercise however some people experience some residual soreness for a few days, especially after severe pain. Stitch seems to be more prevalent in activities that involve vigorous upright, repetitive movement of the torso. Activities such as running (particularly when going down hill) and horse riding may be more prone to stitch but it can occur in any type of activity.

## What causes stitch?

Scientists are unsure of the exact cause of stitch. For some time, stitch was thought to be caused by a reduction in blood supply to the diaphragm, a large muscle involved in breathing. 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 favour with scientists. Both the diaphragm and the limb muscles need to work harder during exercise so it is unlikely that an inadequate blood flow is directed to the diaphragm. Another popular theory is that stitch is caused by organs pulling on the ligaments that connect the gut to the diaphragm. Ligaments that support organs such as the stomach, spleen and liver are also attached to the diaphragm. Jolting during exercise may cause these organs to pull on the ligaments and create stress on the diaphragm.

A more recent idea is that stitch is caused by irritation of the parietal peritoneum. Two layers of membrane (peritoneum) line the inside wall of the abdominal cavity. One layer covers the abdominal organs. The other layer (parietal peritoneum) attaches to the abdominal wall. The two layers are separated by lubricating fluid, which allows the two surfaces to move against each other without pain. The parietal peritoneum is attached to a number of nerves. It is thought that the stitch occurs when there is friction between the abdominal contents and the parietal peritoneum. This friction may be caused by a distended (full) stomach or a reduction in the lubricating fluid.

Eating and drinking inappropriately prior to exercise may exacerbate stitch by causing a full stomach or dehydration. Poor fitness, an inadequate warm-up and exercising at high intensity may also be factors. A sudden change in biomechanics such as increased stride length or frequency may increase the risk of stitch by affecting the way that the torso moves.

## How can I avoid stitch?

- Eating too closely to exercise or consuming inappropriate foods and fluids seems to exacerbate the stitch. High-fat foods, and foods and fluids with a high sugar concentration are more likely to cause problems. The likelihood of stitch occurring may be reduced by allowing 2-4 hours before exercising after a large meal and choosing high-carbohydrate, low-fat and moderate to low protein options in the pre-exercise meal.
- During exercise, it is possible that a full stomach contributes to stitch. Concentrated fluids such as soft drink and cordial empty slowly from the stomach therefore are likely to lead to a fuller stomach. Water and sports drink empty more quickly and are a better option. It is also preferable to adopt a pattern of consuming small amounts of fluid at frequent intervals during exercise rather than trying to drink large volumes all at once.
- Stitch may also be minimised by following a training schedule that progressively increases in intensity and duration. Sudden increases in intensity are more likely to cause stitch. It is much better to start at an easy level and slowly build up.

## How should stitch 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. Another option is to lie down while elevating your hips.

## Does a cramp or a stitch indicate a more serious problem?

The stitch and a cramp is rarely a sign of more serious problems. They are temporary and the pain should subside at most by the time the bout of exercise is over. However, any pain that is persistent and does not ease when exercise ceases should be investigated by a doctor. You should always see your doctor if cramps are severe, occur regularly, fail to improve with simple treatment or are not related to obvious causes such as strenuous exercise.



Contact: Head Physiologist

