Stop that cramp! *Four causes -- and solutions -- for muscle cramps during exercise*

You're beating the heat with a swimming workout, when suddenly, in the middle of the pool, your foot cramps. Ouch!

Cramping problems plague many swimmers. According to Jessica Seaton, D.C., a chiropractic orthopedist and chair of the United States Masters Swimming (USMS) sports medicine committee, cramping most commonly involves the feet or calves, although the quadriceps or hamstrings are sometimes affected.

"Muscle cramps can occur whether or not one is in shape, but it's more common when people are getting back into shape," Seaton said. "That's why we tend to see more people standing on the side of the lane, in agony, grabbing their feet or calves, during the early season in spring or summer."

The most common causes for swimming-related cramps are the following:

1. Dehydration: Our bodies continue to perspire while in the water. Some people lose more fluids than others, and therefore also require more water.
Treatment:

- Be conscientious about keeping your body adequately hydrated. This means drinking fluids before, during and after workouts.
- Be sure to have replacement fluids by the side of the pool, even during short workouts.
- It is good to drink water before and a beverage such as Gatorade during practice.

2. Fatigue: As the muscles fatigue, there is an increased tendency for cramping, although the exact mechanism is still being debated. Suffice it to say that anecdotally, swimmers report fewer cramps as they get in better shape and when they incorporate a good stretching routine.
Treatment:

- Consistent training: Everyone's different, but for most swimmers, that is three to five times per week.
- Stretching exercises for the lower extremities (quadriceps, hamstrings, calves, feet) should be performed daily, and especially before swimming.

3. Electrolyte Deficiencies: Most people who eat properly meet daily requirements for nutrients, including electrolytes, but sometimes intake is not sufficient for the amount and type of exercise we perform. The most commonly implicated electrolytes are potassium, calcium and magnesium.
Treatment:

- Eat one banana per day. Bananas are high in potassium and easy to eat on the run.
- Eat foods rich in calcium and magnesium, such as dairy products and green leafy vegetables. You may also consider a calcium/magnesium supplement.
- Try drinking an electrolyte replacement beverage during practice, such as Gatorade.

4. Swimming in Cold Water: Though less common, some people are sensitive to cold water and find that it causes them to cramp.
Treatment:

- Swim in warmer water.
- Do a more vigorous dry-land warm-up, including stretching, prior to swimming.
- Allow yourself time to acclimate to cold water by swimming at a moderate, consistent pace and not sprinting until your body has adapted.

"Once a muscle is cramping, about the only thing you can do is to stretch it and massage it until it relaxes and lets go," Seaton said. "Some people find that icing the muscle helps as well."

It is important to remember that if leg cramps persist, one should definitely see a medical doctor. Serious underlying disorders, such as vascular disorders or other problems, may be causing the cramps.

Stretches

Muscle tightness is a well-known trigger of cramps. These stretches are easy to do and will make a real difference in calf flexibility.

Stretching should not hurt. Do not do any stretch to the point of pain. Move slowly through all movements described below, and hold each stretch for 20-30 seconds. Perform these stretches 4-5 times per week.

Toe Pull (Muscles of Feet)

1. Sit on the floor barefoot with one leg straight.
2. Loop a towel under your toes.
3. Pull until stretch is achieved.

Straight Leg Calf Stretch (Gastrocnemius)

1. Stand in a lunge position with hands on wall, keeping rear knee *straight* and both feet flat on the ground.
2. Lean your hips towards the wall until stretch is achieved. You should feel this in the *upper* calf area.

Bent Leg Calf Stretch (Soleus)

1. Stand in a lunge position with hands on wall, keeping rear knee *slightly bent* and both feet flat on the ground.
2. Lean your hips towards the wall until stretch is achieved. You should feel this in the *lower* calf area.

Exercises

These exercises can be done immediately after performing the stretches above and should only take you a few minutes. Perform these exercises 2-3 times per week.

Sock Pickup (Muscles of Feet)

1. Remove your shoes and socks.
2. Grab a sock with the toes of one foot and lift it off the floor, holding for one second.
3. Release and repeat until fatigue achieved.

Standing Calf Raise (Gastrocnemius)

1. Stand with the balls of your feet firmly on the edge of a step and your heels suspended.
2. Stand as tall as you can, emphasizing a squeeze in your calves.
3. Slowly lower yourself until your heels are just below the edge of the step.
4. Repeat until fatigue achieved.

Tip: To increase difficulty, do one leg at a time.

Seated Calf Raise (Soleus)

1. Lean against the wall as if sitting in an invisible chair.
2. Rise slowly onto the balls of your feet.
3. Slowly lower yourself until your heels are just touching the floor, but not resting. Keep a contraction on the calf muscles from the first through the last repetition.
4. Repeat until fatigue is achieved.

Tip: To increase difficulty, do one leg at a time.