

# Sports Injury Guidelines: Muscle Cramps

Washington County Public Schools Athletic Training

Beth Funkhouser, ATC  
276.698.7530  
bethf@wcs.k12.va.us

Brad Bussey, ATC  
276.356.3642  
bbussey@wcs.k12.va.us

[www.quia.com/pages/wcsathletictraining.html](http://www.quia.com/pages/wcsathletictraining.html)

## What causes cramping?

Muscle cramps are a result of muscular fatigue and electrolyte loss. Electrolytes are mineral salts that help maintain blood volume and conduct electrical impulses along nerves that control cells, organs, and muscles. When the electrolyte fluid balance is disrupted, muscle function is impaired because the coordination of nerves and muscles that signal muscles to contract and relax begin to fail. In essence, the cramp is a result of a “short circuit” in the muscle.

## Electrolyte loss in sweat

On a hot day, a 250-lb football player can easily lose a gallon of sweat in a game. In losing that much sweat, not only is water lost, but about 3 tablespoons of electrolytes such as sodium, chloride, potassium, magnesium, calcium, bicarbonate, phosphate, and sulfate.

Players most prone to cramps are those who are lean and fit, intense and explosive at their positions who take many reps. Also, heavy and early sweaters, especially those who get white salt streaks on their clothes are at higher risk for cramping due to electrolyte loss.

## Fueling your muscles

A balanced diet coupled with adequate hydration is your best defense against cramping. Popular foods that are higher in electrolytes include: tomato juice or sauce, vegetable juice, bananas, oranges, spinach, cashews, baked beans, pretzels, dill pickles, vinegar, canned soups, cereal, cheese or veggie pizza. Hydration alone will not prevent muscle cramps.

Avoid large amounts of caffeine and sugar, which dehydrate your body and inhibit absorption of some electrolytes.

- Most athletes begin training in a mildly dehydrated state.

- Water is best for maintaining daily hydration, but not for restoring electrolytes.

- Sports Drinks are best before or after activity to prevent loss and/or restore electrolyte balance. They have minimal effect during activity.

- 110 mg sodium/ 8oz of fluid is ideal.

- Most sports drinks contain sugar for energy, but too much sugar causes cramps.

- Add ¼ teaspoon of salt or “Also Salt” to 16 oz of sports drink to counter the sugar.

- V8, pickle juice, and vinegar are excellent and easy ways to get electrolytes without sugar.