

A SMALL MUSCLE WITH A BIG JOB



The gastrocnemius muscles are in flexion and releasing when Cupid, ridden by Kristen Bumpus, still has his hindquarters gathered under himself to clear the fence.

Tightness in a hind-end muscle can affect performance. A top equine sports massage therapist explains how to recognize and fix it.

By Jo-Ann Wilson with Sandra Cooke

Your horse's gastrocnemius muscle (it has not only a big job, but a big name) plays a major role in how well he moves on the flat and how he jumps. Tightness in this hind-end muscle—I'll explain soon what may cause it—can lead to a significant loss of performance. Fortunately, once discovered, simple muscle tightness in the gastroc usually can be relieved using a basic massage technique that I'll demonstrate.

Where Is It?

One challenge in working with the gastroc muscle is that so much of it is located underneath other major muscles in your horse's hind end, so let's begin by pinpointing its

location. Our model for this story is Cupid, who with his owner/rider Kristen Bumpus tied for the Level 5 Jumper Championship on the 2015 HITS Ocala winter circuit. Kristen is the head trainer at Martha



1. Jo-Ann Wilson's fingers are on the upper end of Cupid's gastroc muscle, the point at which it connects to a tendon that attaches to the femur bone.

2. Jo-Ann touches the very end of the gastroc muscle where it connects to a cordlike tendon about 2 to 3 inches above the hock joint.

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During this phase of the canter stride, the gastroc muscles are in extension, so they are contracting.

Curran's Arrowhead Farms in Concord, Massachusetts. In PHOTO 1, the inset on the previous

page, I am touching an area just below the bulge of Cupid's hamstring muscle. My fingers are on the upper end of his gastroc muscle, the point at which it connects to a tendon that attaches to the femur bone. In PHOTO 2, the large photo on the previous page, I'm touching the very end of the gastroc where it connects to a cord-like tendon about 4 to 5 inches above the hock joint.

This is the portion of the gastroc that's most accessible for palpation and massage, so it's the area that I focus on in my work.

What It Does

The gastroc's function is to extend the hock joint and also—though not simultaneously—to aid in flexing the stifle joint.

Now I want to define some terms I'll use throughout the article. In **extension**, the angle of a joint gets larger. In **flexion**, the angle becomes smaller. In PHOTO 3 on the facing page, I am flexing Cupid's left hock by lifting his foot off the ground

and bringing it forward under his body. Cupid's right hock is extended as that leg works to support his weight behind.

All muscles operate on the principle of **contraction**, when the muscle fibers bunch up and the muscle shortens to pull on the joint to which it is attached, and **release**, when the muscle stretches and releases to allow the joint to move in the other direction.

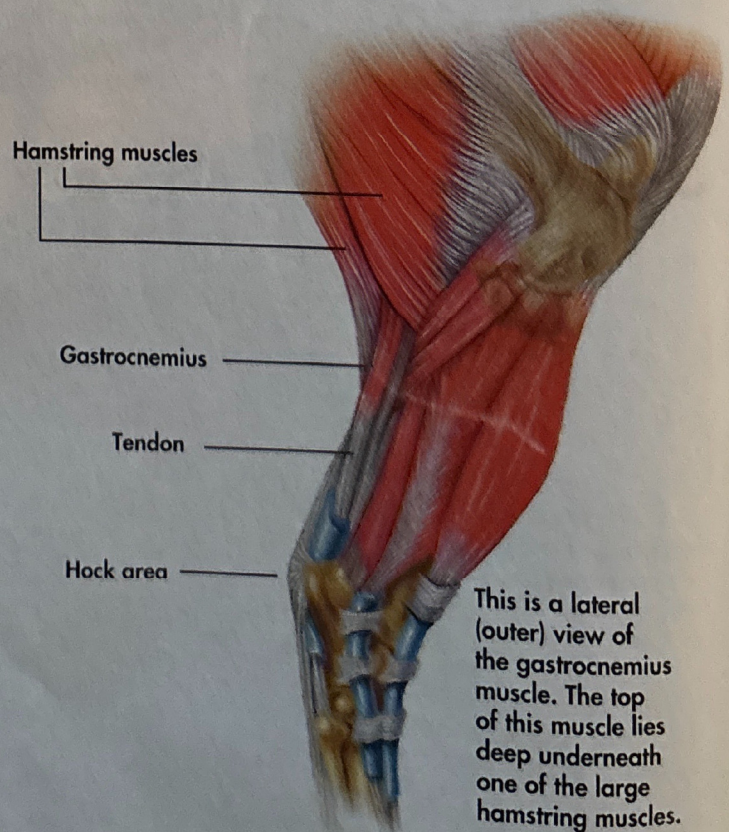
Muscles work in pairs of opposites. When one contracts, another releases. It is the release process of the muscle that is affected by muscle tightness. When the release process is slowed down by tightness, full motion and performance are diminished.

The gastroc contracts when your horse straight-

ens his hind leg to perform movements such as pushing off behind for a trot or canter stride or to jump over a fence (extension). It must release to allow your horse to flex his hock in order to bring his leg forward under his body to clear a fence or in preparation for the next stride. This release becomes more important as the hind leg needs to reach more underneath, for instance in collected dressage movements or in the movements of a cutting horse. When the gastroc's action is flexing the stifle rather than the hock, it helps to bring the stifle forward and up for the swing phase of a walk stride just as the human knee bends to take a step forward.

What Causes Tightness

We tend to assume that muscle tightness is the result of making the muscle work too hard, in other words, asking it to contract too much. But tightness can also be caused by overstretching. Tightness in the gastroc usually results when the muscle has been stretched too repetitively or too vigorously. One example: If you take your horse on a trail ride up a fairly steep



This is a lateral (outer) view of the gastrocnemius muscle. The top of this muscle lies deep underneath one of the large hamstring muscles.

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mountain, during the ride back down, when he needs to step forward and under himself behind to keep his balance on the slope, he will stretch his gastroc muscles a lot and they may be tight the next day. Gastroc tightness can also result from a lot of canter work, especially when the work consists of going more in one direction than in the other on a circle. Deep footing places considerable strain on the gastroc. I work trotting racehorses, and they often have tight gastroc muscles because their repetitive, vigorous action requires their hind legs to alternately extend behind then stretch forward.

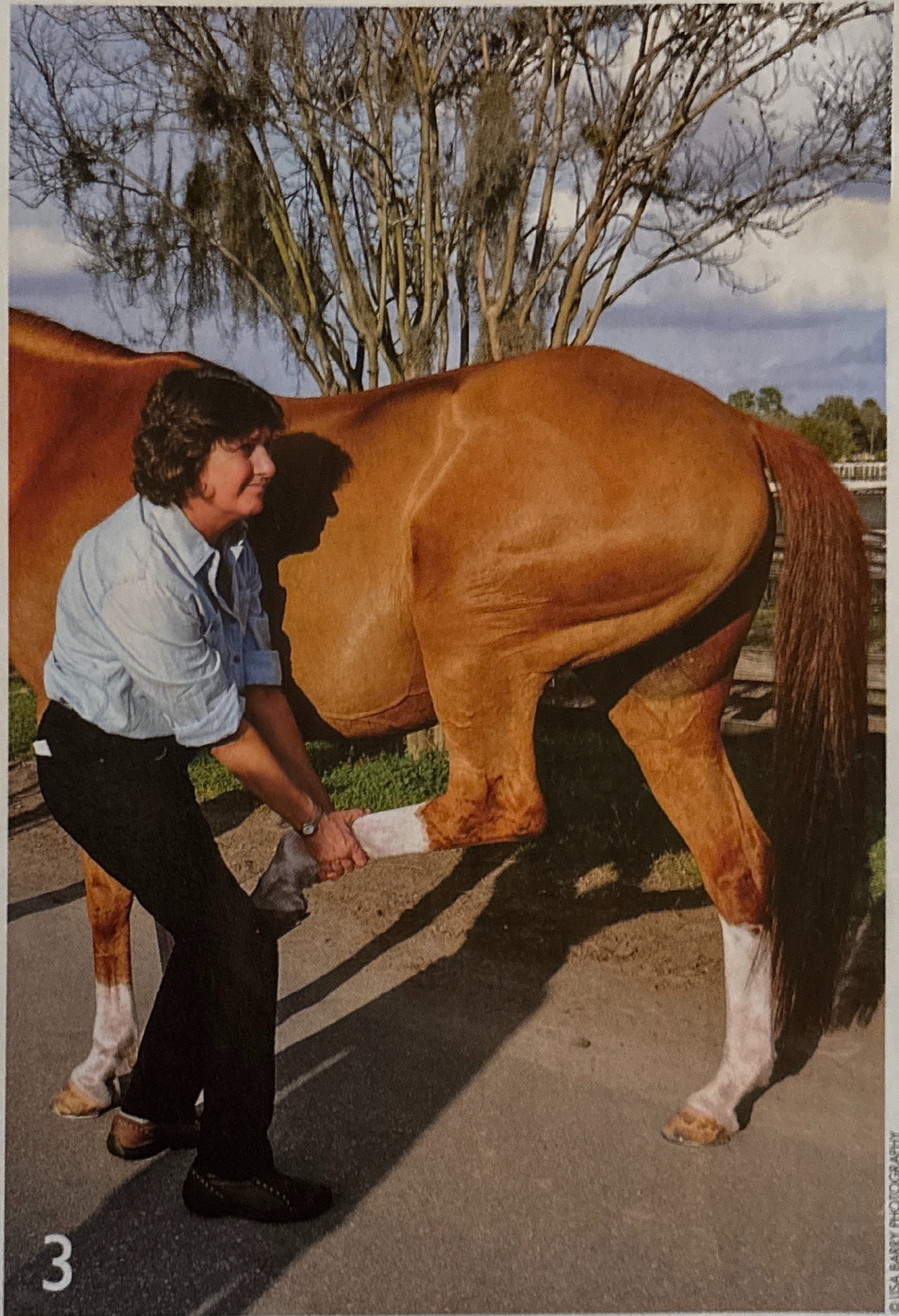
Because the gastroc helps to flex the stifle joint, I also see tight gastroc muscles in horses with weak stifles. A weak stifle causes this hock muscle to compensate by working harder.

Signs of Tightness

When a muscle is tight, it has difficulty releasing so that other muscles can move the joint in the opposite direction. A horse with gastroc-muscle tightness may resist something as normal and everyday as resting his back hoof on the farrier's hoof stand, an action that requires a horse to stretch the back leg forward and flex his hock, because the gastroc muscle doesn't release enough to make that position comfortable. A tight gastroc can even result in a false positive in the hock flexion test that's part of a standard veterinary soundness exam.

Under saddle, a horse with a tight gastroc muscle on the right hind, for instance, may have difficulty cantering to the right because the right hind needs to flex and carry the body weight in that phase of the canter stride. If the right hock has difficulty flexing, the horse will swap leads behind to the opposite hind leg. A jumper may knock down rails behind because the hock needs to be in flexion for jumping and a tight gastroc interferes with the flexion. An upper-level dressage horse can have difficulty with piaffe and passage when the gastroc is tight.

When palpating your horse's gastroc muscles for tightness, which I'll explain



shortly, you'll notice right away that even when it's not tight, this muscle does not have the give to your hand pressure that many of his other muscles do. It normally feels dense and firm. But when it's tight, it feels cordlike and stringy. If you palpate the area where the upper section of the gastroc muscle attaches to the tendon, a tight gastroc may make this area feel like a tuned guitar string (see Photo 1, page 41).

What You Can Do

If my palpation indicates that the gastroc is tight, I get good results by working on the area I first indicated in Photo 1. Then when I feel the tight fibers beginning to release, becoming more pliable and less resistant to my hand, I continue massaging down the leg to the area I'm touching in Photo 2, which is the very end of the gastroc at its connection to the tendon. I continue massaging there until I feel a little



Jo-Ann Wilson

Jo-Ann Wilson served as sports therapist for the Canadian Eventing Team at the 2014 World Equestrian Games in Normandy, France, the 2012 London Olympic Games and the 2010 World Equestrian Games, where the team earned silver. She served the U.S. Eventing Team at the 2000 Olympics in Sydney, Australia, where the riders won the team and individual gold medals. At the 2010 WEG in Lexington, Kentucky, Jo-Ann presented several lectures titled "Sportsmas-

sage for the World's Largest Athlete." She works with all levels and disciplines of horses, as well as with human athletes.

Jo-Ann, a nationally certified and licensed massage therapist, was a longstanding associate and partner of the late Jack Meagher, pioneer of sports massage. She is the director of Wilson Meagher Sports Therapy, offering clinical and professional programs for horse owners and professional massage and physical therapists.

In addition to her instructional DVD, "A Course in Equine Sportsmassage," Jo-Ann, who earned a Masters of Education at Lesley College in Cambridge, Massachusetts, has produced online training videos for horse owners and professional massage therapists focusing on how to eliminate specific muscular problems in motion by using the Wilson Meagher Method of Sports Massage. Jo-Ann offers free e-newsletters containing case studies, trainer's tips, rider's tips and general equine information. For more information, see www.sportsmassageinc.com.

more give in the tissues.

You can do this for your own horse using cross-fiber friction, a basic massage technique: Press gently but firmly on the muscle with the tips of two or three fingers and rub back and forth across the muscle fibers, which is horizontally on the

leg in this case, as I'm doing in **PHOTO 4** above, for about 10 seconds or 10 back-and-forth massage strokes. Then work your way down the back of your horse's leg, massaging one side of the muscle and then the other side, never staying in one spot for more than 10 strokes, until you

feel the point at which the gastroc joins the tendon.

If your horse reacts to the massage by trying to avoid it—moving away from you, flinching or picking up the leg you're touching—back off and try again, very gently, later on. Whenever you work on his back legs, do not stand directly behind the leg you're touching. Always position yourself off to the side.

PHOTO 5 shows me working on the lower end of the gastroc on the inner (medial) side of the leg. Notice how I'm massaging, with the tips of my fingers pulling across the muscle fibers toward the back of Cupid's leg. Next I will repeat this pressure, again directed toward the back of the leg, on the outer (lateral) surface of the muscle, as I'm doing in **PHOTO 6**. You can see that in each case, I am not standing behind the leg I'm working on. I'm standing to the side.

A tight gastroc muscle can be slow to respond to massage. After I've worked on a horse the first time, I show the owner what to do and recommend she do a follow-up massage in no less than three days and another massage three days after that. More frequent massage could actually traumatize the tissue. Between massage sessions I recommend gentle exercise under saddle at all three gaits.

If massage fails to release tightness in the gastroc and/or if the performance problem that signaled the tightness does not improve, this may reflect a deeper joint problem, a good reason to call your veterinarian. 🐾