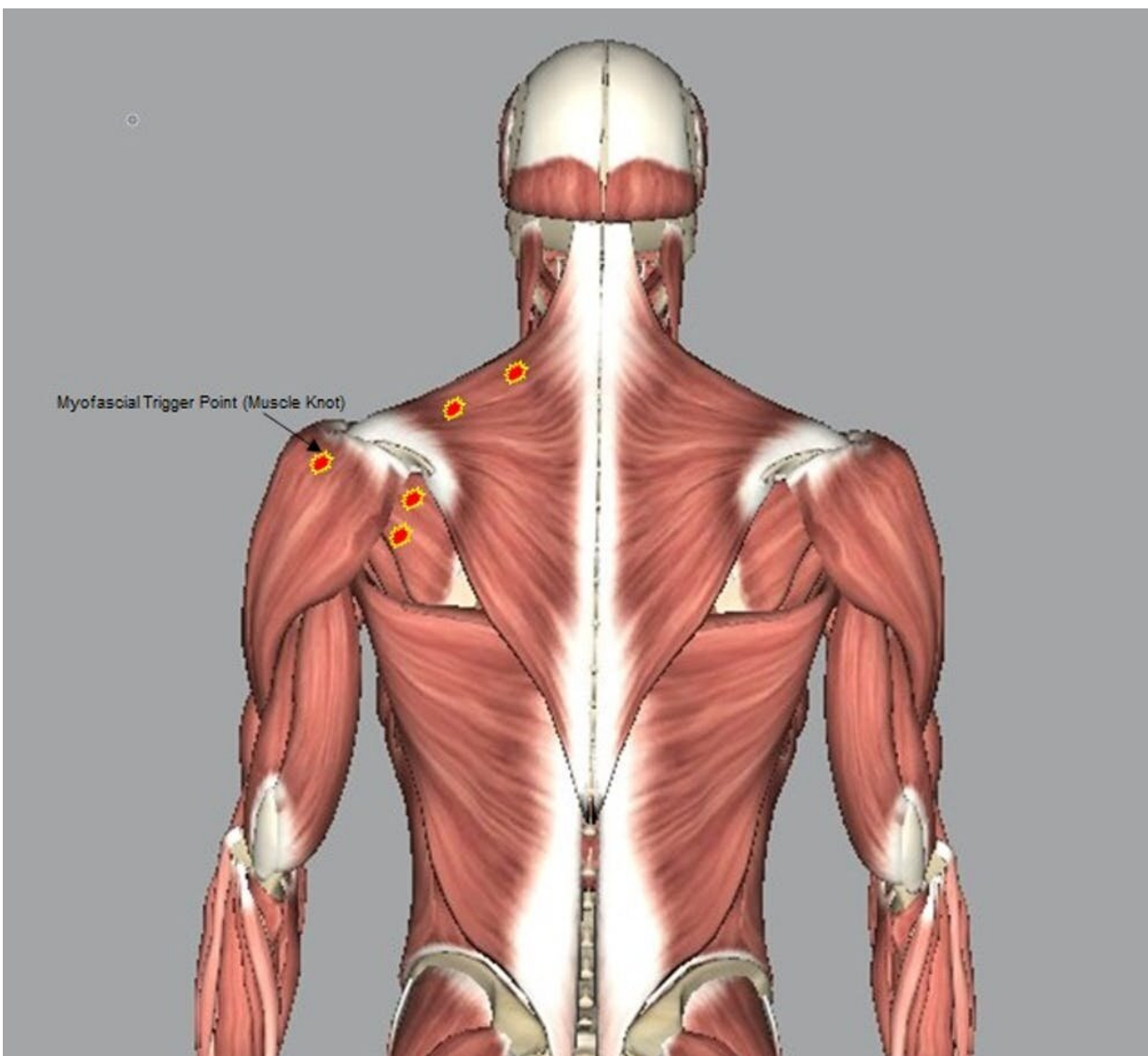


What are muscle knots? An exercise physiologist explains what those tight little lumps are and how to get rid of them

August 5 2022, by Zachary Gillen



Knots frequently crop up in the skeletal muscles of the shoulder area. Credit: 3D Human Anatomy/Zachary Gillen, [CC BY-ND](#)

Imagine you've just completed a tough upper-body workout. Your muscles feel a bit tired, but all in all you're able to go about the rest of your day just fine.

The next morning, you wake up and realize the back of your shoulder blade feels stiff. When you rub your shoulder muscles, it feels like you're prodding a little gumball under your skin. Every time you try to move it around, the area feels tight, with slight pangs of pain.

Over the course of the next few days, your back slowly loosens up and eventually your shoulder returns to feeling normal. It's probably something you'd like to avoid or minimize in the future if possible, though. So what was going on with that [muscle](#) knot?

[I'm an exercise physiologist](#). The goal of much of my research is to understand how different movements and forms of exercise place stress on the muscles. Figuring out programs to maximize performance, regardless of training goal, goes beyond what to do during the workout—it's also about how best to prepare for and recover from the stress exercise places on the body.

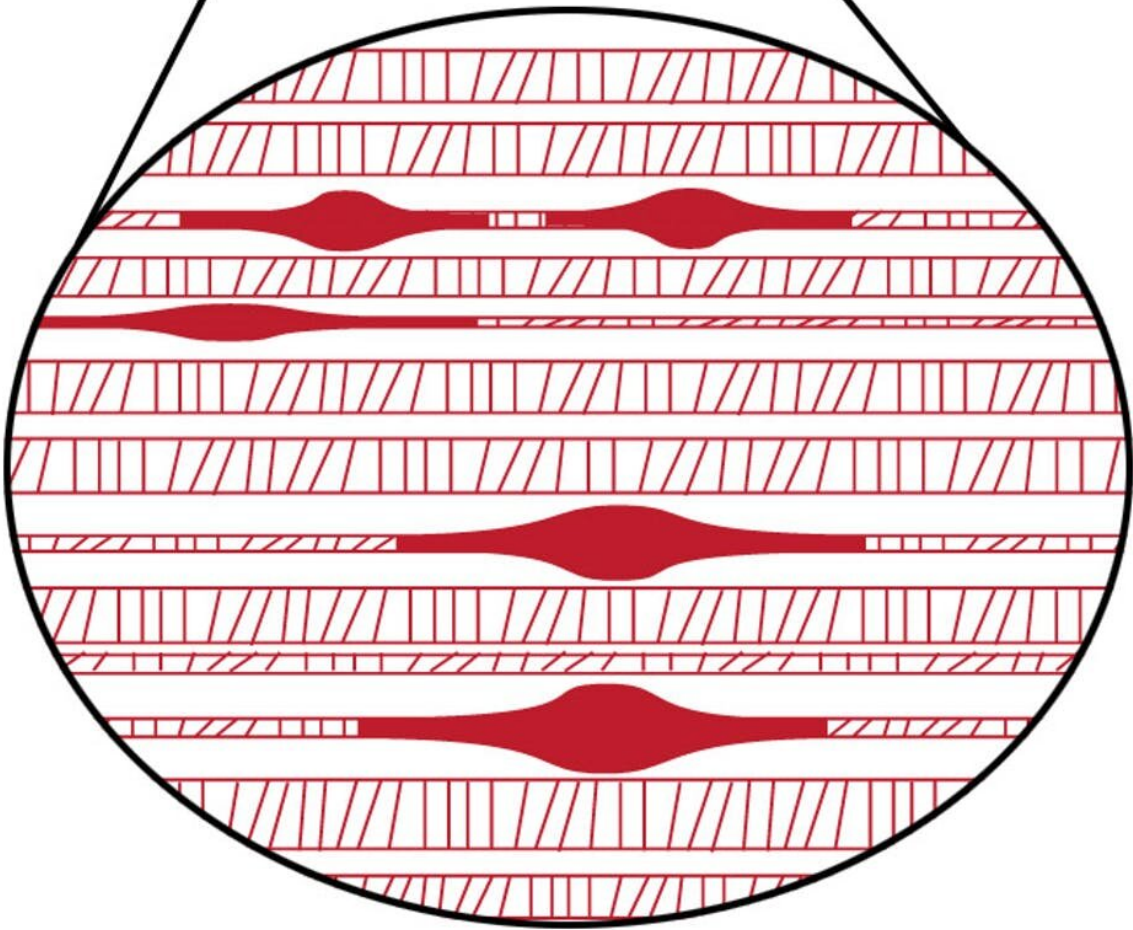
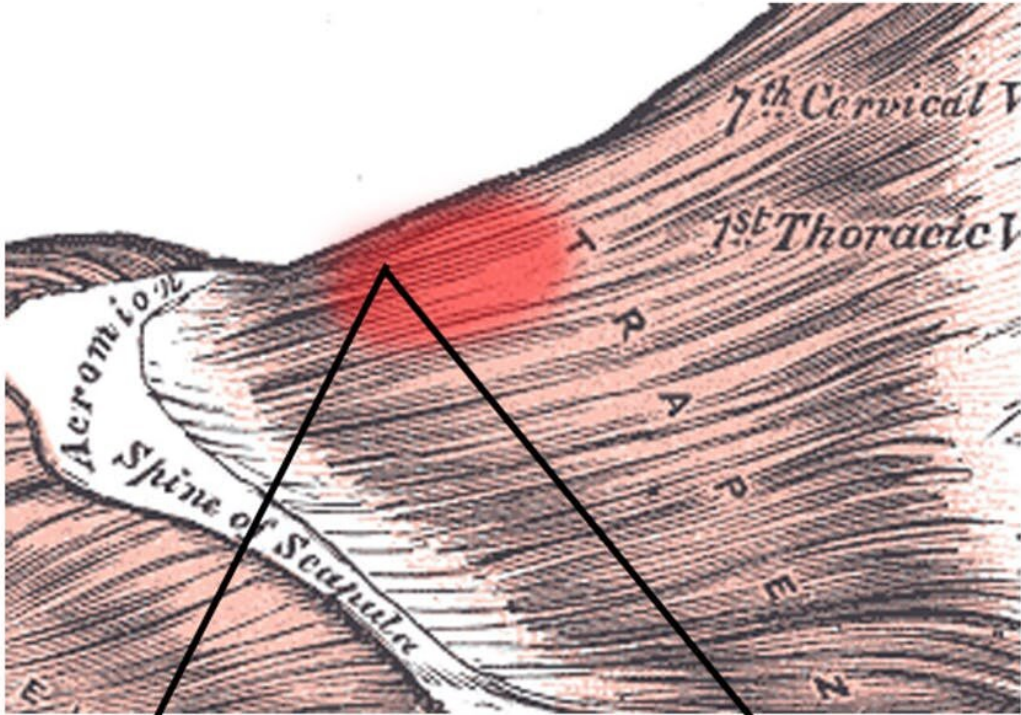
Some of the most common questions I've heard during my years as a [personal trainer](#) and researcher in this field involve muscle knots. What are they and how can you get rid of them when they happen?

What are muscle knots?

The knots you detect in your muscle, which may feel as small as a

marble or even as large as a golf ball, are called [myofascial trigger points](#). The fascia is the thin layer of connective tissue that surrounds the muscle.

When your muscle gets damaged—even just a little—it can cause inflammation in the bands of muscle and the fascial layer above. And that clump of inflamed tissue is a myofascial trigger point. The little lumps are typically tender to the touch and can limit your range of motion or lead to pain during various movements. Muscle knots don't show up on medical imaging scans, and researchers are still trying to figure out the exact physiological mechanisms within the muscle that cause this reaction.



Inflammation is what causes the muscle fibers to feel as if a little pea is stuck inside. Credit: [Davidparmenter/Wikimedia Commons](#), [CC BY-SA](#)

Myofascial trigger points tend to develop when a muscle is irritated by a new or more-strenuous-than-usual repetitive motion. For example, you may develop knots in the muscles you stressed the most during a particularly intense day of exercise. They can also crop up if you introduce a new movement pattern to your daily workout. Imagine adding a couple of days of running to your typical weekly routine of just lifting weights. Since running is a new movement, you may notice some knots in your calves, which you asked to do a lot of new work.

You don't need to be a gym rat, though, to be familiar with muscle knots. For instance, if you are consistently hunched over a computer all day, you may notice knots developing in your upper back and shoulders. Most people wouldn't consider sitting at a desk strenuous, but holding one position for hours at a time places stress on your muscles. Enter muscle knots.

How do you get rid of muscle knots?

One of the simplest solutions to the problem of muscle knots is to just wait. It takes time for the muscles to adapt to a new motion or recover from stress. Usually within a week or two a muscle knot [will resolve on its own](#).

You can also help speed the process of recovery. Some options include [massages](#); [dry needling](#), which involves injecting a very thin needle into the trigger point to attempt to break up some of the tissue and increase

[blood flow](#) to the area; and even [electrical stimulation](#). The goal of each technique is to decrease the tautness of the fascia and muscle in the area and [increase blood flow](#). [More blood passing through provides nutrients and oxygen](#) to the damaged tissue, [enhancing recovery](#).

While these techniques [are worth considering](#), there are other more cost-effective things you can do yourself at home. A fairly simple way to [help alleviate muscle knots is stretching](#). Stretching may be particularly valuable if you typically sit in an awkward position all day long. Muscles held that way under consistent stress for several hours benefit from being put through different ranges of motion. For example, after sitting for a while, some simple shoulder rolls and neck rotations can alleviate some of the tension in those muscles, helping to avoid or reduce the accumulation of muscle knots.

Another method you can try at home is called [self-myofascial release](#). The idea behind it is the same as massaging, except this method can be done in the comfort of your own home using a [foam roller](#), [rolling device](#), a hard ball, like a lacrosse ball or softball, or even a small piece of PVC pipe.

For example, if you have knots in the quadriceps muscle group on the front of your thigh, you can lie on a foam roller and gently roll your leg back and forth on it. Alternatively, you can roll the device up and down the muscle group, keeping the pressure within your comfort range. Because you apply as much pressure as you like, you're able to work within your own pain tolerance—a benefit, since it can be uncomfortable to alleviate myofascial trigger points. You can use this technique across the body anywhere you have muscle knots.

While they can be annoying, muscle knots are nothing to worry about. Remember, being consistent with exercise habits and moving throughout the day can help keep knots from developing in your muscles in the first

place. If you do notice muscle knots popping up, simply stretching at the end of the day or going through some self-myofascial release techniques are simple, effective ways to help alleviate this issue and avoid future problems.

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