



FUNCTIONAL DISORDERS: Tendinitis/Tendinosis and Bursitis

Clinical Somatics exercises can play an important role in the prevention of and recovery from tendinopathies and bursitis. The recommendations for working with these conditions are virtually the same, and the most commonly recommended eight steps for recovery are described in the last section.

TENDINITIS/TENDINOSIS

What is a tendon?

Tendons are a type of connective tissue that serve the important function of connecting muscles to bones. They're made up of densely packed collagen fibers arranged in parallel along with a small amount of a protein called elastin, which allows tendons to return to their normal length after contracting or stretching.

What is the difference between tendinitis and tendinosis?

Tendon pain resulting from repetitive use has long been diagnosed as tendinitis, but research increasingly shows that these cases are most often actually tendinosis.

Tendinitis, as designated by the suffix "itis," is an acute, inflammatory condition. True tendinitis most often occurs when a tendon is overloaded by a sudden or heavy force, resulting in micro-tears in the tendon. The immune system kicks in to repair the damaged tissue, and the tendon and surrounding tissues become swollen and painful.

Tendinosis, as designated by the suffix "osis," is a chronic, degenerative condition. In tendinosis, the tendon's collagen degenerates in response to chronic overuse. Even small movements, like clicking a computer mouse or texting, can result in tendinosis over time. In tendinosis, inflammation is not present, and the shiny, firm, white tendon has become dull, soft, and brown.

Researchers have learned about this important difference between tendinitis and tendinosis by examining surgical patients who are diagnosed with tendinitis. For example, in a study of people diagnosed with tennis elbow (tendinitis of extensor carpi radialis brevis), no signs of inflammation were found, and thus the correct diagnosis for these patients was tendinosis.

Tendinitis is painful because inflammatory substances activate nociceptors (pain receptors), and because the swelling present in inflammation can cause painful pressure. But if inflammatory substances aren't present in tendinosis, why is it painful? Research shows that degenerating tendons contain high levels of the amino acid glutamate, and it's likely that this is at least partly responsible for the pain.

A study examined patients with painful Achilles tendinosis and found neovascularization present in all of the painful tendinosis tendons, but in none of the pain-free controls. This finding suggests that the growth of new blood vessels in degenerative tendons plays a role in the pain felt in tendinosis.

If tendon pain has come on gradually, and if it seems to be the result of repetitive use, it is most likely tendinosis.

BURSITIS

What is a bursa?

Bursae are small sacs of connective tissue filled with synovial fluid which reduce friction in joints. Bursae look like little water balloons. They sit between tendons and muscles and bones, cushioning joints and allowing tendons and muscles to move easily over bone. When a joint is overused, new bursae can actually grow to provide extra protection.

What is bursitis?

Bursitis occurs when a bursa gets inflamed and causes pain. When a movement is repeated over and over, the tendon or muscle rubs repeatedly against the bursa, and after a while the bursa can become irritated. The inflammatory process increases the amount of synovial fluid inside the bursa, and the increased pressure from the fluid causes pain. Muscles around the painful joint will often tighten up to splint the injury, limiting range of motion and compressing the joint – leading to even more pain.

Bursitis can occur in any joint, but most often develops in the shoulder, elbow, hip, or knee. Like tendinosis, bursitis most often results from overuse. It can also result from excessive pressure, like leaning on the elbows or kneeling for long periods of time.

WORKING WITH TENDINOSIS AND BURSITIS

Tendinosis and bursitis are not only painful, but they can be very frustrating for two reasons. One, they are slow to heal and two, changes in behavior and lifestyle modifications are often required in order to allow the healing process to take place.

In comparison to muscles, tendons are relatively poorly vascularized, meaning they have less blood flow. This means that injuries to tendons take longer to heal than injuries to muscles,

and is a reason why tendinopathies are so frustrating. Research suggests that it can take anywhere from 6 weeks to 9 months for tendon injuries to fully heal.

Likewise, the time frame for healing from bursitis can be anywhere from several weeks to several years, depending on the severity and how proactive the person is in their recovery.

Clinical Somatics exercises play an important role in changing body use (#2 below) and releasing chronically tight muscles (#3 below). Your students will want specific exercises that target their painful area, but keep in mind that their full-body patterns must be addressed. You can help your student figure out how their full-body patterns of posture, movement, and tension led to their condition.

The most important parts of prevention of and recovery from tendinosis and bursitis are: taking a break from the repetitive activity, improving full-body patterns, and releasing chronic muscle tension. You must stress to your student that their condition will probably persist if they do not take a break from the repetitive activity that led to it.

If you are working with a student who has tendinosis or bursitis, you can educate them that the following eight actions are recommended for recovery.

*While not mentioned below, please note that anti-inflammatory medications are generally not recommended for tendinosis, as inflammation is not present. However, anti-inflammatories are recommended for bursitis, as it is an inflammatory condition.

1. **Reduce or avoid the repetitive activity that caused the tendinosis or bursitis.** If the activity is required at your job, make sure to take frequent breaks, like a 5-minute break every 20-30 minutes. If possible, train yourself to do the task by using your body in a different way – like with your non-dominant side – so that the injured tendon or inflamed bursa can rest.

If the activity is recreational, you should stop it altogether until your pain subsides. If you are an athlete, do a different type of exercise that doesn't aggravate your painful tendon or bursa, and even better, use this as an opportunity to create a cross-training regimen for yourself. I recommend alternating at least 3 different types of workouts throughout the week that use your body in different ways; this is the best way to avoid overuse injuries while maintaining a high level of physical fitness.

2. **Adjust ergonomics and biomechanics.** If the repetitive activity that caused your tendinosis or bursitis is performed at your job, then take the time to evaluate how your workstation is set up. Sometimes a small change, like moving your keyboard so that your wrists are in a neutral position when typing, can have a huge impact.

Whether your tendinosis or bursitis was caused by a work-related or recreational activity, consider how you might be able to use your body differently in order to avoid overusing/straining the painful tendon or overusing/putting pressure on your bursa.

Tendinosis and bursitis can occur not just from overuse but also from *misuse* — moving in an unnatural or imbalanced way. Clinical Somatics exercises are extremely effective for retraining habitual posture and movement. They also give you fine-tuned control of your body so that you can sense when your posture or movement is the slightest bit “off” and correct it before pain or damage occurs.

3. Release your muscles. Tight muscles pull on their tendons, creating excess strain on the tendons. This strain contributes to tendon degeneration and increases the risk of tendon rupture. An important part of both prevention and the healing process is reducing the baseline level of tension in your muscles.

Likewise, tight muscles and the resulting tight tendons press on the bursae underneath them, creating excess pressure and friction and leading to bursitis.

While you might be inclined to focus on releasing just the muscle that's attached to the painful tendon or near the painful bursa, keep in mind that one single muscle is never responsible for a dysfunctional movement pattern. You should reduce muscle tension throughout your body so that you can improve your posture and movement and prevent recurring and new problems.

4. Supporting and splinting the painful joint. Limiting movement by taping or wearing a brace reduces the amount of harmful, repetitive movement that caused the tendinosis or bursitis. If you must continue to do the repetitive task at work, supportive tape or a brace may be helpful. However, compression is not recommended for bursitis as it can cause or worsen the condition; so if you use support or bracing for bursitis, make sure it is not compressive.

5. Apply ice. Icing degenerative tendons is not intended to decrease inflammation, as there is none in tendinosis. Instead, ice is recommended for painful tendinosis because it has proved beneficial in clinical settings. The reasons why are not fully understood, but it may be because ice constricts blood vessels. Abnormal growth of new blood vessels is common in tendinosis, and as mentioned earlier, may contribute to the pain.

Icing for 15-20 minutes at a time, then taking a break for at least that long, will help reduce swelling and inflammation in bursitis.

6. Massage the painful area. Massage has many benefits for healing connective tissue because:

- It stimulates circulation

- It stimulates fibroblast activity, speeding up the generation of new collagen

- It reduces scar tissue formation

- It temporarily relaxes the attached muscle, reducing strain on tendons and pressure on bursae

- It temporarily decreases pain sensation

7. Practice eccentric strengthening. An eccentric contraction is the action of a muscle lengthening while still contracting under load; an example is your biceps muscle slowly elongating as you lower a dumbbell. A number of studies have shown the benefits of eccentric strengthening as a treatment for tendinosis, and there are several likely reasons why. First, scientists believe that eccentric strengthening stimulates collagen production in tendons. Second, animal experiments have shown that eccentric strengthening can improve collagen alignment and stimulate collagen cross-linkage formation, improving the tensile strength of the tendon. Lastly, scientists recognize that eccentric strengthening actually lengthens muscles, thereby reducing muscle tension and strain on tendons (and pressure and friction on bursae).

8. Get proper nutrition. Since the key to healing a degenerative tendon is allowing sufficient collagen to be produced (and not subsequently worn away by repetitive movement), it's important to get enough of the vitamins and minerals that play a role in collagen synthesis and tissue repair. While more research is needed, a diet rich in vegetables, fruits, legumes, nuts, seeds, and whole grains will provide the nutrients and antioxidants needed for optimal healing.

An important note: The collagen found in popular supplements is broken down into amino acids in the digestive system, and then the body uses the amino acids wherever they're needed. So as long as you're getting enough protein from varied sources in your diet, collagen supplements are probably a waste of money.

A diet rich in vegetables, fruits, legumes, nuts, seeds, and whole grains is also proven to be anti-inflammatory (unless you have intolerances or allergies to specific foods in this diet) so it will be supportive in recovery from bursitis.