

## Hamstring Tightness in Chronic Pain Patients

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I don't know about you, but I feel a lot of pressure from patients to decrease pain and clear up dysfunctions within the first few visits. I am trying to address symptoms as fast as possible, but sometimes patients' expectations of what I can do are just too high and unrealistic. This seems particularly true with chronic pain patients.

Chronic pain patients often have been to other providers first: medical doctors, physical therapists, acupuncturists, massage therapists, trainers, etc. If I don't do something "new" that they have not already tried, and effect a positive change within the first two to three sessions, they don't stay under my care. If I do the same thing they have already tried, they figure, "Why should I do that treatment again? It didn't work before!"

But if I do something different or "new" to a chronic pain patient right away and make a positive change, they seem to appreciate my efforts. They work with me and follow my recommendations.

I think what has helped me the most in working with chronic pain patients is taking standard orthopedic tests and translating them into functional components that help understand dysfunction, and then applying the appropriate therapy. Let's illustrate how this can work in chronic pain patients by evaluating [hamstring tightness](#).

Use the ASLR to Test for Dysfunction / Limitations

Sometimes I am afraid to have acute pain patients move too much during my exam because movement aggravates their pain. But with chronic pain patients, I am not afraid to have them perform movements because watching them move allows me (and them) to realize their dysfunctions. I look for opportunities to start educating and carefully instructing chronic pain patients to activate and engage their stability muscles, using movement as therapy.

Most chiropractors are familiar with and use Lasegue's sign / the straight leg raise test, which is a test done during the physical examination to determine whether a patient with low back pain has an underlying herniated disk, often located at L5. If the patient experiences sciatic pain when the straight leg is at an angle of between 30 degrees and 70 degrees, then the test is positive and a herniated disc is likely to be the cause of the pain.<sup>1-2</sup>

The active straight leg raise (ASLR) screen is a slight modification on the [functional movement screen](#) (FMS).<sup>3</sup> The active straight leg raise is a screen designed to look at hip extension and hip flexion occurring simultaneously.

The ASLR tests the ability to disassociate the lower extremity while maintaining stability in the torso. In the absence of low back pain (thinking of this test as a lumbar disc test), I use it to assess active hamstring and gastrocsoleus flexibility while maintaining a stable pelvis and active extension of the opposite leg.

With the patient in the supine position, knees extended with the feet together, ask them to raise

one leg up as high as they can without bending the raised knee or letting either foot / toe externally rotate. Some abnormal movements we might notice during the ASLR are:

- The patient cannot raise their heel past the knee of the stationary leg.
- The patient's leg shakes when they elevate it.
- The pelvis shifts position (rises, rolls, elevates) during the test.
- The patient feels pulling sensations or tightness in the hamstrings of the raised leg.

If the patient cannot achieve the benchmark (the raised leg elevates from a plumb line drawn from the medial malleoli down to a point above the stationary mid-thigh) without compensation, pelvic control may not be sufficient for execution of the pattern. There may be inadequate mobility of the moving hip (it requires functional hamstring flexibility); and there may be inadequate mobility of the non-moving hip stemming from iliopsoas inflexibility associated with an anteriorly tilted pelvis.

Again, the benchmark for the active straight leg raise test is holding (controlling) the spine still while flexing one hip, with the opposite hip staying in extension. A good active functional range is 70 degrees. If any compensation occurs, I know I need to address these issues. The abnormal ASLR is often associated with a sequencing issue - a motor control problem. With good stability, we are able to flex one hip while keeping the other in extension without moving the spine.

If your patient displays a straight leg raise dysfunction, this might be due to tight hamstrings. Get them off the table and see if they can touch their toes (a single-leg toe touch). Is just the right or left side tight? Now get them to try a long sitting toe touch (which unloads the hips) and even a curled-up yoga "child's pose" to see what the spine is doing (look for smooth spinal flexion).

### Tackling the Problem

If you determine it is a hamstring problem, one approach is to perform deep-tissue therapy to the hamstrings proximally along the whole ischial tuberosity tendon attachments. I like to use hands-on therapy, radial shockwave therapy and/or deep muscle stimulation, among other tools.

Make sure you get the fleshy muscle bellies to the distal attachments at the back of the tibial and femoral condyle areas. Don't forget the joint capsule, popliteus, gastrocnemius muscle and fascia on the bottom of the feet.

Immediately after the soft-tissue therapy, we have an opportunity to teach the nervous system and muscle a new length. If the patient tells you that they have been stretching the hamstrings and they remain tight day in and day out, inquire about their approach to stretching. But keep in mind that it is also possible the hamstrings might *need* to be tight because other muscles can't control the pelvis.

In this case, a good exercise to prescribe would integrate active core engagement while moving the hamstring (try leg-lowering progressions). Recommend that hamstring exercise strategies be performed multiple times throughout the day. I incorporate them into these patients' daily lives. Recovery involves increasing mobility, attempting to increase motor control or muscle firing, and maybe some strength training.

The art of therapy is getting the patient to use the proper stability muscles so they don't default to the hamstrings. When the hamstrings are tight, the patient will have a difficult time moving from the hips; they will compensate by excessively flexing (losing energy) through the lumbar spine.

We all know repetitive [lumbar flexion](#) is a direct cause of lumbar spine instability and disc herniation. We strive to have the soft tissues around the spine under appropriate tension so we

have stability while incorporating activities of the arms and legs during daily living.

Single-leg stretching work in the supine position, and step-ups / side step-ups onto a box that forces the hip into flexion may be a good starting place. Maybe it's going to be rolling maneuvers, or core-engaging leg maneuvers, but remember: nothing heavy and always slow and easy to start. A good position for core activation is half-kneeling with arm action drills.

Our role is to coach and support the patient's stability so they can work on controlling rib and pelvis alignment while moving the hip through the flexion-extension pattern of normal walking (eventually running or sprinting, if that is a goal).

### Key Points to Remember

Evaluate each case of chronic low back pain for chronic hamstring tightness. Ask yourself, where is the postural strength deficit? There's probably a neural and structural component causing the stiffness. If the stiffness in the hamstring is there every day, no matter how much a patient stretches, think [core instability](#).

I don't let patients with SLR dysfunctions train without teaching them proper hip motion. They learn how to flex the hip one at a time without using the spine. The goal is to help increase mobility, increase soft-tissue motion and control joint range of motion. Let's learn to apply corrective exercise strategies to control the local (deep inner) muscles and control segmental translation; unload pain sensitive tissues; position joints to take away pain-sensitive tissues; and promote healing and decrease pain.

Using common orthopedic tests and gait analysis allows me to find out what movement habits are preventing them from enjoying life. Discovering the issues that are obstructing the quality of movement requires getting patients off the table and figuring out what they can do successfully - and this active care approach is often the "new" thing chronic patients have not yet tried.

### References

1. Speed C. Low back pain. *BMJ*, 2004;328 (7448):1119-21.
2. Devillé WL, et al. The test of Lasègue: systematic review of the accuracy in diagnosing herniated discs. *Spine*, 2001;25 (9):1140-7.
3. George R. "Introduction to the Functional Movement Screen." *Dynamic Chiropractic*, Dec. 2, 2010.

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