

## Treating Tight Hamstrings

### Anatomy

Hamstrings are a fantastic group of muscles that all originate on the ischium and posterior femur, cross both the hip and knee joints and insert into the tibia and fibula. Most of you reading this article will have come across a client complaining of “tight” hamstrings at some point in your career and will hopefully be inspired to try something different by way of the assessment and treatment of these important muscles!

### Physiology

All hamstrings extend the hip and flex the knee. But did you know that semitendinosus and semimembranosus also medially rotate the knee and assist in medial rotation of the hip? That biceps femoris also laterally rotates the knee and assists in lateral rotation of the hip?

### Causes of hamstring tightness

Sportspeople regularly report feelings of tightness in those muscles primarily used in their sport. So cyclists, rowers and runners, for example, are all at risk of developing “tight” hamstrings, as all three activities require strong knee flexion. However, sitting for long periods, may also result in feelings of tightness in these two-joint muscles for, whilst the muscles are lengthened over the posterior hip in sitting, they are shortened where they cross the posterior knee. Older, less active clients may also have shortened hamstrings and may experience “tightness” when attempting activities that require both hip flexion with knee extension such as bending down to put on shoes and socks. This may be the result of client’s standing with slightly flexed knees, a common postural change as we age.

### Tests for tightness

So how can you tell if your client has tight hamstrings?

1) Well, the most obvious method is to ask them, as many people already know whether their hamstrings are tight or not, especially those who exercise.

2) Traditionally, fitness professionals have used the Sit and Reach Test to test for hamstring length. This is where you ask your client to sit with their legs positioned straight out in front of them (ie with flexed hips, extended knees) whilst they try to touch their toes. Being able to touch the toes is considered normal in the Sit and Reach Test. However, it is well known that this also tests flexibility of the lumbar spine and it is therefore possible for a client to achieve a good result in this test yet still have tight hamstrings, simply because their extended reach is the result of lengthening spinal extensors in addition to hamstrings.

3) An alternative method is the Straight Leg Raise Test. This is where you position your client in supine with one limb resting straight out (ie neutral hip, extended knee) on the couch whilst you passively flex the hip, trying to keep the knee extended. A client with tight hamstrings will be unable to achieve around 90 degrees.

For any tests involving joint movements it should be remembered that clients vary considerably in their basic joint anatomy and so it is important to compare both sides and to take into account the age of the client (as this affects flexibility), any underlying pathology and the lifestyle of the client (for example, a hurdler is likely to have a greater range at their hip joint than say, a cyclist).

Remember also that dorsiflexing the foot is not necessary when performing these tests. In fact, dorsiflexion increases feelings of tightness in the hamstring group and is therefore not necessarily beneficial, perhaps due to pressure on the sciatic nerve in this position.

4) Many of you will be familiar with what a tight muscle feels like so careful palpation and comparison with both legs is important. Soft Tissue Release is a stretching technique that can be used as an assessment tool as well as a treatment and many therapists use this to locate specific areas of hamstring tightness.

5) It is also worth carrying out a lateral postural observation. Does your client stand with flexed knees, indicating shortened hamstrings? It has also been noted that client who present with a pronounced lumbar lordosis often have tight hamstrings as these muscles “pull” in an attempt to counter the lordosis.

## Treatment ideas

Great news for us as therapists is that there are LOTS of techniques to help ease feelings of tightness in these muscles.

- 1) To start, lets not forget the value of using heat: heat is not only comforting but assists in pliability of soft tissues. Try applying heat with care prior to massage, working up from basic effleurage and pettrissage to deeper, more specific strokes such as stripping of the long hamstring fibers.
- 2) In addition to heat we could try stretching the muscles, both actively and passively. Why not provide your client with one or two hamstring stretches with instructions to perform these daily between treatments then reassess their hamstring tightness on their next visit?
- 3) You could apply passive stretches, using the Straight Leg Raise position, using simple static stretches. Or you may chose to use Muscle Energy Techniques, more advanced forms of stretching
- 4) Finally, lets not forget the value of static pressures to assist in muscle relaxation. These are one of the least used forms of treatment and one of my favourite because they are so effective. Using your elbow, fists or forearm, apply your pressure for up to a minute at the ischium, then retest hamstring length and you will be amazed at the improvement!
- 5) In addition to this you could provide your client with a therapy ball (a dog ball or golf ball works just as well) with instructions on how they could apply these pressures themselves.

For further information or to discuss any of the treatments mentioned in this article please contact:

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