

# Hamstrings

## doorframe stretch

### Starting position and instructions

Start by lying on the floor in a doorframe, with your hips level with it. Bend your left leg and place your left foot on the upright of the doorframe, whilst keeping your right leg straight and pressed into the floor. Straighten your left leg, sliding your left heel up the doorframe as you do so. Next extend your leg slowly, tightening your quads at the same time. Hold the stretched position for 30-40 seconds, breathing normally.

### Variations

Move your whole body forwards or backwards so that the door frame is at waist or knee level – this will create a greater or lesser amount of hip flexion and change the intensity of the exercise. Additionally, keeping your knee unlocked will reduce the stretch on the lower hamstrings towards the knee and increase the emphasis on the upper portion of the muscle up into the buttock. Drawing your toes towards you places a greater emphasis on the neural (nerve) structures within the leg and stretches the Sciatic nerve.

### Points to note

Make sure that your heel stays on the doorframe. If you find that your foot does not slide easily up and down it, keep your sock on to increase slip. If you are unable to straighten your leg fully, record the distance that your heel raises up the doorframe. Providing you place your hips in the same position on the floor, you can use the height of your heel on the doorframe to track the improvement in your range of movement over a number of weeks.

### Uses

Straightening the leg stretches both the hamstring muscles at the back of the thigh, and the Sciatic nerve running from your lower back, through your buttock and down the back of your leg to your toes. Both structures are important, but for different reasons.

Hamstring tightness is an injury risk factor - the less elastic a muscle is the more likely it is to tear during rapid uncoordinated actions. Incidentally, the actual length of the muscle is not as important here as the quality of movement. While static stretching (stretch and hold) develops movement range, dynamic



stretching (moving into the stretched position repeatedly and relatively quickly) is more functional as it can be tailored to rehearse a sports action. For example, a controlled leg raise or leg swing can mimic a kicking action in football or a martial arts move. Now, although movement range is being trained, the coordinated action of several muscles and body parts is involved.

### **Posture**

From a postural perspective the hamstrings are also important. They attach up into the buttocks onto the sitting bone (ischial tuberosity) and will pull the pelvis backwards into posterior tilt, flattening the lumbar spine. When driving position for example, the legs can be nearly straight as they reach for the car pedals, and if tight, the hamstrings will flatten the back excessively placing stress onto the lumbar tissues. Over a long journey, this may result in low back pain (so-called 'postural back pain').

### **Bending and lifting**

The hamstrings are equally important in bending and lifting actions. As we bend forwards to pick up a box in the office or perform a dead-lift in the gym, the bending action comes from the hips and spine. The pelvis tilts on the hips and the lumbar spine bends - both these actions are important. Hamstring tightness can also limit pelvic tilt, this means

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that the lumbar spine contribute more to the total bending action than need be. Over time this can lead to accumulated strain in the lower back and severe injury. Stretching the hamstrings and re-training the bending action can increase the contribution of the pelvic tilting action and de-emphasise the lumbar spine motion.

### **Sciatic nerve pain**

Finally, tightness in the Sciatic nerve may occur as a result of back pain. This often results from inflammation of the lumbar tissues around the discs and facet joints. Resultant swelling can spread to the Sciatic nerve causing pain (Sciatica). When the back condition has eased, a person can be left with tightness of the nerve, which reduces its normal sliding as the knee bends and straightens. By using this stretch, the sciatic nerve is lengthened and if the toes and foot are pulled towards the knee (dorsiflexion) the emphasis on the nerve is increased. A tight nerve can cause a tingle and ache in the calf and sometimes the toes. Providing this is mild and reduces as the stretch is slowly repeated, the nerve is stretching out. However, a word of caution - following back pain - if the tingling is intense or if it occurs in daily activities such as sitting and driving you should see a physiotherapist. Intense tingling is a sign that the nerve is compressed and requires specialist treatment. **UE**



#### **About the author**

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