

HAMSTRING MUSCLE STRAIN

Description

A hamstring strain is the most common injury of the thigh (Figure 1). Symptoms are pain, tenderness, swelling, warmth and/or redness over the hamstring muscles at the back of the thigh. The pain is worse during and after strenuous activity. The player notes muscle spasms in the back of the thigh over the area of the strain.



Fig 1. Hamstring strain

Symptoms are pain and/or weakness during running, jumping or bending the knee against resistance. With acute severe strains, the player may note bruising in the thigh within 48 hours following the injury.

Occasionally there will be loss of fullness of the muscle or muscle bulging with complete rupture. A hamstring strain may occur from overuse, or from a sudden eccentric contraction of the muscle, as occurs during sprinting, sliding, and lunging.

Other factors that increase the risk of hamstring strains in athletes include tight or shortened hamstrings, hamstring muscle weakness relative to the quadriceps muscles, and previous injury of the thigh, knee, or pelvis.

Muscle strains can be classified based upon their severity. A grade 1 strain is a “slight pull” without obvious tearing (it is microscopic tearing). There is mild pain, which may prevent the player from continuing to play. There is usually no significant loss of strength.

A grade 2 strain results in tearing of some of the fibres within the substance of the muscle. There is significant pain, which usually causes the player to stop playing. There may be difficulty bearing full weight on the affected leg and there is decreased strength. Swelling and bruising may develop within 24-48 hours following the injury.

A grade 3 strain is a tear of all the fibres of the muscle. There is marked pain with difficulty or inability to bear weight on the leg. Swelling and bruising develops within 24-48 hours. There is significant loss of strength and a gap in the muscle can often be felt at the site of injury.

Grade 1 and grade 2 strains are most common. Muscle strains may take days to weeks to heal, depending on the severity of the injury. Ultrasound or MRI may be helpful, especially in high level players, in determining the severity of the injury and estimating the time until return to competition.

First Aid

The following action should be taken as quickly as possible, certainly within 48 hours.

- Rest (immobilisation). Stop playing tennis and avoid leaning on the leg.
- Cool the painful area directly with ice or a cold pack for ten to fifteen minutes and repeat this several times a day. Do not place ice on the bare skin. Place a towel between the skin and the ice pack to avoid injury from the ice pack.
- Apply a compression bandage. This will help deter minor bleeding caused by the muscle tear in the thigh.

Immediate and effective first aid is essential for a speedy recovery. Have a (sport) physician examine the injury if it looks serious or if there is any doubt. In some cases the player will be referred to a (sport) physiotherapist.

How to Ensure the Best Recovery

As soon as the worst of the pain and swelling have subsided (several days to a week) you can resume training. Pain is a warning to stop and rest. Be careful; exceeding the pain threshold will only prolong the healing process! The build-up consists of three phases, from light to demanding. Here is a list with descriptions and tips for doing these exercises:

Stage 1. Improvement of Normal Function

- Put as much weight on the leg as (lack of) pain allows. If necessary, use elbow crutches for the first few days after injury.
- Once the leg does not hurt (any more) in the course of your daily activities, you can become more active; by going cycling, for example. This serves to stimulate circulation in the thigh muscles and will help the healing process.
- Muscle strengthening. Stand with the feet shoulder-width apart. Bend the knees slightly and then stretch them. Do the same exercise again, but this time on one leg. You can make this exercise more difficult by kicking a ball at the same time or by closing your eyes.
- Stretch the hamstrings regularly as follows. Stand straight up. Place the heel of the involved leg in front of you, with the heel on the ground. Keep your back straight and bend forward slowly from the hips until you feel a slight pull. Do this for 20 to 30 seconds, followed by 10 to 20 seconds rest. Repeat three times.
- Bouncing forward and backward. Place your feet shoulder-width apart from each other. Take a large step forward until the knee is bent at a 90-degree angle. Do not let the knee protrude in front of the foot. Bounce gently in this position, shifting the weight from the front to the back leg, without stepping back. Start off with two to three reps.
- Co-ordination training: Stand on the injured leg with the arms extended to maintain balance. Close your eyes and try to keep your balance.

Stage 2. Returning to Training

As soon as all the above exercises can be performed and walking is possible without pain, a return to sports can be considered.

- Take small, quick steps on the spot, alternating the left and the right legs.
- Muscle strengthening exercises:

Lunges. Place the feet at shoulder-width from each other. Bent the leg until the knee is bent at a 90-degree angle. Do not let the knee protrude in front of the foot. Keep your back straight. Bend further into the knee and then step backwards. You can make the exercise more difficult by holding a weight or by doing the exercise more quickly. Start off with two or three series of repetitions.

Step ups. Stand in front of a bench or a stairs step. Step up on the bench with your right leg, step up with the left leg and then step back down with the left leg. Continue, starting with the left leg. Start off with two to three series of ten repetitions.

Good mornings. Stand up straight, with legs shoulder-width apart. Place your hands behind your head, with the elbows protruding sideways. Keep your back straight and bend slowly from the hip until you are nearly parallel with the ground. Look straight ahead throughout the exercise. Start off with two to three series of ten reps.

- The next step is to start running. The first few times out, run at a slow pace. After a few training sessions you can start introducing some faster paces, followed by turning and pivoting exercises. Conclude with short sprints.
- After this you can do jumping exercises, such as bounding, lateral jumps (skaters jumps) skipping and lunging.

Stage 3. Return to Play

- You are now ready to go back to the tennis court. Start off by playing against the practice wall or with a game of mini-tennis, which will allow moving backwards slowly.
- At this stage you can also practice volleys.
- Proceed by gradually doing more exercises (in the course of one or two weeks), so that you have to move greater distances to reach the ball (tennis drills from corner to corner)
- You can now practice low volleys and hitting some smashes.
- As soon as you are able to execute a jump smash and the combined volley-smash without problems, you are ready to play a practice match.
- If the practice matches proceed without any problems for a period of two weeks, you are ready to play matches again.

Preventing Re-injury

Unfortunately it is not always possible to avoid hamstring injuries. You can decrease the risk by observing the following guidelines:

- Do a thorough warming-up before and cooling-down after training or a match, doing each for no less than fifteen minutes. Make sure the exercises are performed correctly.
- Sprinting exercises are especially risky where hamstring injuries are involved and are often responsible for overexertion and injuries. Build up your sprint training gradually and make sure you give your body enough rest to allow it to recover.
- Avoid playing matches you have not trained for sufficiently so that you do not end up playing (far) too many games in a (far) too short a period. Fatigue plays an important role in the

occurrence of this kind of injury. Regular games of tennis, jogging, on-line skating, fitness or cycling can reduce your chance of injury.

- Adapt your clothing to the weather conditions. Especially at the beginning of the season, or when there is a strong wind, it is advisable to wear a training suit – at least during warm-up. An elastic bandage can be worn to protect the thigh and to keep it warm. Muscles and tendons that have undergone a proper warm-up have a better defence against the forces of stretching and pulling than do cold muscles.
- Consider taping the hamstrings as a preventative measure for the first few games when you resume play after an injury.