

THE PAIN THAT K-NEEDS ACTION!

Alison Rose, of the Coach House Sports Physiotherapy Clinic, explains why squash players suffer from knee pain and what they can do about it



Knee pain can be a real bugbear in squash, a sport where you are required to lunge repeatedly. This pain can arise behind the kneecap, around the front of the knee (anterior knee pain) or below the kneecap (infrapatella fat pad irritation or patella tendinopathy). These are frequent injuries for squash players. However, the good news is that they can all be treated in a similar way, as they may all have a similar cause. Here we look at how you can treat the pain yourself.

WHY DO SQUASH PLAYERS GET KNEE PAIN?

A lot of the knee pain that squash players complain about is due to overly tight quadriceps muscles, quadriceps muscles that

work too hard or referred pain from the iliotibial band (ITB). The quadriceps muscle - or 'quads' - is a muscle that runs down the front of the thigh. It is made up of four parts - or 'muscle bellies' - one of which attaches onto the front of the pelvis and the others onto the thigh bone or femur. The four muscle bellies run down the front of the thigh and insert into the top of the tibia (or shin bone). The kneecap is embedded in the wider part of the quadriceps tendon before it narrows to form the patella tendon, which inserts into the tibia.

When the quads are too tight, there are a number of reasons for the pain. The tension in the muscle increases as it contracts when you lunge to reach for a squash ball. If the muscle is already too tight, the

increased tension can push the patella (or kneecap) onto the area at the end of the thigh bone, where it forms a sliding type of joint with the thigh bone, the patellafemoral joint. As bone is pushed heavily against bone under the force of the muscle, the result is pain. Repeatedly doing this can cause damage to both bone surfaces and the situation gets worse as it becomes more inflamed. In addition, the pain causes muscles to become inhibited, which particularly affects the inner quads muscle, the vastus medialis oblique (VMO). The outer quads are not inhibited to the same extent, which results in an imbalance, in the kneecap getting pulled laterally each time the quads contracts and in rubbing against the thigh bone. This causes further inflammation and so the cycle continues. The infrapatella fat pad sits between the patella tendon and the knee joint, and can also become inflamed by the increased pressure caused by quads that are too tight. There are a number of bursas (fluid-filled sacks) that sit around the knee, which are meant to reduce friction between muscles, ligaments and bone, and these can also become inflamed.

The ITB is a thick band of fibrous tissue that runs down the outside of the thigh. It is not muscle and is a much tougher tissue that can get incredibly tight and short. It can contribute to the issues described above by adding extra lateral pull on the quads muscles. Tight areas or trigger points in the ITB can also refer pain into the knee.

THE OTHER CONSEQUENCES OF KNEE PAIN

Because one of the quads muscles is inserted into the front of the pelvis, it can also cause the pelvis to tip forward, a condition that is called anterior tilted pelvis. This problem is important because of the effects that it can have. Firstly, it increases the curve in the

lower back, which can put stress on the discs, joints, muscles and nerves there, and can frequently result in the onset of sciatica (nerve pain down the back of the leg). The combination of a tilted pelvis and overworking quads can mean that the gluteal muscles (strong muscles in the buttocks) can be prevented from working properly, which reduces power in the lunge position and will affect your game by making you move more slowly in and out of positions to hit the ball.

We see these issues frequently in the clinic and find that the following stretches, in addition to some strengthening exercises that I will talk about in a separate issue, will go a long way to helping readdress the balance. Obviously, if the problems continue, see a physiotherapist.

The quads stretch shown here is a good way to monitor your own flexibility in that area and, combined with using a foam roller, it can help keep you on top of your game.

SELF TEST FOR QUADRICEPS LENGTH

This should be done lying on your side on the floor. Bend the bottom knee up to hip height, which will help keep your pelvis stable. Use the top hand to hold the ankle of the top leg, with the top thigh initially in front of the pelvis and your heel touching your buttock (if this is too much stress on the quad, use a towel around the foot). Your back should be flat and your abdominal muscles contracted to stop the pelvis moving. Keeping your back flat, use your top hand to pull the top thigh backwards, keeping the knee lower than the hip. If you have enough length in the quads, you should be able to get the thigh in line with your spine and trunk without tilting your pelvis. If you cannot, then you are at risk of the issues described above and should do this stretch at least once a day and always to warm

● Alison Rose and Graeme Everard are senior physiotherapists at the Coach House Sports Physiotherapy Clinic in Leeds. The clinic specialises in the treatment of complex and sports injuries, and their physiotherapists are experienced in treating squash players, such as former world no.1 James Willstrop. For further information see cspc.co.uk.

up. To improve your flexibility, stretches should be done a few times a day. Hold them for 30 seconds three times on each occasion you do them. (see pic.1)

FOAM ROLLING

A foam roller is a great piece of kit for self-massage and for helping loosen stubborn muscles and areas that are difficult to make an impact on solely through stretches. It is great to use on the ITB and has an effect matched only by massage, as it is not possible to stretch the ITB.

To work on the quads, lie, supported by the forearms, with the fronts of your thighs resting on the

foam roller. To increase the pressure, take more weight through one thigh. Roll slowly up and down the roller, through the entire quad, taking several minutes to do so. (see pic.2)

To further increase the effectiveness of this exercise, bend and straighten the knee, which allows the various layers of muscles to glide over each other and prevents adhesions forming between the fibres, adding to a lack of flexibility. Stretching after foam rolling will make both the stretch and the effect of the foam roller even greater.

Foam roll through the ITB in a similar way, from top to bottom down the side of the thigh, bending and straightening the knee. It is likely to be reasonably tender. (see pic.3)

Foam rolling can be used for maintenance a couple of times a week after training and if it is to increase flexibility, on alternate days. James Willstrop and many elite athletes will travel with a foam roller to prevent issues and to help maintain flexibility. It is possible to buy hollow ones, which makes them easier to pack.

Lying quadriceps stretch

Lie on your side, lower knee bent up level with the hips. Tighten abdominals and flatten your back. Hold the top ankle so your heel is touching your buttock.

Pull the top leg back behind you until the stretch is felt in front of thigh.

Keep knee close to floor (lower than hip) and your back flat. Hold for 30 seconds three times



Quadriceps roll

Lie face down with both thighs resting on top of the foam roller. Support yourself on your elbows and forearms, and keep your abdominal and back muscles tight to stabilise your spine. Roll slowly back and forth on the roller, from just above your knees to just below your hips, and pause at any spot that feels especially tender



IT band

Lie on your side on top of the foam roller with your lower leg extended. Bend your upper leg with your foot placed firmly on the floor. Support your upper body on forearms or elbows. Keep your abdominal and back muscles tight to stabilise your spine. Roll from your lower hip to just above the knee for a couple of minutes



ASHOUR AND THE MENISCUS OPERATION

Meniscus operations are in the news after triple world champion Ramy Ashour returned to action at the El Gouna International recently following one in January. Here Graeme Everard, of the Coach House Sports Physiotherapy Clinic, answers questions about meniscus injuries

What is the meniscus and what does it do?

The menisci of the knee are two c-shaped cartilages between the femur and tibia that help in absorbing shock and in stabilising the knee. The inner medial meniscus is more firmly attached to the tibia than the lateral meniscus and therefore is more commonly damaged in

traumatic twisting injuries of the knee.

What are the common injuries of the menisci?

The menisci are commonly injured in rotational/twisting movements of the knee, but can also be injured by sudden over-straightening of the knee (hyperextension). Older athletes are more likely to experience degenerative meniscal tears, which can occur without significant trauma.

How would this injury affect playing squash?

Symptoms can include pain, stiffness, swelling, intermittent locking of the knee, intermittent feeling of the knee actually giving way or feeling like it might and the loss of full range of knee movement. Often athletes can run in a straight line, but are unable to turn or change direction.

What would an operation involve?

Normally this is done arthroscopically (by keyhole surgery). The surgery will depend on the type, size and location of the tear. The menisci are usually trimmed, but they can be repaired.

What would rehabilitation involve?

Rehabilitation will depend on the nature of the surgery performed, particularly if other areas, such as the anterior cruciate ligament, are involved. The aims of rehabilitation are to restore full range of knee movement, functional stability of the knee, good strength to the muscles crossing the knee and appropriate recruitment of these muscles during functional activities, normal whole body movement patterns and to improve proprioception.

What are the long-term implications?

If the menisci are repairable or there is only a small amount of damage that can be trimmed, players will normally be able to maintain full pre-injury fitness and competition levels by employing appropriate rehabilitation programmes.



Ramy Ashour, who underwent a meniscus operation in January