ACHILLES **PAIN**

England Squash Physio **Phil Newton** of **Lilleshall Sports Injury Rehab** explains why the Achilles can be a pain and why, surprisingly, the best method of treatment can be exercise.

"I thought my opponent had hit me with the ball or with his racket." This is the classic description that squash players who have snapped their Achilles tendon give when recounting the moment of injury. Snapping or rupturing the Achilles, which is the largest tendon in the body, is a serious injury. Happily it is a rarely encountered problem for squash players. However, the Achilles is a common cause of pain.

Achilles pain ranges from mild discomfort that doesn't interfere with your game to agony that prevents even a modicum of exercise. Let's start with a look at the thankfully rare but dramatic injury of Achilles tendon rupture and then consider the much commoner Achilles conditions, which afflict many squash players.

Rupture

Achilles tendons that snap don't always give you a warning by being painful. There are many instances of apparently normal, pain-free tendons simply giving up the ghost and snapping. The usual way this happens is that a player makes a backwards movement, which stretches the tendon as the heel drops to the ground, followed by a sudden, quick forward movement. This transition from a stretch under load to an explosive shortening imposes a great deal of strain upon the Achilles. If this load exceeds the intrinsic strength of the tendon, it snaps – often accompanied by an impressive cracking sound.

But how can an apparently healthy tendon snap in this way? The answer is probably to do with the natural aging process that all tendons are subject to and which results in small areas of the tendon degenerating, thereby weakening it. This process is usually pain free, so no warning signs are evident before the fateful on-court manoeuvre, which acts as the proverbial 'last straw'.

Most cases of ruptured Achilles tendons are treated surgically to repair the tear. There then follows a period of immobilization in a cast or a brace. Getting back to match fitness can be a lengthy process, six months to a year being the norm.

Tendinopathy

This is the term that is used to describe a range of conditions that cause tendon pain. Recent research has shown that chronically painful Achilles tendons don't exhibit significant signs of inflammation, which was traditionally thought to be the cause of pain. So instead of diagnosing painful tendons as 'tendinitis', we now use the 'tendinosis' label. This is important because the treatment for tendinosis is very different from that for tendinitis.

Tendinosis describes the condition where a tendon has microscopic areas of damage (probably caused by over-use). The body tries to heal these by increasing the flow of blood to the tendon. Consequently, very small blood vessels, which are accompanied by microscopic nerve endings, develop. It is these small nerves that make the tendon painful.

A number of studies have demonstrated that the best way to treat painful Achilles tendons is to exercise them. This seems counter-intuitive – after all, how can a tendon that is hurt by exercise be cured by exercise? Scientists don't have a definite answer to this but there are a number of theories as to how the exercise cure works – and it does for most people.

One theory is that regular exercise causes physical and biochemical changes within the tendon, which stimulate it to become stronger. Another theory is that repeated movement of the tendon desensitises the nerve endings that accompany the microscopic blood vessels.

A painful Achilles can be treated in other ways. Some recent treatments have included the use of aprotinin injections into the Achilles. This substance is thought to prevent tendon tissue breakdown. Another new treatment is to apply nitrate patches (used to treat certain heart conditions), which are thought to promote healing.

These treatments haven't yet been widely tested, however, and there is much more evidence to support the use of exercise to treat Achilles pain. The exercise programme is pretty simple but should be overseen by a physiotherapist.

Achilles Exercise

Several studies have shown that some simple exercises can significantly reduce certain types of Achilles tendon pain. These exercises emphasise what is known as the 'eccentric' phase of muscle and tendon work, when the tendon is stretched in combination with muscle tension.

Loading the Achilles tendon in this way stimulates it to strengthen and also desensitises some of the small nerve endings, which are thought to be the cause of the pain.

These exercises have been shown to be effective when they are performed twice daily. Relatively high numbers of reps have to be completed e.g. four or five sets of 15-20 reps of each exercise. However, the exact number of reps and sets needs to be determined on an individual basis so it is recommended to see a physiotherapist, who can give appropriate individual advice.

ACHILLES PAIN SYMPTOMS & SELF-HELP

Initial Signs

Signs of Achilles damage include the following:

- Soreness at the onset of exercise that lessens or disappears as you warm up
- Soreness and stiffness towards the end of a long court session
- Pain in the tendon area when explosive push-off movements are performed
- Stiffness and soreness after periods of rest – especially on getting out of bed the day after exercise

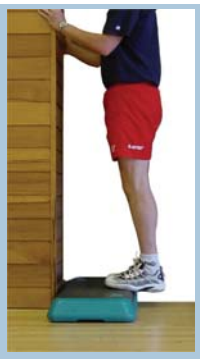
Self-Help

Most players with slight pain and stiffness carry on as it worsens gradually over weeks or months before they seek medical help. By this time the problem can be so bad that a complete lay-off from squash is necessary. If the early signs and symptoms are acted upon, in many cases the problem is easier to manage and time off court can be avoided or minimised.

- Reduce court time (an unpalatable idea for most players but it's a better option than having to stop completely)
- Commence an Achilles conditioning exercise programme.
- Make sure that your footwear is not part of the problem (worn-out shoes or shoes that give poor support can contribute to Achilles pain).
- Use ice after exercise sessions to minimise swelling and pain.

EXERCISE PROGRAMME

Work out an exercise programme in consultation with your physiotherapist – for example, four or five sets of 15-20 reps of each exercise sequence.



EXERCISE SEQUENCE A: Straight Leg Position

Stand with the toes of both feet on a step, keeping the knees straight, and perform Movements 1-4.

EXERCISE SEQUENCE B: Bent Leg Position

Perform the same sequence of movements with the knees bent. This targets the deep calf muscles. Take care not to let the knees straighten as the heel is lifted. The knees must stay bent throughout the sequence of movements.

Movement 1
Lower both heels slowly towards the floor.

Movement 2
Push through the toes of both feet to raise the heels as high as possible.

Movement 3
Lift one foot from the step and take the full weight of the body through the toes of the other foot.

Movement 4
Slowly and smoothly lower the heel towards the floor. Then replace the other foot on the step and with the toes of both feet lift the heels as high as possible as in Movement 2. Repeat Movement 3 with the other foot and then Movement 4 with both feet.

COACHING CLINIC

MY GAME

Q. I'm told I make too many mistakes. What should I do?

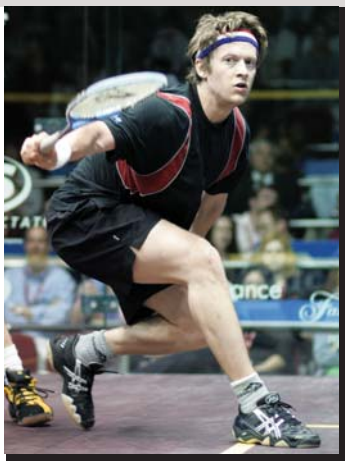
A. Can we quote the father of the modern game, Hashim Khan: 'The Main thing is not to make errors. If you make errors you beat yourself... Any time you make an error, think of the reason. Why did you make that error? Did you rush, or did you not watch, or were you not in time, or was the ball going away from you. Think about the reason Find the reason. Don't repeat it.'

So there you have it. What are the causes of your errors? This is, as Hashim explained, fundamental for you to work out. Here are the top ten causes: 1. Aiming too low, 2. Choosing the wrong ball to attack, 3. Losing concentration, 4. Rushing, 5. Technical faults, 6. Weaknesses, 7. Mishits and eye off-the-ball, 8. Impatience, 9. Anxiety, 10. Fatigue.

Be specific on the main causes of errors and come up with some solutions. This is an important question we can revisit.

Q. Should I use the back ball boast?

A. Yes you can if there is no other alternative. Follow up on it quickly right up to the short line so you can cover the short counter and watch your opponent intently.



'Above the Tin,' Jonathon Power's double DVD, groups his top 100 drills into families. For example in his crosscourt section, drills 3-8, he starts with Crosscourts (3); and progresses through Return to Sender (4); Boast, Crosscourt (5); Boast, Crosscourt, Drive (6); Boast, Crosscourt, Drive, Drive (7); Boast, Crosscourt, Drive, Drive (Option) (8).

POWER'S PRACTICES

The technical difficulty and physical difficulty of each drill is set out and there are tips from Power along the way. In Drill 3 it is useful to practise 'holding the straight shot and snapping the crosscourt through' for deception.

In Drill 5 it is useful to show a drive or drop and then snap in a crosscourt.

Drill 6 is excellent for 'getting the drive down the wall to regain the T and get yourself out of trouble after a penetrating crossourt' from your opponent.

Useful videos of each pactise let you see exactly how Power did it.