Tennis Elbow

Tennis elbow or lateral epicondylitis is a common injury causing pain on the outside of the elbow. Despite it's name, this condition is not commonly seen in tennis players but more in work related elbow injuries particularly where repetitive stress is involved. Symptoms can be similar to those of other elbow injuries so it is important to get a correct diagnosis early on.

Symptoms

Symptoms typically consist of pain about 1 to 2 cm down from the bony part on the outside of the elbow called the lateral epicondyle. The patient will have weakness in the wrist and difficulty doing simple tasks such as opening a door handle or shaking hands with someone. Pain is reproduced when pressing just below the lateral epicondyle on the outside of the elbow as well as when trying to straighten or extend the hand and fingers against resistance. See assessment & diagnosis for more information. Entrapment of the radial nerve as well as neck injury can have similar symptoms.

What is Tennis Elbow?

Lateral epicondylitis as it is sometimes technically known is inflammation of the lateral epicondyle or bony bit on the outside of the elbow where the muscles attach. However, actual inflammation of the tendon is rare and the cause of the lateral elbow pain could be degeneration of the tendon. It occurs most commonly in the tendon of the Extensor carpi radialis brevis muscle where there is an increase in pain receptors making the region extremely tender. Two types of onset are seen. Sudden onset occurs from a sudden impact such as a late back hand where the extensors of the wrist become strained and is thought to be from small micro-tearing of the tendon. Late onset normally takes place within 24-72 hours after an intensive term of unaccustomed wrist extension for example using a new racket or even a person who's spent a weekend doing DIY.

The most common cause is overuse or repetitive strain caused by repeated extension or bending back of the wrist against resistance. Gripping heavy objects like a manual screw driver, weight training or handling bricks will also cause tennis elbow. This is seen much more often than in tennis players.

If you pay tennis then it is possible a poor backhand technique is responsible. If the wrist is bent when striking a back hand the huge forces are transferred through the tendons to the elbow rather than through the entire arm. Also, if your racket grip that is too small then this will make the muscles work harder increasing the forces through the tendon. Strings that are too tight will transmit more shock and energy the forearm from the ball and playing with wet, heavy balls also increases the load on the elbow.

Treatment

No single treatment has been shown to be totally effective, however a combination of the treatments below are known to resolve tennis elbow over time. Each individual will react differently to different treatments. In addition to the correct diagnosis it is important to identify and correct any tennis elbow causes either work related or sport related and a good tennis coach should also be able to provide advice.

Rest and Ice - Rest is an extremely important component of treatment and the patient that fails to rest the elbow sufficiently will struggle. Activities which place a large strain on the elbow such as gripping things, opening heavy doors, using a screw driver should all be avoided if possible. Applying ice or cold therapy to the elbow (15 mins up to six times a day) to reduce pain and inflammation is a good start, particularly in the early days.

Tennis elbow brace - A specialist elbow brace is worn around the forearm to support the tendon whilst healing and when returning to activity. It can take some of the strain off the injury by changing the direction of forces through the tendon. If a brace is to be effective it must be applied correctly around the upper forearm and significantly reduce pain on gripping things and wrist extension exercises. They should be worn only during painful activities and when returning to playing.

Exercises - Both stretching and strengthening exercises are important and should be done as soon as pain allows and continued after full fitness has been achieved. Wrist extension exercises are most important where the aim is to gradually increase the load through the tendon so it can cope with what is being demanded of it.
Tennis elbow treatment continued:

**Electrotherapy** - The evidence for the effectiveness of electrotherapy is mixed. Electrotherapy involves applying energy of various types to the soft tissues and is thought to help reduce pain and inflammation. Various methods are commonly used:

- Ultrasound involves passing high frequency sound waves into the tissues. This vibrates the molecules and depending on if it is applied continuously or in pulses can generate heat.
- Laser passes high intensity light into the tendon to reduce pain, inflammation and encourage cell reproduction. No heat is generated with laser treatment.
- Extracorporeal shock wave therapy works by passing shock waves (short but intense energy waves) which travel faster than the speed of sound, into the tissues.

**Medication** - A doctor can prescribe pain reducing and anti inflammatory drugs such as Ibuprofen. A steroid injection to reduce inflammation if present is also an option.

**Massage Therapy** - Manual therapy treatments such as massage therapy, myofacial release and transverse friction techniques across the tendon may also be beneficial, especially if initial rest and ice is unsuccessful. Trigger points or tiny localized knots in the forearm muscles are often found and can be treated with massage techniques or acupuncture.

**Acupuncture** - Acupuncture has also been shown to be effective for tennis elbow and involves inserting needles of various lengths and diameters into specific points over the body. The needle is usually inserted, rotated and then left in place for several minutes. It is thought to alter the way pain signals are transmitted by nerve pathways.

**Corticosteroid injection** - This is thought to be effective in the short term but less so later on after a month or so. There is thought to be an increased rate of the injury recurring with treatment by injection. If it is performed then it should be done around the tendons and over the most painful point, but not into the tendon tissue itself.

**Surgery** - If all conservative treatment fails then surgery may be indicated, although it is likely to be a year before this is considered by a surgeon. See our interview with Mr Elliot Sorene, Consultant Surgeon on surgery for Tennis and Golfers elbow.

**Other treatments**

- Nitric oxide donor therapy patches applied to the elbow may be beneficial over a period of months although approximately 5% of patients will have side effects including headaches and skin rash.
- Botox injections are thought to improve short term pain relief although there is a very high likelihood that the forearm muscles will not work as they used to.
- Autologous blood injection involves centrifuging blood to make it rich in platelets then injecting it back around the site of injury. It is thought to re-initiate or enhance the inflammation repair response.