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CHRONIC TENDON INJURY – it's not just tendinitis

Overuse or degeneration of tendons occurs not only with sport and physical activity, but may occur in everyday life. This is sometimes known as **tendinopathy** or **tendinosis**.

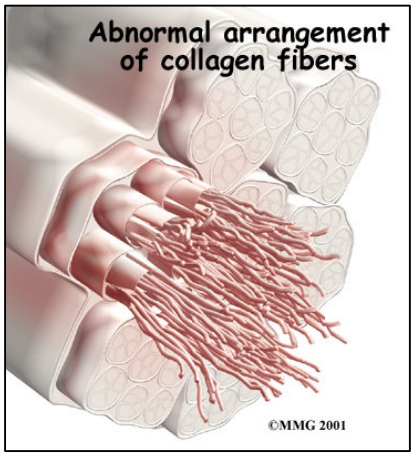
Tendinopathy is notorious for being difficult to treat as the tendon has often been failing under a physical load for years. It tends to be an ongoing problem, and even if it subsides, there is a high risk of recurrence.

What is a tendon?

A tendon is part of a muscle. The fleshy part of the muscle is known as its' 'belly'. The ends of a muscle are called **tendons** and these attach usually to bones. A tendon is a cord of fibrous tissue in which the fundamental building block is a protein called **collagen**.

There are many different types of collagen and it is likely that certain types of collagen are strong while others are weak and fail more rapidly under a load. This may explain why some individuals are prone to certain injuries or may be slower in their healing of certain injuries

There is a genetic tendency to tendon disorders and injury patterns may occur, in which tendinopathy may exist in more than one body area (eg the elbow and the Achilles tendon).



Graphic indicating internal disruption of fibres within the tendon bundles

Why does a tendon wear down? – tendinosis not tendonitis

A tendon works hard to transfer force. If a tendon is overloaded it may become inflamed and this is known as **tendonitis**. This is a short-term inflammation which responds to simple measures such as ice, activity reduction, anti-inflammatory medications and physical treatment. Sometimes cortisone injections are given.

Over time, if a tendon is repeatedly overloaded or if there have been previous injuries, **tendinopathy** may develop. In this circumstance, the typical features within the tendon are that it begins to split or tear internally, it becomes thickened, it weakens, and a range of chemicals are released causing inflammation. Scar tissue develops within the tendon and there is irritation of the nerve endings, causing pain.

Common areas for tendinopathy

Tendinopathy may occur in a number of areas around the body:

- Shoulder – rotator cuff; supraspinatus tendon; biceps tendon (long head)
- Elbow – common extensor tendon (tennis elbow), common flexor tendon (golfer's elbow); biceps tendon
- Hip/groin region – gluteus medius; adductor and hamstring origin tendons
- Knee – patellar tendon (jumper's knee); quadriceps tendon
- Foot and ankle – Achilles and tibialis posterior tendon

Management of tendinopathy

A step by step management plan is critical to avoid aggravation and also frustration during what is always a long-term process. The **correct diagnosis** is essential. Sometimes imaging of the tendon is indicated with a high quality ultrasound or an MRI scan. Activity should be modified to avoid aggravation and an appropriate rehabilitation programme to strengthen the area is required.

Strengthening exercises are commonly referred to as **eccentric exercises**. Eccentric exercises use a tendon and muscle over their full length in a functional capacity. An experienced sports physiotherapist is helpful in this regard.

The use of **ice** may alleviate the pain, and a range of medication and other treatment options are available and have been researched. **Simple analgesics** (eg paracetamol) may reduce pain.

Anti-inflammatory medications and cortisone injections do not improve the healing of a tendon and indeed may impair healing. The use of repeated cortisone injections in the management of tendinopathy should be discouraged, even though it may reduce pain for a short period.

Some treatments options include:

- **Glyceryl trinitrate** – this may involve using 'nitrate patches' or creams. This alters the chemistry at the site of tendinosis. Many patients experience headache with this treatment and the dose needs to be carefully adjusted by the doctor.
- **Aprotinin injections** – this medication has been used in surgery from time to time. It alters and inhibits the activity of certain chemicals which contribute to the chronic tendinopathy. Its side effects include allergy (usually an itch), rash and some degree of localised pain.
- **Autologous blood injection** (ABI) – this interesting option uses the patient's own blood which is injected into the tendon site under local anaesthetic. The research and theories for its use suggest that the patient's own growth factors and healing chemicals may be injected to promote healing of the tendon. This does make sense as chronic tendon injuries generally don't have good blood circulation. A course of three injections coupled with exercises is the usual protocol. Tennis elbow and jumper's knee are the more common areas for this treatment.
- **Dry needling, shock wave therapy, calcium gluconate injections and prolotherapy (dextrose/sugar injections)** have also been studied.
- **Surgery** – repair or 'reinforcement' of tendons and removal (excision) of scar tissue and calcium deposits is sometimes required in severe cases.

Prognosis and long-term outlook

Chronic tendon injury is always a difficult problem. There is **no 'quick fix'**. Understanding the nature of the condition is critical as a number of different treatments may need to be applied with an appropriate rehabilitation regime. As a general rule, tendinopathy requires at least two or three months of treatment before normal activities are possible. Maintenance exercises and strategies to prevent a recurrence of the tendon injury are essential.

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