
Spotlight On Tendon Overuse Injuries

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Overuse injuries of the musculoskeletal system are very common in the workplace and in recreational settings. These types of injuries account for 30% to 50% of all sports injuries.

There are a multitude of words used to describe basic tendon or tendon sheath problems (Table 1), adding to the confusion. Many of these words emphasize the process of inflammation of the tendon, and this idea of simply treating the inflammation has become entrenched. Newer concepts of overuse tendon injuries have evolved that may lead to better treatments in the future.¹ Tennis elbow will be used as a reference point for this discussion on overuse injuries, as lateral epicondylitis and elbow tendonitis infer the inflammatory process as intrinsic.

How does it present?

The prevalence of tennis elbow is most common in people in their 40s. Some of the classic findings are listed in Table 2.

What does the evidence say about treatment?

There are several evidence-based reviews of the treatment of tennis elbow, but not a lot of good randomized, controlled trials (RCTs) upon

Simon's case

Simon, a 42-year-old right-handed carpenter, has been working on a housing subdivision. Bad weather is expected and the contractor wants to make the last six houses weather-proof within 72 hours by shingling them. Simon is asked to help. They get the job done with three long, 14-hour days, but Simon wakes up the day after the work is completed with aching in his right outer elbow. There has been no direct trauma to the arm, but he experiences pain carrying his coffee cup.



On exam, he has:

- Tenderness at the right distal humeral;
- Lateral epicondyle;
- No swelling in the area; and
- Pain at the lateral elbow with resisted dorsiflexion of the wrist and resisted extension of the right middle finger.

Clinically, he has tennis elbow.

which to base our treatment decisions.

One evidence-based review concluded that in the short term, oral or topical non-steroidal anti-inflammatory drugs (NSAIDs) were likely to be beneficial. This benefit might be due to a pain-relieving effect, or to the fact that in the early phases, the injury is still at a point where it can resolve spontaneously.

Corticosteroid injections provide short-term improvement for two to six weeks, but no long-

Table 1

Words used in relation to overuse tendon injuries

Tenontology: The sum of what is known regarding the tendons

Paratenonitis*: Inflammation of the outer layer of a tendon

Tendinitis: Inflammation of tendons and of tendon muscle attachments

Tendinopathy*: Overuse syndrome of a tendon

Tendinosis*: Intratendinous degeneration

Tendinous: Pertaining to, resembling a tendon

Tendonitis: Tendinitis

Tendonosis*: Tendinosis

Tendonopathy*: Tendinopathy

Tendosynovitis: Tenosynovitis

Tendovaginal: Pertaining to a tendon and its sheath

Tendovaginitis: Inflammation of a tendon and its sheath

Tenodynia: Pain in a tendon

Tendonitis: Inflammation of a tendon; tendinitis

Tenontodynia: Pain in the tendons

Tenontolemmittis: Tenosynovitis

Tenontothecitis: Inflammation of the tendon sheath

Tenositis: Tendinitis

Tenosynitis: Tendovaginitis

Tenosynovitis: Inflammation of a tendon sheath

Tenovaginitis: Inflammation of a tendon sheath; tenosynovitis

Definitions from Dorlands Medical Dictionary, 28th edition, 1994.

*Newer definition: not in dictionary

Table 2

Classic findings of tennis elbow

- History of some form of increased or change in use (or load) of the tendon (too much, too quickly)
- Tenderness at the tendon-bone interface at the lateral elbow (the distal lateral humeral epicondyle)
- Pain with resisted action of the tendon (resisted wrist or long finger dorsiflexion with the elbow extended puts the tendons on stretch)
- Difficulty contracting the tendon to grip things, such as a cup
- At times, and in some forms of overuse injuries, there is associated thickening of the tendon and local swelling, but this is rarely the case at the lateral elbow

term benefits.² Acupuncture, extracorporeal shock wave therapy, long-term NSAIDs, orthosis, deep friction massage, and laser therapy do not show evidence of effectiveness in any RCTs.

One RCT found greater improvement with physical therapy than with corticosteroid injection at 26 and 52 weeks. Although there were no RCTs for surgical treatment, one prospective non-randomized trial showed improvement in surgical extensor tendon release in recurrent cases of tennis elbow.

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Overuse Tendon Injuries

Although not studied, ice has been used initially as a local anti-inflammatory treatment, but it is possible that ice exerts an analgesic effect or mediates local factors affected by vascular microflow.

Newer RCTs are looking at eccentric exercise training for tendon injuries, as such therapy has been used for many years, with apparent success.

What is the GP's role?

Discussing with our patients about the potential chronic nature of overuse tendon injuries and the need for a multifactorial approach is mandatory. The multifactorial approach includes short-term medication, modified rest, physical therapy (including eccentric exercises and strengthening exercises), and careful, judicious use of steroid injections, if all else fails. Initial alteration of activities is important, as is the strengthening of adjacent joint muscles (*i.e.*, not just those involved). We should correct maladaptive techniques learned in response to the injury, and increase patients' knowledge of their own "threshold" to develop an overuse injury so they will recognize potential recurrences.

So, what's in a word ?

Tendonitis is entrenched in the description of overuse injuries. It will be a long time before its use decreases. To help lead us to a more logical process when describing overuse injuries of tendons, we should use the term "tendonopathy" (lateral elbow tendonopathy) and the term "tendonosis" (tendinosis) to describe the pathologic process put forward by Khan, Puddu, and oth-

Frequently Asked Questions

1. How common is tennis elbow?

In a 1996 Dutch study, there were estimated to be four to seven cases/1,000 visits/year in general practice, and roughly 25 to 60 cases/year in a full-time general practitioner's office.

2. How do you diagnose tennis elbow?

Tennis elbow is recognized by its symptoms: pain when lifting a cup, maximal tenderness at the lateral epicondyle on palpation, and pain at the lateral elbow with resisted wrist or long finger dorsiflexion with the elbow in extension.

3. Do steroid injections help?

Steroid injections do have short-term benefits for patients in whom conservative measures do not work. The side-effects are mainly pain at the injection site, skin atrophy, and the rare, but often discussed, potential for infection and tendon rupture.

4. In chronic cases, are long-term NSAIDs helpful?

There is no evidence that long-term topical or oral NSAIDs help the healing/repair process. Their benefit for pain relief needs to be weighed versus their cost and side-effects in long-term use.

5. What is tendonosis?

Tendonosis is a pathologic process occurring in tendons. It consists of degeneration that includes dense groups of fibroblasts, vascular hyperplasia, and disorganized collagen. Inflammatory cells are essentially absent.

ers.^{1,3} Although this change of nomenclature may seem subtle and change little in some practitioners' armamentarium, it should help us to think about the overuse injury process and not persist on a track to treat inflammation. **Dx**



Take-home message

What should I look for?

- Increase or change in use of the tendon
- Tenderness at the tendon-bone interface at the lateral elbow
- Pain with resisted wrist or long finger dorsiflexion with the elbow extended

What is the treatment?

- NSAIDs are beneficial in the short term.
- Corticosteroid injections provide only short-term benefit.
- Ice is a good anti-inflammatory, but may also provide some analgesic effect.
- Exercise training has been used for many years, with apparent success.

References

1. Khan K, Cook JL, Kannus P, et al: Time to abandon the tendinitis myth. *BMJ* 2002; 324(7338):626-7.
2. Anyone for tennis elbow? Review, April 1997. www.jr2.ox.ac.uk/bandolier.
3. Puddu G, Ippolito E, Postacchini F: A classification of Achilles tendon disease. *Am J Sports Med* 1976; 4(4):145-50.

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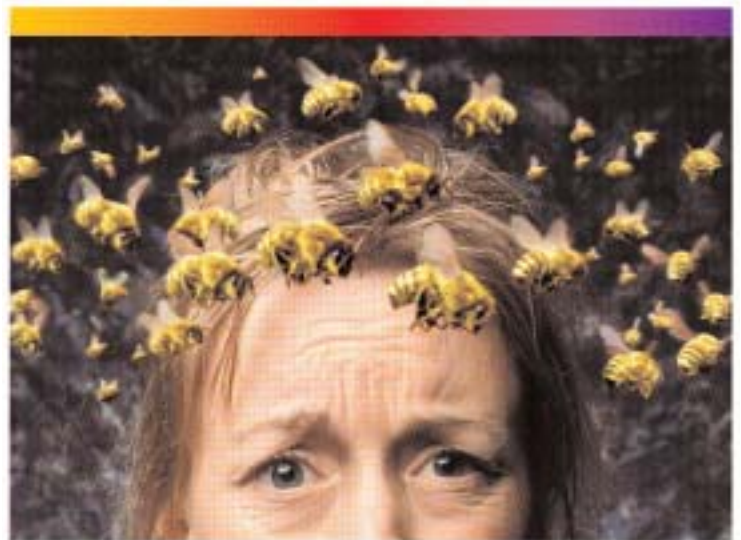


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