

Best evidence for tendinopathies:



OR Not to Inject

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In the next 15 minutes:

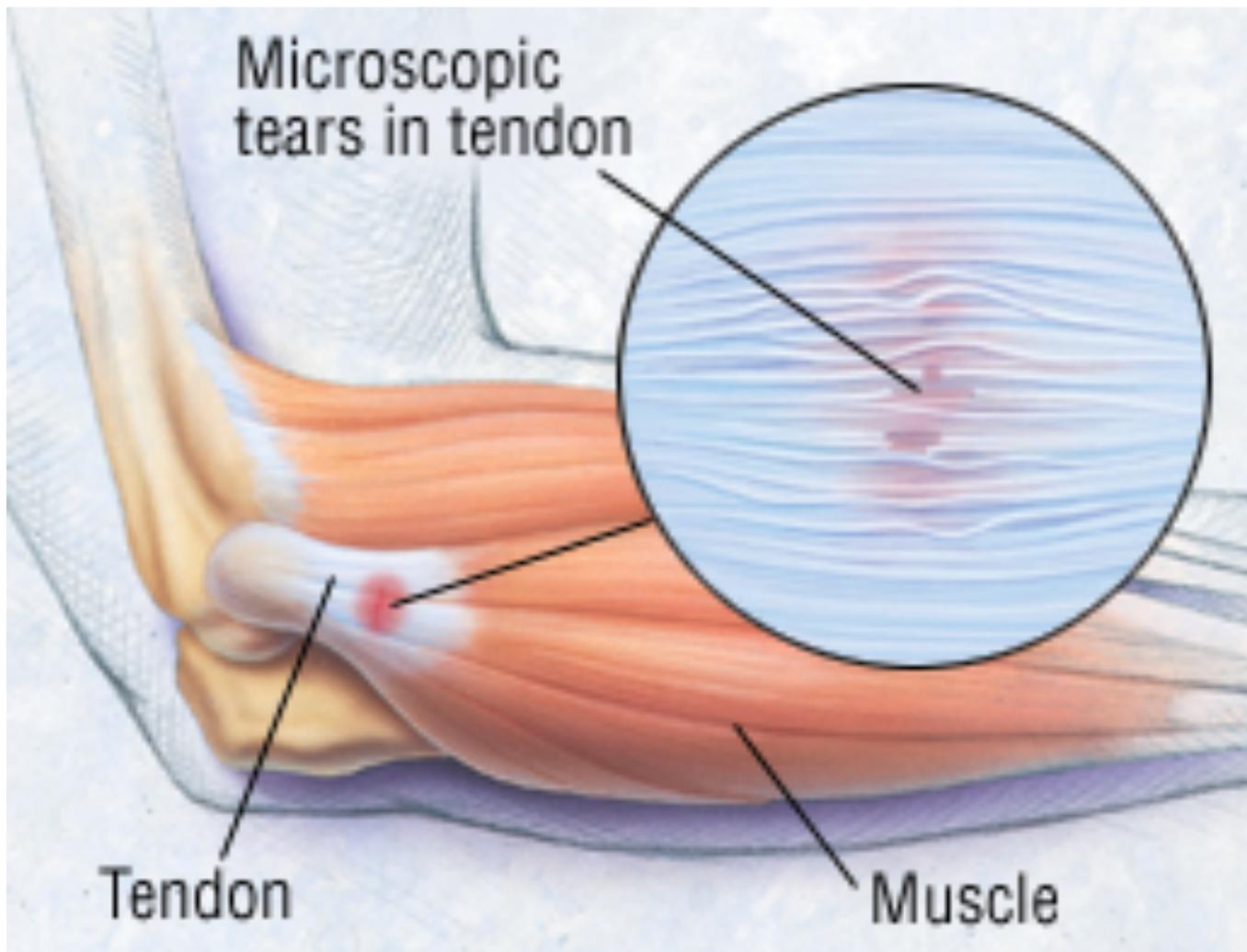
- Evidence resources used
- Difference between Tendinopathy and Tendinitis
- Injecting medications
- Common tendon related conditions in primary care
 - Tennis elbow, Achilles Tendinopathy, Planter Fasciitis, Trigger finger
- **Specific indications for injecting**
- Take home messages

Evidence resources used

- Free
 - Cochrane library
 - PubMed
- Paid - Point of Care EBM resources
 - BMJ Best evidence
 - DynaMed
 - UpToDate

Tendinosis OR Tendinitis

Tendinosis	Tendinitis
<p>Tendinosis is a degeneration of the tendon's collagen in response to chronic overuse; such as with repetitive strain injury.</p> <p>Even tiny movements, such as clicking a mouse, can cause tendinosis, when done repeatedly.</p>	<p>inflammation of the tendon results from micro-tears that happen when the musculotendinous unit is acutely overloaded with a tensile force that is too heavy and/or too sudden</p>
	<p>Tennis elbow is usually described as tendinitis of extensor carpi radialis brevis; "signs of either acute or chronic inflammation have not been found in any surgical pathologic specimens in patients with clinically diagnosed lateral tennis elbow syndrome,"</p>
<p>A microscopic view of tendinosis reveals an increase of immature type III collagen fibers</p>	
<p>Increase in ground substance (the material between the body's cells); and a haphazard increase of vascularization</p>	
<p>These changes result in a loss of strength in the tendon and increase the bulk of the tendon</p>	



Injecting medications

- Cortecosteroids
- Platelet Rich Plasma
- Autologous blood
- Local anaesthetics



Common tendon related conditions seen in primary care

- Tennis elbow / lateral epicondylitis
- Planter fasciitis
- Achilles Tendinopathy
- Trigger finger / Stenosing Tenosynovitis

Specific indications for injecting

Tennis elbow / Lateral epicondyl



- Corticosteroid injections for **highly selective subacute or chronic** LE ([ACOEM Level C](#)), with the understanding that **results tend to be worse at 1 year**
- Platelet-rich plasma injections for **chronic** LE ([ACOEM Level I](#))
- **Physical therapy** hastens complete recovery or substantial improvement from lateral epicondylalgia compared to no physical therapy, but most patients recover by 1 year with or without treatment [DynaMed Level 1](#)

Similar recommendations from BMJ Best Practice, UpToDate

- Recommendations
 - First line - Physical therapy, NSAIDs, Topical Nitro-glycerine
 - Physical Therapy –
 - RANDOMIZED TRIAL: [JAMA 2013 Feb 6;309\(5\):461](#)
 - RANDOMIZED TRIAL: [BMJ 2006 Nov 4;333\(7575\):939](#) | [Full Text](#)
 -

Planter Fasciitis

- **Corticosteroid injections** are typically mixed with local anesthetic
 - not typically recommended as a first-line treatment in patients with plantar fasciitis as the benefits have not been shown to offset the potential harms including long-term disability ([APTA Grade I](#))
 - might reduce heel pain in short term in patients with plantar fasciitis [Dyna Level2](#)
 - **Plasma injections and corticosteroid injections** may be similarly effective for improving pain and function up to 6 months in patients with plantar fasciitis [DynaMed Level2](#)
 - **Platelet-rich plasma injections** associated with reduced pain at 12 months compared to corticosteroid injections in patients with plantar fasciitis [DynaMed Level2](#)
- **Stretching** use plantar fascia-specific and gastrocnemius/soleus stretching for short-term (1 week to 4 months) pain relief; heel pads may increase benefits of stretching ([APTA Grade A](#))

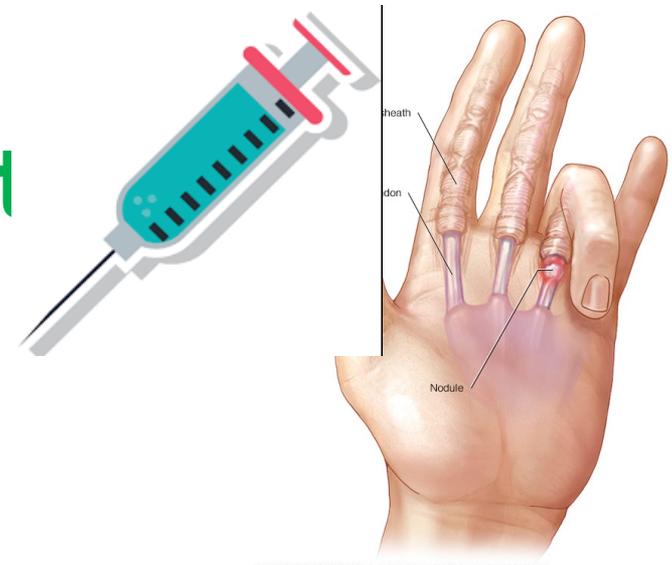


Achilles Tendinopathy



- Insufficient evidence to evaluate use of injection therapies for treating Achilles tendinopathy COCHRANE REVIEW: [Cochrane Database Syst Rev 2015 May 26;\(5\):CD010960](#)
 - Avoid corticosteroid injections due to inadequate evidence for efficacy and risk of tendon integrity compromise⁵
 - tendon rupture has been reported after corticosteroid injections
- Implement an eccentric loading exercise program to decrease pain and improve function in patients with non insertional tendinopathy ([APTA Grade A](#)), eccentric exercise may not be as effective in patients with insertional tendinopathy
- [Eccentric exercise](#), alone or in combination with other conservative measures, may reduce pain in patients with Achilles tendinopathy DynaMed Level2

Trigger finger Stenosing Tenosynovitis

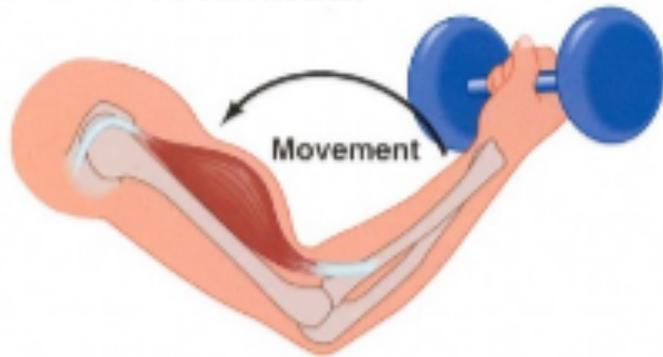


- first-line treatment of trigger finger - consider corticosteroid injections for along with NSAIDs (**DynaMed/BMJ BP**)



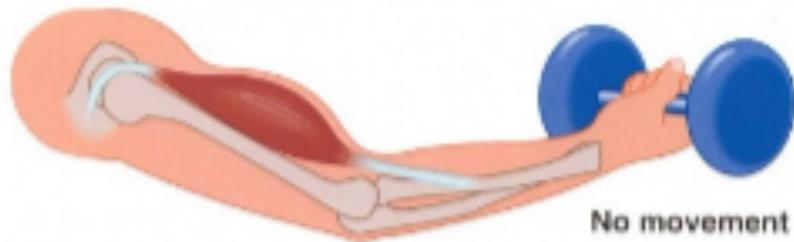
Soft tissue injections are an important skill to master and to use appropriately at the correct time considering the patient context

Concentric contraction

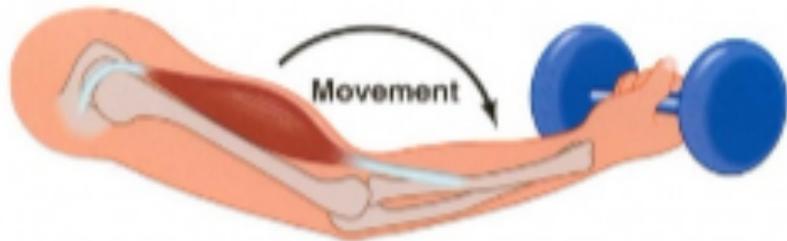


Isometric contraction

Muscle contracts but does not shorten



Eccentric contraction



<http://antranik.org/the-three-phases-of-movement/>

Concentric muscle contraction

occurs when “muscle tension rises to meet the resistance, then remains stable as the muscle shortens”.

Basic bicep curl, for example. When a person curls a weight upward, concentric contraction is occurring, as the biceps muscle fibres are shortening with the lifting of the arm.

Eccentric muscle contraction

occurs when a “muscle lengthens as the resistance is greater than the force the muscle is producing”.

Bicep curl example from earlier, when a person lowers a weight from a curled position back downward, eccentric contraction is occurring, as the biceps muscle fibers are lengthening with the lowering of the arm.

Take home messages

- Difference between tendinopathy (no inflammatory changes, collagen fibre problem) and tendinitis
- Only in selected instances that corticosteroids injections are recommended in acute/ first-line treatment – e.g. trigger finger
- Physical therapy, NSAIDs, local applications are the first line therapies for most Tendinopathies
- Important skills for primary care doctors
 - Getting the diagnosis correct
 - Physical therapies
 - Soft tissue injecting techniques

THANK YOU

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