

Tendon Pathology

Viscoelastic tissue	Loading tendon slowly makes more it more compliant, loading tendon fast engages all fascicles
Iso-volumetric	Loading and changing shape of tendon does not change volume as tendons are dense
Cross-linking	Slow loading breaks more links than fast loading, therefore tendon stiffer with fast loading
Tendon stiffness	Greater compliance or greater stiffness both increase injury risk, muscle should be stronger than tendon is stiff

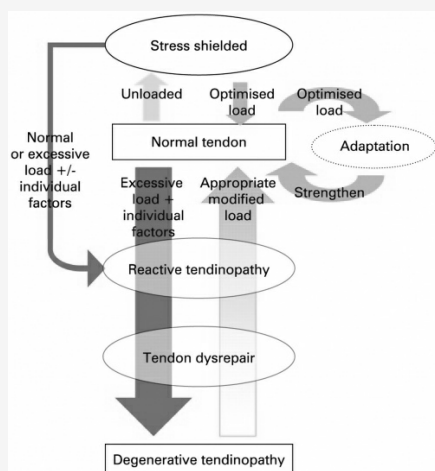
Prognosis

True tendinopathy can take months to years to heal

Types of Load on Tendon

Energy storage and release loads	Store and release energy, making movements faster and more metabolically efficient
Compressive loads	Compressive against bone or bursa, altering range may ease symptoms
Friction	Rubbing against the peritendon, may also be affected by an acute blow
Shear	Depending on the muscles involved

Tendon Continuum (Jill Cook)



Subjective Markers

Warm up effect

Localized pain with 1-2 fingers

Often increase in activity

Increased pain after a period of rest and is worse the next morning when first getting out of bed

"Severe" or "sharp" during the early stages and sometimes as a "dull ache" once it has been present for some weeks

Isometrics act as an analgesic

Objective Assessment

Observation: Muscle atrophy, swelling, asymmetry

Palpation: Tender to palpate, but we should try not to palpate too much

AROM/PROM: May be limited due to pain

Strength: May be decreased due to muscle atrophy or pain

Functional Tests: Tests that load the tendon to reproduce pain, and other loading tests that load alternative structures

Rehabilitation

Patient education = load modification

Isometric, isotonic and HSR loading **in comp** to target tissue structure change and muscle strength

Slow stretch-shortening cycle **out of comp** to load as spring

Fast stretch-shortening cycle **out of comp** to load as spring

Sports specific exercises **out of comp**

Management

Do not rest the tendons. Could cause more damage.

Address the strength deficit. Heavy load 2-3 times per week. Compare with normative values not the contralateral limb.

Tendons respond to heavy load, 70% 1RM. For approx. 5 mins then again in 6 hours.

Type of muscle contraction does not affect collagen synthesis, other evidence points to eccentrics

Allow enough time following high load for tissue recovery (every 2nd day)

Adjuncts to exercise

Corticosteroid injection

Shockwave therapy

Platelet rich plasma

Surgical management



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