ACHILLES TENDINOPATHY

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Orthopaedic Manual Physical Therapy Series
Charlottesville 2017-2018

Case 1_**Subjective Asterisks**

- 16 year HS XC athlete
- Minimal Running summer
- Begins practice – 20 miles/week with workouts
- Acute local non Insertional Achilles pain
- Constant pain – Increased with walking, Stair ascending; Unable to run; Sharp pain/stiffness in AM
- Easing Factors: Rest, ice, NSAIDs
- Denies : Insertional pain, heel pain, NT, Proximal sxs
- PMHx: MTSS beginning of past 3 seasons

Case 1_**Objective Asterisks**

- Very tender to palpate – Non Insertional aspect Achilles
- Mobile effusion
- Decreased Ankle DF, Hip EXT, EXT/ROT
- Single leg Stance: Calcaneal EVR, Excessive Navicular Drop, STJ pronation.
- Single leg Squat: Limited TC DF → STJ EVR, Navicular Drop; Fem ADD/IR
- Hop Test: Apprehension/sharp local pain
- Gait: Walking – Excessive STJ pronation mid → late stance
- Unable to run - pain

Case 2_**Subjective Asterisks**

- 55 year old male UVA Law Professor
- Pain non Insertional aspect Achilles, Insertional at posterior Calcaneous
  - Dull ache
- 8 year history achilles pain with running
- Run – pain – rest – Run – pain- rest
- Increased running train for 10 Miler
- Aggravating Factors: AM/following sitting; Run – initially (first ¼ mile), > 3 miles, Faster; Stretching
- Easing Factors: Rest, Run < 2 miles
- PMHx: HTN, Elevated Chol; Achilles; Medial menisectomy with knee OA.
- Activity Level : Intermittent Gym (cardio/wts); Softball; Run as able

Case 2_**Objective Asterisks**

- Slightly tender Achilles (non insertional); sharp lateral aspect posterior calc at insertion
- Thickened non uniform tendon – nodules (non mobile)
- Varus rearfoot, tibia; PF 1st Ray
- LQ mobility Deficits: Hip - Flexion, ADD, IR, EXT, ER; Ankle/STJ - EVR
- Flexibility Deficits: HS, HFs, Hip ERs, TFL/ITB
- Ankle DF > 25 degrees
- Bilateral Squat: Limited Hip flexion ROM, Varus knee
- Single leg Squat: Varus knee, LOB medially
- Step down: > Frontal plane excursion – varus → dynamic valgus

Most Common injuries in Runners

• PFPS	21%
• ITB syndrome	11%
• Plantar fasciitis	10%
• **Achilles tendinopathy**	**6%**
• Meniscal pathology	6%
• Shin splints	6%
• Patellar tendonitis	6%
• Gluteus injuries	4%
• Tibial stress fractures	4%
• Spine injuries	3%

Tauton et al Br J Sports Med 2002

Incidence

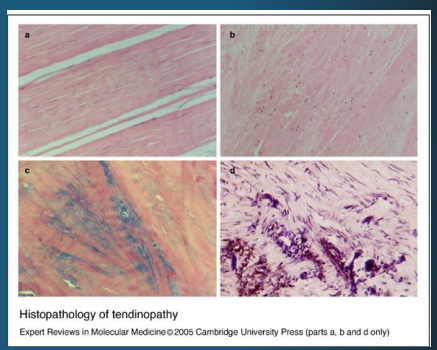
- **7-9% Top level runners**
- **11% all runners**
- **> Middle aged males**

Table 1 Terminology of Achilles tendon pathology

Term	Anatomic location	Symptoms	Clinical findings	Histopathology
Insertional Achilles tendinopathy	Insertion of AT onto calcaneus, most often with formation of bone spurs and calcifications in tendon proper at insertion site	Pain, stiffness, sometimes a (solid) swelling	Painful tendon insertion at the *midportion* of the *posterior* aspect of the calcaneus, swelling may be visible and a bony spur may be palpable	Ossification of enthesial fibrocartilage, and sometimes small tendon tears occurring at tendon–bone junction
Retrocalcaneal bursitis	Bursa in the recess between the anterior inferior side of the AT and the postero*superior* aspect of the calcaneus (retrocalcaneal recess)	Painful swelling superior to calcaneus	Painful soft tissue swelling, medial and lateral to the AT at the level of the posterosuperior calcaneus	Fibro-cartilaginous bursal walls show degeneration and/or calcification, with hypertrophy of the synovial infoldings and accumulation of fluid in the bursa. Alternatively, the bursa may be primarily involved by inflammatory or infectious bursitis due to an inflammatory arthropathy
Midportion Achilles tendinopathy	2–7 cm from the insertion onto the calcaneus	A combination of pain, swelling and impaired performance	Diffuse or localized swelling	Includes, but is not limited to, the histopathological diagnosis of tendinosis: implies histopathological diagnosis of tendon degeneration without clinical or histological signs of intratendinous inflammation, not necessarily symptomatic

Tendinopathy NOT Tendinitis

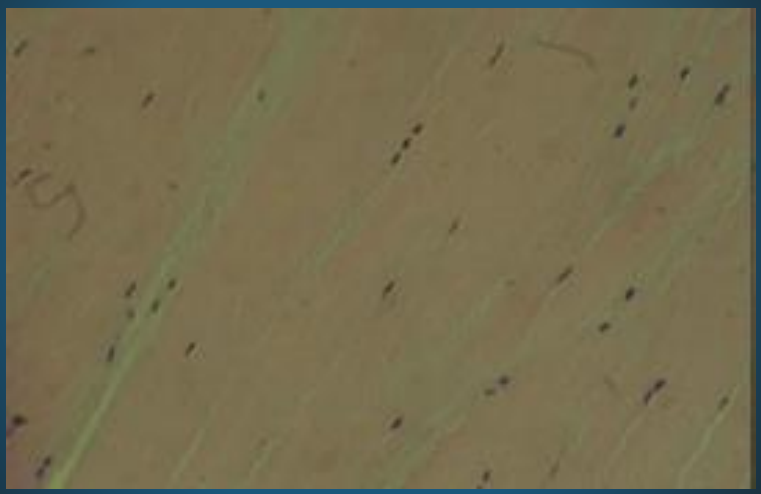
- **Absence of inflammatory cell infiltrate and biochemical mediators**
- **Cellular activation with an increase in cell numbers**
- **Increase in Ground substance**
- **Collagen Disorganization**
- **Neovascularization**



Histopathology of tendinopathy

Expert Reviews in Molecular Medicine©2005 Cambridge University Press (parts a, b and d only)

Normal tendon with scattered elongated cells

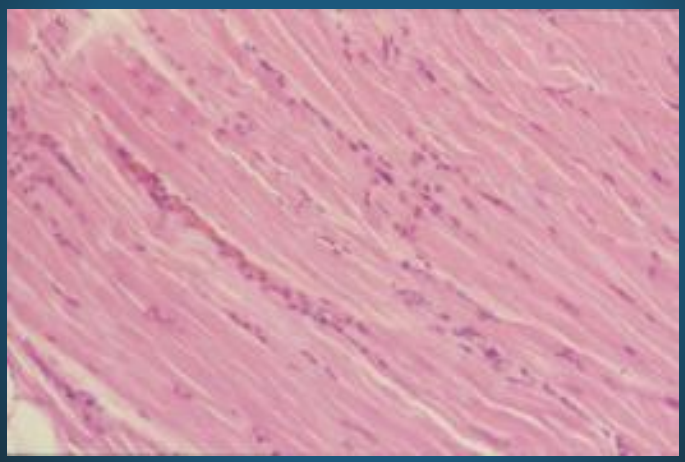


Tendinitis

- Macroscopic Pathology
  - Symptomatic degeneration of the tendon with vascular disruption and inflammatory repair response
- Histopathological Findings
  - Degenerative changes with superimposed evidence of tear, including fibroblastic and myofibroblastic proliferation, hemorrhage and organizing granulation tissue

N. Maffulli et al / Clin Sports Med 22 (2003) 675–692

Slightly pathological tendinous tissue with islands of high cellularity and initial disorganization

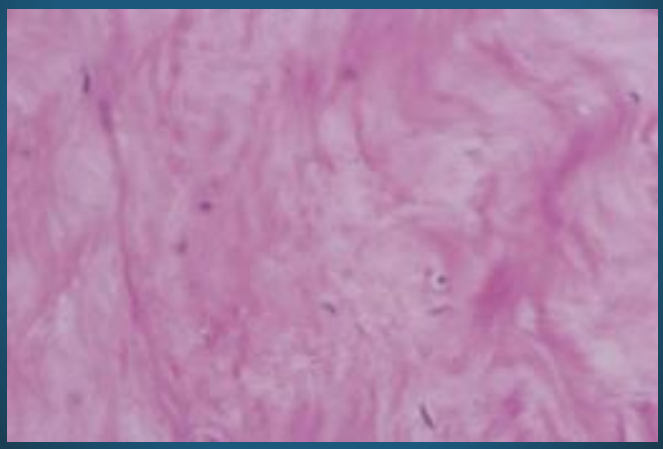


Tendinosis:

- Macroscopic Pathology
  - Intratendinous degeneration (ageing, micro trauma, vascular compromise)
- Histopathological Findings
  - Collagen disorientation, disorganization and fiber separation with an increase in mucoid ground substance, increased preponderance of cells and vascular spaces with or without neovascularization and focal necrosis or calcification

N. Maffulli et al / Clin Sports Med 22 (2003) 675–692

Highly degenerated tendon with some chondroid cells, distinct lack of inflammatory infiltrate



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Tendinopathy: Evidence-Informed Physical Therapy Clinical Reasoning

BILL VICENZINO, *PhD*
The University of Queensland, School of Health and Rehabilitation Sciences: Physiotherapy, St Lucia, Australia.

NOVEMBER 2015 | VOLUME 45 | NUMBER 11 | JOURNAL OF ORTHOPAEDIC & SPORTS PHYSICAL THERAPY

Mechanism

- **Multifactorial – Overuse & Repetitive**
- **Largest loads in the body**
- **Running – up to 10x body weight**

Intrinsic/Extrinsic Factors

- Extrinsic
  - Training Errors
    - 60-80%
    - Too much, too fast
    - Speed, Hill training
  - Terrain
  - Poor technique
  - Previous injuries
  - Footwear

Intrinsic/Extrinsic Factors

- Intrinsic
  - STJ hyperpronation
  - Ankle Equinus
  - Decreased flexibility
  - Muscle imbalances
  - LLD
  - Forefoot varus
  - Rear foot varus/valgus
  - Gender
  - Age
  - Genetics
  - Poor vascularity
  - Metabolic/Endocrine factors

Why Symptomatic ?

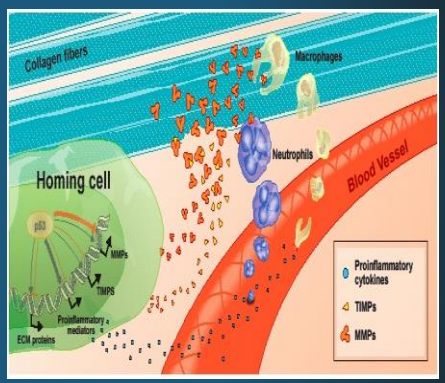
Theories

- Neurogenic
- Mechanical
- Vascular

Mechanical

Disordered Healing Response

- Imbalance of MMPs & TIMPs
  - Extra cellular remodeling enzymes
- Collagen degeneration
- Absence normal inflammatory response



Is higher serum cholesterol associated with altered tendon structure or tendon pain? A systematic review

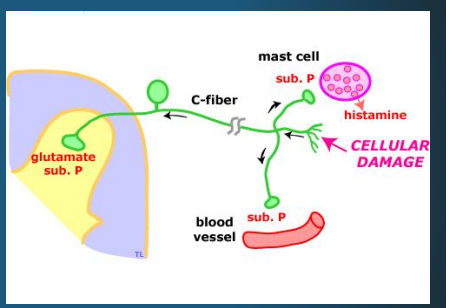
Br J Sports Med 2015;**49**:1504–1509.

Benjamin J Tilley,[1] Jill L Cook,[1,2] Sean I Docking,[1,2] James E Gaida[1,3,4]

Conclusions The results of this review indicate that a relationship exists between an individual's lipid profile and tendon health. However, further longitudinal studies are required to determine whether a cause and effect relationship exists between tendon structure and lipid levels. This could lead to advancement in the understanding of the pathoaetiology and thus treatment of tendinopathy.

Neurogenic

- Neovascularization with neural ingrowth
- Sensory and sympathetic components
- Increased neurotransmitters of pain
  - Substance P
  - Glutamate
- Neurogenic Inflammation = Pain
- Chronic painful Achilles– No inflammation

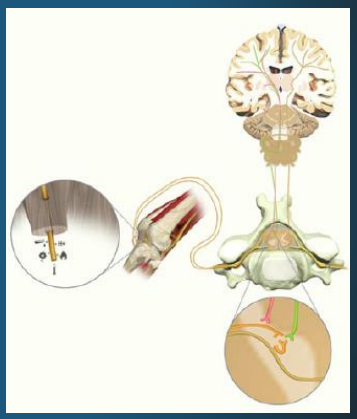


The Pain of Tendinopathy: Physiological or Pathophysiological?

Ebonie Rio · Lorimer Moseley · Craig Purdam · Tom Samiric · Dawson Kidgell · Alan J. Pearce · Shapour Jaberzadeh · Jill Cook

Sports Med (2014) 44:9–23

- Nociception occurs from cell-cell signaling via ion channels
- Afferent Neuron can : modulate signal (excitatory vs. inhibitory) - sensitization
- Pain may be evoked through load detection system (modulated CNS/peripherially)



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Evidence of Nervous System Sensitization in Commonly Presenting and Persistent Painful Tendinopathies: A Systematic Review

- Mechanical Hyperalgesia – persistent tendinopathies
- Central Nervous System sensitization
- Lateral Epicondyle, Patellar, RTC (no studies Achilles)

Central pain processing is altered in people with Achilles tendinopathy

Br J Sports Med 2015;**0**:1–6.

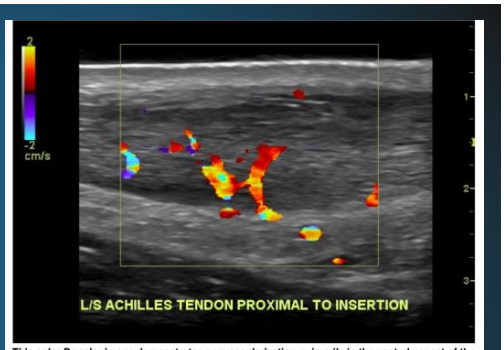
Nefeli Tompra,[1] Jaap H van Dieën,[1] Michel W Coppieters[1,2]

What are the findings?

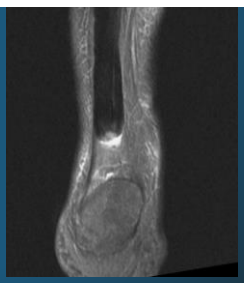
- Pressure pain threshold testing over the Achilles tendon revealed that the conditioned pain modulation effect is reduced in people with Achilles tendinopathy.
- The findings indicate that besides peripheral mechanisms, altered central pain processing also plays a role in persistent Achilles tendinopathy.
- The reduction in conditioned pain modulation in people with Achilles tendinopathy was not correlated with the severity of Achilles tendinopathy (VISA-A), functional limitations (FAAM), and activity levels (amount of running).

Vascular

- Relative hypovascularity
- 2-6 cm Proximal to Insertion
- Watershed area
- Neovascularization with resultant neural in-growth



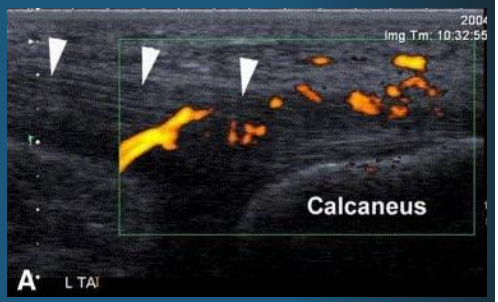
This color Doppler image demonstrates neovascularization, primarily in the ventral aspect of the tendon.



Imaging

Ultrasound:

- Grade 1 : Normal tendon
- Grade 2 : Enlarged tendon
- Grade 3 : Hypoechoic area
- Color Doppler : areas enhanced vascularity
- High specificity/sensitivity
- False negatives
- Does not correlate with improved functional outcomes

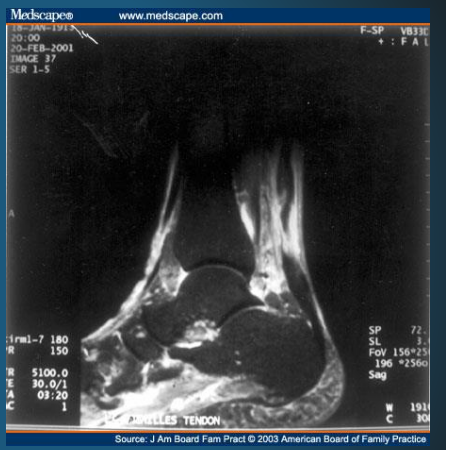


Khan KM Br J Sp Med 2003

Imaging

MRI

- Depicts pathology in great detail
- Differential diagnosis
- High sensitivity/specificity
- Expensive
- Correlates with functional outcomes/return to sport



Khan KM Br J Sp Med 2003

Is tendon pathology a continuum? A pathology model to explain the clinical presentation of load-induced tendinopathy

Br J Sports Med 2009;**43**:409–416.

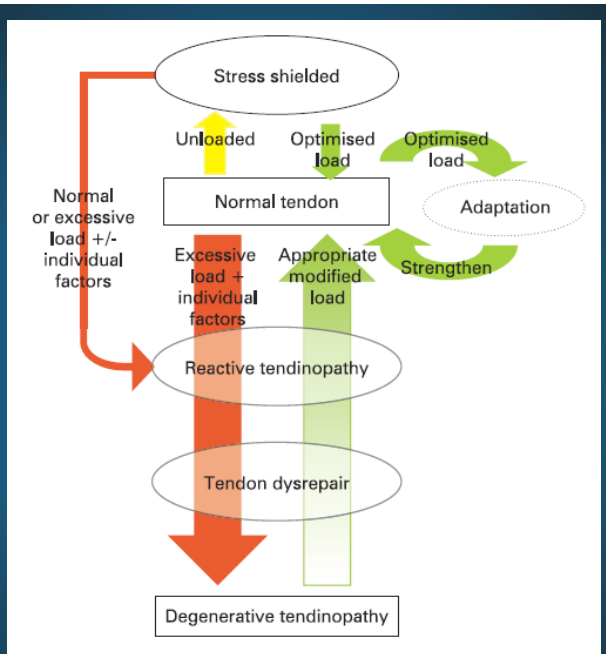
J L Cook,[1] C R Purdam[2]

"tendons don't like rest or change"

A NEW MODEL OF TENDON PATHOLOGY

We propose that there is a continuum of tendon pathology that has three stages: reactive tendinopathy, tendon dysrepair (failed healing) and degenerative tendinopathy (fig 1). The model is described for convenience in three distinct stages; however, as it is a continuum, there is continuity between stages.

Adding or removing load is the primary stimulus that drives the tendon forward or back along the continuum, especially in the early stages. Within the constraints of recovery proposed in the model, reducing load may allow the tendon to return to a previous level of structure and capacity within the continuum.[13]



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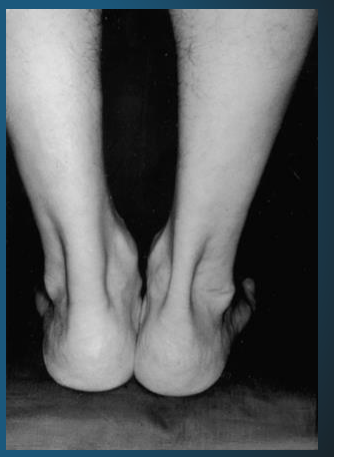
Reactive Tendinopathy

- Acutely Overloaded
- Younger athletes
- Under loaded → Overloaded
- Changes reversible
- Short Term adaptation
  - Tendon Thickens - homogenous
  - Reduce stress
  - Increase stiffness
- Collagen integrity maintained
- Rarely Neovascularization

Tendon Disrepair

- Marked increase in protein production (proteoglycans)
- Resultant separation of collagen
- Matrix disorganization
- Chronically overloaded tendon
- Thick localized changes
- Vascularity/Neural in growth
  - Neovascularization



Degenerative Tendinopathy

- Progression of matrix/cell changes
- Cell death
- Disordered collagen
- Incr Neovascularization
- Heterogeneity
  - Normal tendon
  - Degenerative pathology
  - Various stages of degeneration throughout tendon
- Older patient
- Younger athlete with chronically overloaded tendon
- Focal nodular areas
- History of repeated bouts of tendon pain resolved with periods of unloading

Reactive Tendinopathy/Early Tendon Disrepair

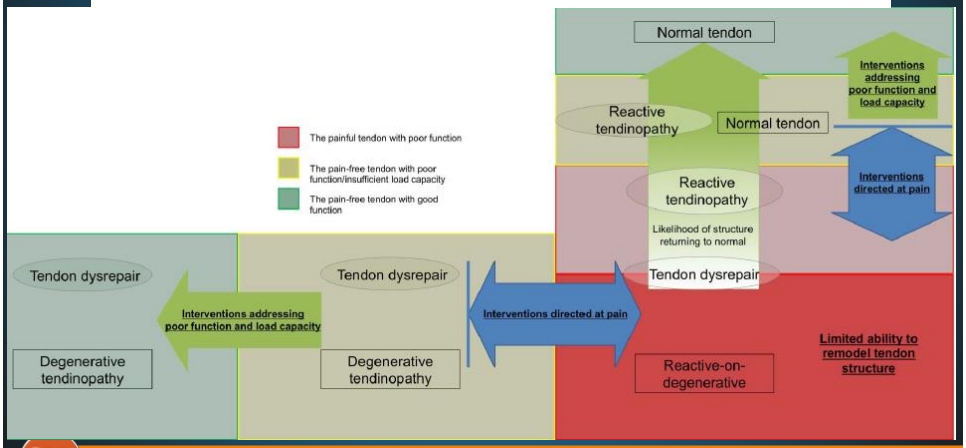
Clinical Decision Making

- Reduce pain - isometrics
- ?? NSAIDs
- STM (complex) – not just painful tendon
- Rest days
- Cross training
- Minimal Stretching
- Cells become less reactive
- Assess biomechanical overload
- Strengthen the complex:
  - Improve the capacity of the tendon and muscle to manage load
- Modify load: Intensity, frequency, type of load
- Allows the tendon to adapt
- Eccentrics typically aggravate tendons
- Load Management

Revisiting the continuum model of tendon pathology: what is its merit in clinical practice and research?

J L Cook,[1,2] E Rio,[1,2] C R Purdam,[2,3] S I Docking[1,2]

Br J Sports Med 2016



Reactive Late Tendon Disrepair/Degenerative Tendinopathy
Clinical Decision Making

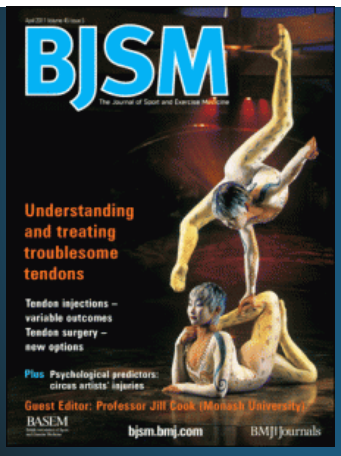
- Stimulate cell activity
- Increase protein production
- Restructure the matrix
- Progressive tendon loading
- Eccentric Training
- ? Cross friction massage
- ? EWST
- ? Prolotherapy
- ? Sclerosing injections
- ? Glyceryl Nitrate
- Surgical debridement

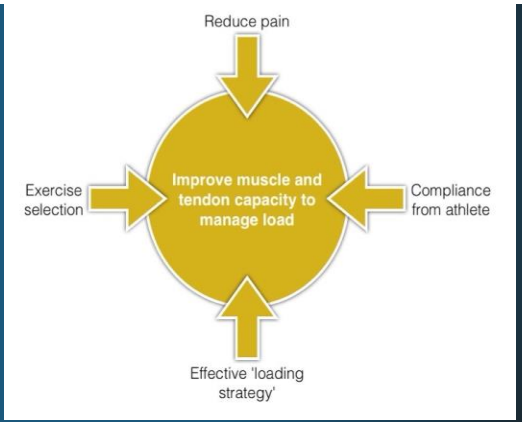
Sports and exercise-related tendinopathies: a review of selected topical issues by participants of the second International Scientific Tendinopathy Symposium (ISTS) Vancouver 2012

Each component of the rehabilitation program, in particular LOADING, must be manipulated in relation to the nature, speed and magnitude of the forces applied to the muscle/tendon/bone unit in order to achieve the goals of the particular management phase without causing an exacerbation of the pathological state or pain

Mechanotherapy: how physical therapists' prescription of exercise promotes tissue repair

K M Khan, A Scott





Br J Sports Med 2009;**43**:247–251.

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Phase 1: Pain Reduction

- Pain = Inhibition
- Avoid compressive loading (DF); mid ROM loading
- ? Heel lift
- Avoid activities that involve the Stretch-Shortening-Cycle (SSC)
- Rest, cross train; Modify load – especially running
- NSAIDS (conservatively) – only during reactive phase
- Isometric exercises can help to reduce pain in reactive tendinopathy.
  - Moderate/Heavy load
  - Mid ROM
  - 40-60 sec holds
  - 4-5 reps
  - Avoid compression (DF)
  - Rest

Cook JL, *et al. Br J Sports Med* 2013

Isometric exercise induces analgesia and reduces inhibition in patellar tendinopathy

Br J Sports Med 2015;**49**:

Ebonie Rio,[1] Dawson Kidgell,[2] Craig Purdam,[3] Jamie Gaida,[1,4] G Lorimer Moseley,[5] Alan J Pearce,[6] Jill Cook[1]

What are the new findings?

- Heavy isometric exercise immediately reduced patellar tendon pain that was sustained for at least 45 min.
- People with patellar tendinopathy have higher amounts of cortical muscle inhibition for their quadriceps than normal controls.
- Heavy isometric exercise reduced cortical muscle inhibition and may be a factor in the mechanism of pain reduction.
- Isotonic exercise did not result in sustained pain relief or any changes to muscle inhibition.

How might it impact on clinical practice in the near future?

- Isometric exercise may be used as analgesia—to reduce pain immediately in patellar tendinopathy.
- Isometric exercise may be useful in-season, preactivity or postactivity, when alternate loading, such as eccentric exercise, has not shown to be beneficial.
- Patellar tendon pain affects muscle inhibition—isometric exercise may be used to reduce pain and change muscle inhibition without a reduction in muscle strength.

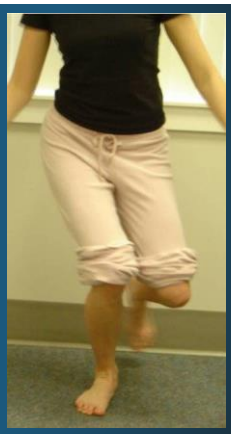
Phase 2: Improve Biomechanical Efficiency

- Improve load capacity of entire kinetic chain
- Address frontal, transverse plane loading
- Proximal – Distal stability
- Address Muscle imbalances -Flexibility/Strength
  - Biomechanical Screen
- ?? Orthotic management

Lower limb biomechanics during running in individuals with achilles tendinopathy: a systematic review

Journal of Foot and Ankle Research 2011, **4**:15

- Incr Rearfoot EVR ROM
- Decr Hip ABD
- Decr Ankle DF velocity
- Decr knee flexion (loading response)
- Altered Ground Rxn forces
- Altered plantar pressures
- Decr Tib EXT Rot
- Tib Ant onset delayed
- Soleus, Lat GS increased activity
- Reduced Glut medius/Lateralis at loading response



Phase 3 : Strengthen the Complex

- Improve the muscle and tendons' ability to produce force and manage load
- Exercise Prescription- Consider all variables:
  - Time under tension, speed of contraction, position, ROM, rest between sets and scheduling of exercise sessions
- Strength changes with sufficient load in a muscle's *mid-range* position
- Avoid tendon compression (DF)
- Short term - net loss of collagen production for around 24-36 hours post exercise – allow adequate rest days
- Longer term - tendons change slowly so may take 3-4 months to respond to a loading program
- Progress graduated tendon loading
  - Concentrics
  - Heavy Slow Resistance mid → outer ROM
  - Eccentrics

Phase 4: Progress Load

- **Heavy Slow Resistance → Outer/Full ROM**
- **Progress Eccentrics**
- **Full ROM Eccentrics**
- **Adequate Rest**

Tendinopathy Loading Programmes

Type of exercise	Research	Sets, reps	Load	Frequency	Details
Eccentric	Alfredson et al. (1998) Achilles	3, 15	Body weight initially. Increased as pain allows	Twice daily for 12 weeks	'Heel drops' 1) with straight knee 2) with slightly knee flexed
Combined	Silbernagel et al. (2007) Achilles	Various	Body weight initially. Increased in phases based on patient status	Daily for 12 weeks to 6 months	Comprehensive programme including eccentric, concentric, balance, plyometric ex's and return to sport
Heavy Slow Resistance	Kongsgaard et al. (2009) & (2010)	4, 15-6	15-6RM Progressed at specific time points over 12 weeks pain allowing	3 times per week for 12 weeks	Bilateral squat, leg press and 'hack squat' with gradual progression in load. Includes eccentric and concentric. 6 seconds per rep. (3 ecc: 3 con.)

Running-Physio.com @tomgoom

Eccentric or Concentric Exercises for the Treatment of Tendinopathies?

In summary, tendon is responsive to loading and will respond more strongly to greater loads, although there is likely an optimum beyond which load becomes detrimental. Slower loading regimes may be superior to rapid loading, while the importance of recovery between loading sessions is unclear.

JOURNAL OF ORTHOPAEDIC & SPORTS PHYSICAL THERAPY | VOLUME 45 | NUMBER 11 | NOVEMBER 2015

Heavy Slow Resistance Versus Eccentric Training as Treatment for Achilles Tendinopathy

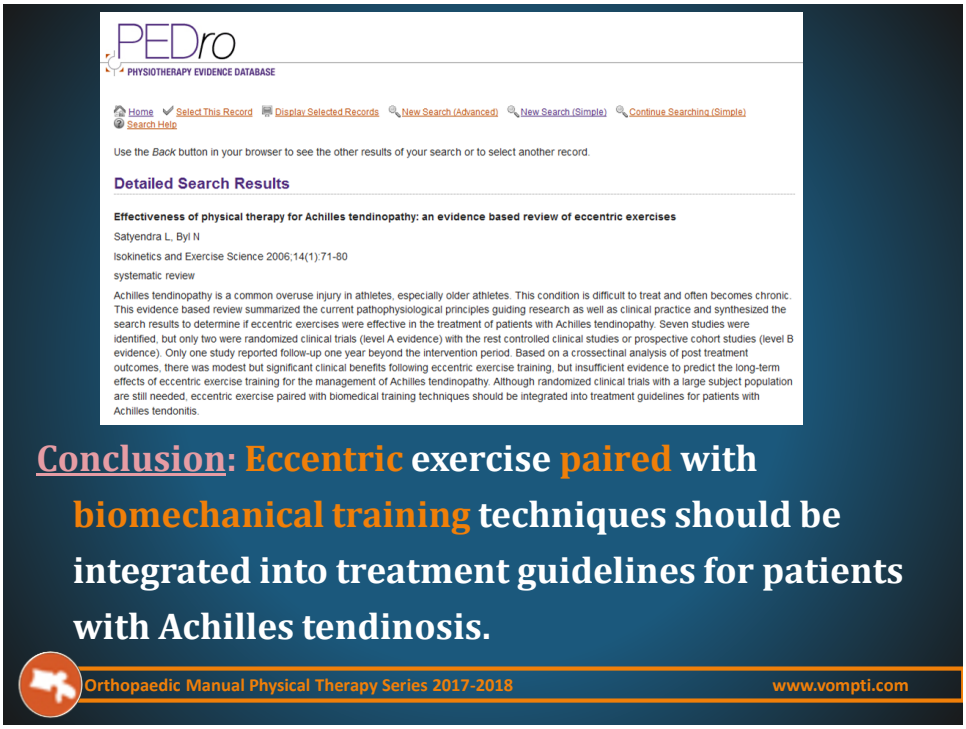
Am J Sports Med 2015

A Randomized Controlled Trial

The main finding of the present study was that both the traditional ECC and the HSR yielded a positive clinical result in patients with Achilles tendinopathy in both the short- and long-term ranges. There was a pronounced improvement in physical activity level and pain during sporting activities (VAS_R, VAS_H, and VISA-A) in both groups. Concomitant with the clinical improvement, there was a reduction in A-P thickness and neovascularization as measured with color Doppler. None of these robust clinical and structural improvements differed between the ECC and HSR groups. However, patient satisfaction tended to be greater after 12 weeks with HSR (100%) than ECC (80%) but not after 52 weeks (HSR, 96%; ECC, 76%).

Heavy-Load Eccentric Calf Muscle Training For the Treatment of Chronic Achilles Tendinosis
Håkan Alfredson, Tom Pietilä, Per Jonsson and Ronny Lorentzon
Am. J. Sports Med. 1998; 26; 360

- 15 runners chronic Achilles symptoms
  - Failed conservative management
  - Scheduled for surgery
  - (+) US tendonopathic changes
- 12 weeks Eccentric training
- All returned to prior running level
- Matched with 15 runners went on to surgery
- 3 months compared to 6 months return to running in matched surgical group



Conclusion: Eccentric exercise paired with biomechanical training techniques should be integrated into treatment guidelines for patients with Achilles tendinosis.

Eccentric overload training in patients with chronic Achilles tendinopathy: a systematic review

J J Kingma, R de Knikker, H M Wittink and T Takken

Br. J. Sports Med. 2007;41;3-; originally published online 11 Oct 2006;

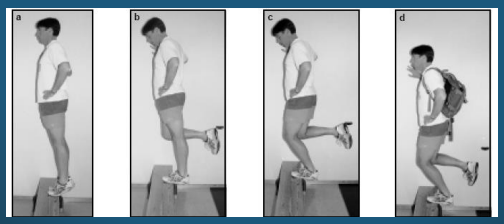
Results: Nine clinical trials were included. Only one study had sufficient methodological quality. The included trials showed an improvement in pain after eccentric overload training. Because of the methodological shortcomings of the trials, no definite conclusion can be drawn concerning the effects of eccentric overload training in patients with chronic Achilles tendinopathy.

Conclusion: The effects of eccentric exercise training in patients with chronic Achilles tendinopathy on pain are promising; however, the magnitude of the effects cannot be determined. Large, methodologically sound studies from multiple sites in which functional outcome measures are included are warranted.

Eccentric Prescription

Comparison of exercise programs

	Curwin and Stanish, 1984	Alfredson et al, 1998/2000
Repetitions	30/day	180/day
Contraction type	Concentric and eccentric	Eccentric only
Pain	Minimal pain during exercise	Exercise into severe pain
Speed	Increasing speed of eccentric-concentric turnaround	Slow
Resistance	Resistance to BW + 5–10 lbs single leg	Resistance to BW + 60 kg single leg
Progression	Speed and load combined	Load



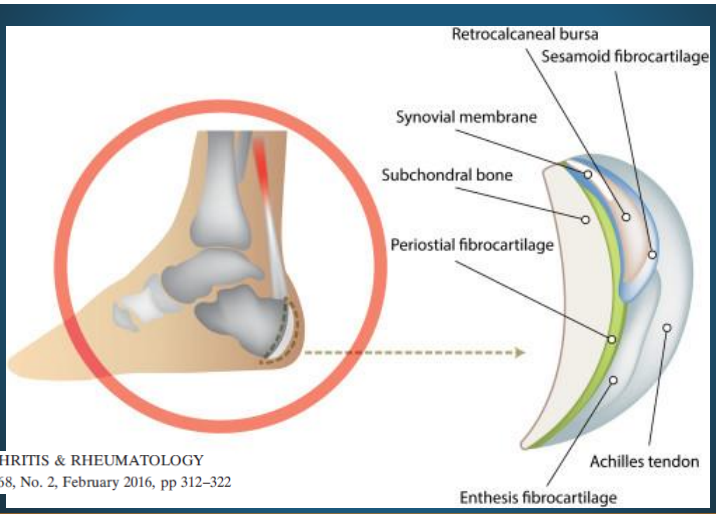
Chronic Achilles tendon pain treated with eccentric calf-muscle training

- 78 pts (49% runners) non-Insertional tendonopathy
- 30 pts (36% runners) Insertional tendonopathy
- 90% non Insertional group returned to run pain free
- 32% Insertional group returned to run

Knee Surg Sports Traumatol Arthrosc (2003) 11 : 327–333

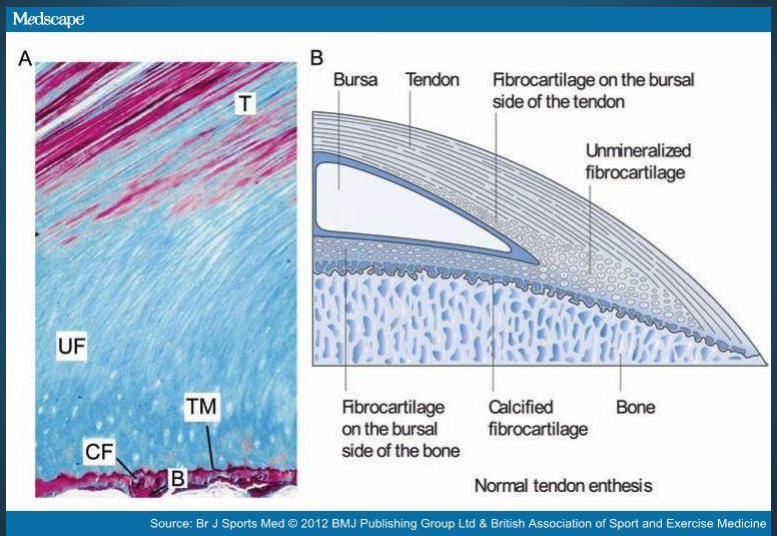
Enthesitis

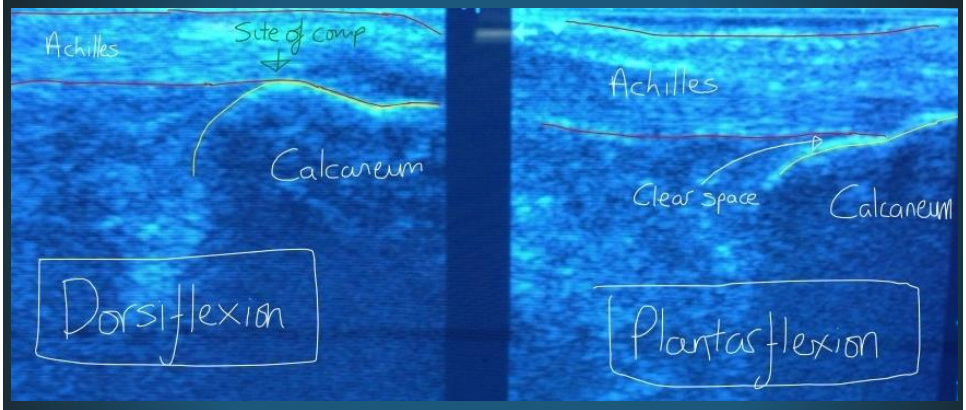
New Insights Into Pathogenesis, Diagnostic Modalities, and Treatment



ARTHRITIS & RHEUMATOLOGY
Vol. 68, No. 2, February 2016, pp 312–322

Enthesopathy – Insertional/Compressive





STOP Stretching - secondary to compression with end ROM DF

New regimen for eccentric calf-muscle training in patients with chronic insertional Achilles tendinopathy: results of a pilot study

Br J Sports Med 2008

P Jonsson,[1] H Alfredson,[1] K Sunding,[2] M Fahlström,[3] J Cook[4]

- **Eccentric training NOT loading into Dorsi flexion**
- **3x15 reps, 2x/day x 12 weeks**
- **67% returned to prior activity level**
- **VAS decreased 70 to 21**

Phase 5: Sport Specific/Functional

- Increase strength/power
- Increase speed of contraction
- Specific demands of sport
  - Strength
  - Flexibility
  - Movement patterns
- Drills
- Plyometrics
- Graduated/progressive return to sport/running

Phase 6: Maintenance loading

- Off season training
- Adequate loading
- Gait Mechanics
- Gait Retraining

Case Study_Exercise Prescription

- Lab: Present to group
- 2 Cases
- Groups
  - Manual Therapy
  - Education
  - Exercise prescription
    - Specific
    - Load Management progression
  - Acute: Phase 1-3
  - Treatment Progression: Phase 4-6

Sports and exercise-related tendinopathies: a review of selected topical issues by participants of the second International Scientific Tendinopathy Symposium (ISTS) Vancouver 2012

Each component of the rehabilitation program, in particular LOADING, must be manipulated in relation to the nature, speed and magnitude of the forces applied to the muscle/tendon/bone unit in order to achieve the goals of the particular management phase without causing an exacerbation of the pathological state or pain

Case 1_**Subjective Asterisks**

- 16 year HS XC athlete
- Minimal Running summer
- Begins practice – 20 miles/week with workouts
- Acute local non Insertional Achilles pain
- Constant pain – Increased with walking, Stair ascending; Unable to run; Sharp pain/stiffness in AM
- Easing Factors: Rest, ice, NSAIDs
- Denies : Insertional pain, heel pain, NT, Proximal sxs
- PMHx: MTSS beginning of past 3 seasons

Case 1_**Objective Asterisks**

- Very tender to palpate – Non Insertional aspect Achilles
- Mobile effusion
- Decreased Ankle DF, Hip EXT, EXT/ROT
- Single leg Stance: Calcaneal EVR, Excessive Navicular Drop, STJ pronation.
- Single leg Squat: Limited TC DF → STJ EVR, Navicular Drop; Fem ADD/IR
- Hop Test: Apprehension/sharp local pain
- Gait: Walking – Excessive STJ pronation mid → late stance
- Unable to run - pain

Case 2_**Subjective Asterisks**

- 55 year old male UVA Law Professor
- Pain non Insertional aspect Achilles, Insertional at posterior Calcaneous
  - Dull ache
- 8 year history achilles pain with running
- Run – pain – rest – Run – pain- rest
- Increased running train for 10 Miler
- Aggravating Factors: AM/following sitting; Run – initially (first ¼ mile), > 3 miles, Faster; Stretching
- Easing Factors: Rest, Run < 2 miles
- PMHx: HTN, Elevated Chol; Achilles; Medial menisectomy with knee OA.
- Activity Level : Intermittent Gym (cardio/wts); Softball; Run as able

Case 2_**Objective Asterisks**

- Slightly tender Achilles (non insertional); sharp lateral aspect posterior calc at insertion
- Thickened non uniform tendon – nodules (non mobile)
- Varus rearfoot, tibia; PF 1st Ray
- LQ mobility Deficits: Hip - Flexion, ADD, IR, EXT, ER; Ankle/STJ - EVR
- Flexibility Deficits: HS, HFs, Hip ERs, TFL/ITB
- Ankle DF > 25 degrees
- Bilateral Squat: Limited Hip flexion ROM, Varus knee
- Single leg Squat: Varus knee, LOB medially
- Step down: > Frontal plane excursion – varus → dynamic valgus

VISA-A scale

The VISA-A questionnaire: An index of the severity of Achilles tendinopathy

IN THIS QUESTIONNAIRE, THE TERM PAIN REFERS SPECIFICALLY TO PAIN IN THE ACHILLES TENDON REGION

1. For how many minutes do you have stiffness in the Achilles region on first getting up?

100 mins ☐☐☐☐☐☐☐☐☐☐☐ 0 mins POINTS ☐

0 1 2 3 4 5 6 7 8 9 10

2. Once you are warmed up for the day, do you have pain when stretching the Achilles tendon fully over the edge of a step? (keeping knee straight)

strong severe pain ☐☐☐☐☐☐☐☐☐☐☐ no pain POINTS ☐

0 1 2 3 4 5 6 7 8 9 10

3. After walking on flat ground for 30 minutes, do you have pain within the next 2 hours? (If unable to walk on flat ground for 30 minutes because of pain, score 0 for this question).

strong severe pain ☐☐☐☐☐☐☐☐☐☐☐ no pain POINTS ☐

0 1 2 3 4 5 6 7 8 9 10

4. Do you have pain walking downstairs with a normal gait cycle?

strong severe pain ☐☐☐☐☐☐☐☐☐☐☐ no pain POINTS ☐

0 1 2 3 4 5 6 7 8 9 10

5. Do you have pain during or immediately after doing 10 (single leg) heel raises from a flat surface?

strong severe pain ☐☐☐☐☐☐☐☐☐☐☐ no pain POINTS ☐

0 1 2 3 4 5 6 7 8 9 10

6. How many single leg hops can you do without pain?

0 ☐☐☐☐☐☐☐☐☐☐☐ 10 POINTS ☐

0 1 2 3 4 5 6 7 8 9 10

7. Are you currently undertaking sport or other physical activity?

POINTS

0 ☐ Not at all

4 ☐ Modified training ± modified competition

7 ☐ Full training ± competition but not at same level as when symptoms began

10 ☐ Competing at the same or higher level as when symptoms began

VISA-A scale

8. Please complete **EITHER A, B or C** in this question.

- If you have **no pain while undertaking Achilles tendon loading sports** please complete **Q8a only**.
- If you have **pain while undertaking Achilles tendon loading sports but it does not stop you from completing the activity**, please complete **Q8b only**.
- If you have **pain that stops you from completing Achilles tendon loading sports**, please complete **Q8c only**.

A. If you have **no pain** while undertaking **Achilles tendon loading sports**, for how long can you train/practise?

POINTS

NIL	1-10 mins	11-20 mins	21-30mins	>30 mins
☐ 0	☐ 7	☐ 14	☐ 21	☐ 30

OR

B. If you have some pain while undertaking **Achilles tendon loading sport**, but it does not stop you from completing your training/practice for how long can you train/practise?

POINTS

NIL	1-10 mins	11-20 mins	21-30mins	>30 mins
☐ 0	☐ 4	☐ 10	☐ 14	☐ 20

OR

C. If you have **pain that stops you** from completing your training/practice in **Achilles tendon loading sport**, for how long can you train/practise?

NIL	1-10 mins	11-20 mins	21-30mins	>30 mins	POINTS
☐ 0	☐ 2	☐ 5	☐ 7	☐ 10	☐

TOTAL SCORE (/100) ☐ %

? Questions ?