Disorders of the Achilles tendon – The ageing athlete

John P. Negrine F.R.A.C.S.
Foot and Ankle Surgeon
Orthosports Sydney
The Bad news

- Maximum heart rate decreases
- VO2 Max decreases
- Runners when compared with age matched controls have 15x the incidence of achilles tendon disorders
The good news

- Older runners can cope better with lactic acid
- Endurance athletes are getting older
- Gold Coast Marathon record is 2:08:42 is held by a 42 yo Kenyan
- Cadel Evans won the Tour de France at 34
Background

- Big tendon high stresses especially in running.
- Tensile forces 1400 – 2600 N during walking and 3100 – 5330N during running ie. 6 – 8 x body weight
The problem

- Broadly speaking overuse or rupture
The culprit - Running

- Too far
- Too fast
- Uphill
- Too frequently
Were we designed to run long distances??

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The solution
Problem is overload

- Uphill training, changing shoes or training surfaces or changing sports predisposed to by age, male gender, systemic illness (diabetes/rheumatoid disease), leg-length discrepancy and muscular weakness.
I am a pronation sceptic
Basic science research

- Matrix metalloproteases (MMP) may play a role in degeneration of collagen. Maffulli et. al.
- Neovascularisation observed with fibroblast proliferation and sensory nerve proliferation = pain.
- Disturbed cytokine function altered collagen synthesis.
- Exact aetiology still incompletely understood
Increasing incidence

- Professional and recreational
- More people playing sport
- Running longer and faster
What’s an old Codger?

- Goes to the RSL
- Drinks Reschs’ Pilsener
- Thinks the Country has gone “to pot”
- Things just aren’t what they used to be
Calf Muscle anatomy
Achilles tendon anatomy

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Anatomic considerations

- Paratenon
- Tendon
- Bursae – superficial and deep
- Insertion
Blood Supply

- Watershed 2 – 6 cm above insertion = commonest site of rupture (75%)
Terms - Confusing

- Insertional: Tendon, Bursa, both
- Non-Insertional: Tendon or paratenon
- Other terms Tendonitis, tendinosis acute (2 weeks), subacute (in between) and chronic (3 months)
Symptoms of tendinosis

- Pain – location mid substance or insertion, rarely both
- Start– up pain
- Pain free interval during running
- Swelling
- Crepitus - Paratenon
Physical signs in achilles patients

- Observe gait
- Limb alignment/leg lengths/foot morphology
- Swelling location
- Presence of a gap in tendon
- Arc of tenderness to differentiate disorders of the paratenon Vs the tendon
- Simmonds test
Investigations used

- Plain x-ray
- Ultrasound – operator dependent
- MRI – very operator dependent
- Bone Scan – not much used today
Don’t forget plain X-ray

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MRI used extensively

- Shows tendon
- Bursa
- Marrow oedema
- CT better for bone and therefore fracture
Treatment

“Evidence free zone”
Treatment

NB: Cochrane review 697 papers – Inadequate robust evidence for treatment recommendations for acute or chronic achilles tendonitis
Achilles tendinosis

- Non-surgical treatment works in most but not all
- Observational study of 83 patients with tendinopathy followed for 8 years 29% ultimately did not improve and required surgery (Paavola et. al. AJSM 2000;28: 634 - 42)…….
- Other studies show similar failure rates.

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Treatment – Non-insertional

- Non-operative: NSAIDS, ESWT, Topical GTN, all have some evidence in prospective RCT’s
- Heel lifts, walking boot, aprotinin/PRP/Stem cells/Polidocanol
- Steroid injections “QUELLE HORREUR!!”
- Heavy load eccentric strengthening – better in athletic than non-athletic patients
Surgical Options

- Endoscopic shave the anterior border
- Open debridement
- Debridement plus turn-down flap
- FHL transfer/augmentation
Surgical options

- Percutaneous longitudinal tenotomy
- “Stimulates healing”
- How does it improve biology of healing?
Achilles tendonitis
“FHL wrap”

Presented
AOFAS annual meeting
August 2008
What do I mean?

- Degenerative condition – not inflammatory
- Mid substance
- Middle age
- Males
- Overuse (runners)
- Often overweight
The wrap - Hansen

- Patient semi prone
- Medial longitudinal incision
- Divide deep fascia
- Make longitudinal cuts in tendon anteriorly
- Bring FHL muscle up and sew it to tendon anteriorly X6 1 – PDS sutures (3 each side)
- Close paratenon and skin
The wrap
The wrap
Post - op

- 2 weeks non-weightbearing in a cast
- 2 weeks in a walking boot
- Commence walking/treadmill and exercise bike
- Run at 3 months
My patients - 2008

- 6 tendons (one bilateral)
- 3 female/ 2 male
- Average age 42
- Average duration of symptoms 14 months
- Average follow-up 4 years
- Results excellent 5/6 fair 1/6
Insertional tendinosis

- Heel lifts
- Rest in walking boot
- Shock wave better than hlesp. in recent RCT at 4 months
Insertional tendinosis treatment

- Bursitis with minimal tendinosis – resection of posterior superior process calcaneus open or endoscopic
- Small area degeneration – minimal Achilles detachment
- Large area of insertional tendinosis with spurring and calcification – total Achilles detachment and re-attachment
Incision “de jour”
Double row repair
Achilles takedown
Achilles takedown - Post op

- Day surgery
- 6 weeks non-weight bearing
- 4 weeks in a walking boot
- Walk cycle swim at 3 months
- Run 9 – 12 months
Achilles rupture treatment

- Covered elsewhere
- Remember Ali Williams!!