

# Disorders of the Achilles tendon – The ageing athlete

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



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# 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



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# 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



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# 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



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# The problem

- Broadly speaking overuse or rupture



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# The culprit - Running



- Too far
- Too fast
- Uphill
- Too frequently



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# 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.



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I am a pronation sceptic



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# 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



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# Increasing incidence



- Professional and recreational
- More people playing sport
- Running longer and faster



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# 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



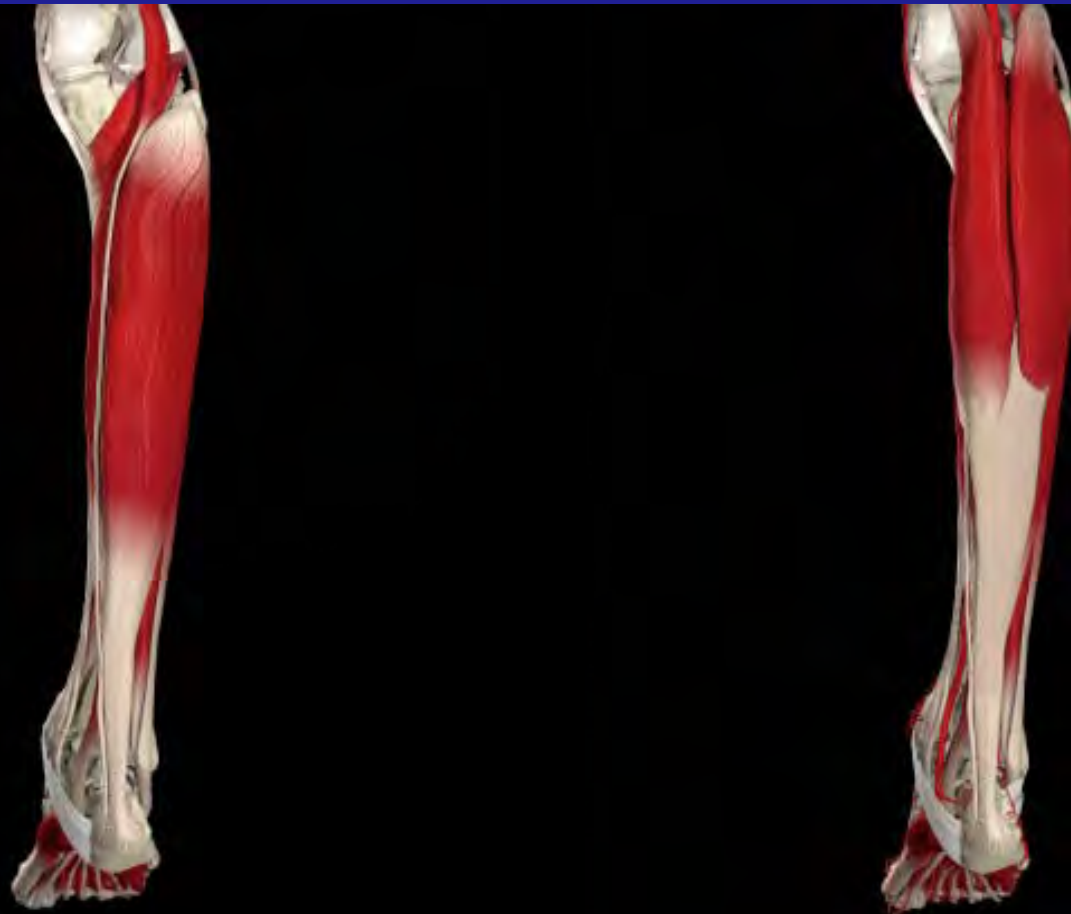
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# Calf Muscle anatomy



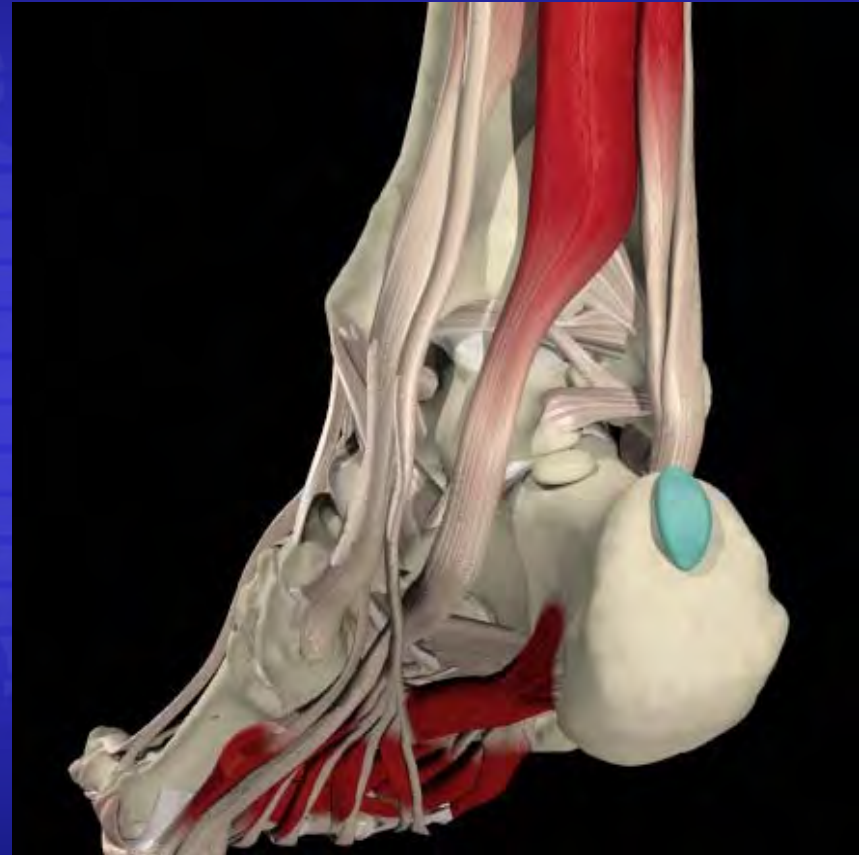
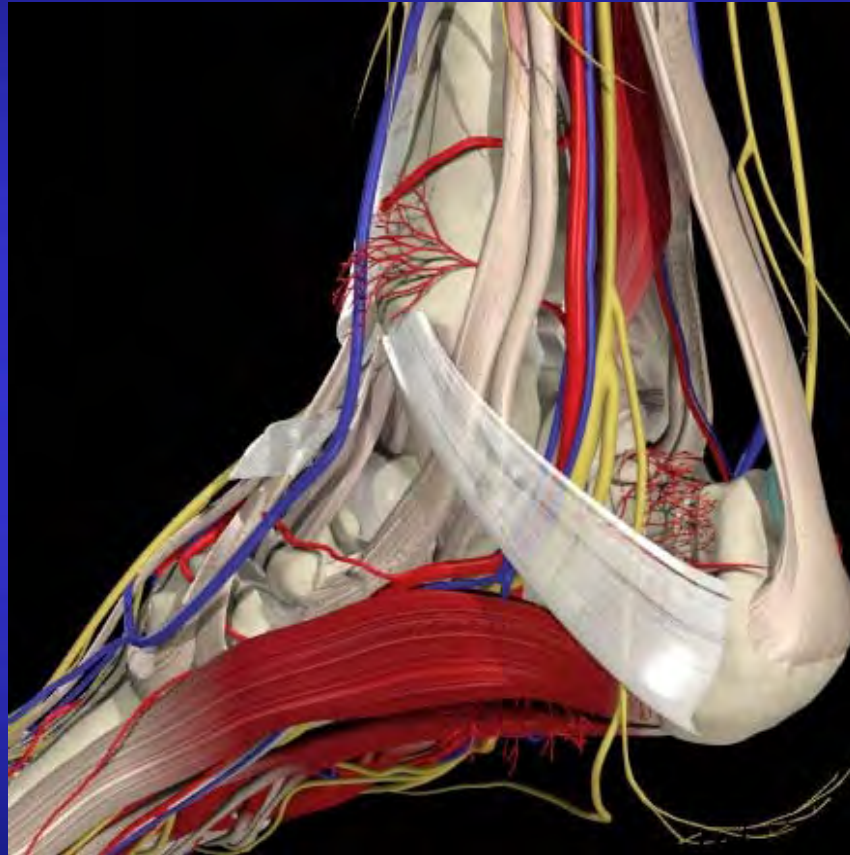
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images

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# Achilles tendon anatomy



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# Anatomic considerations

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



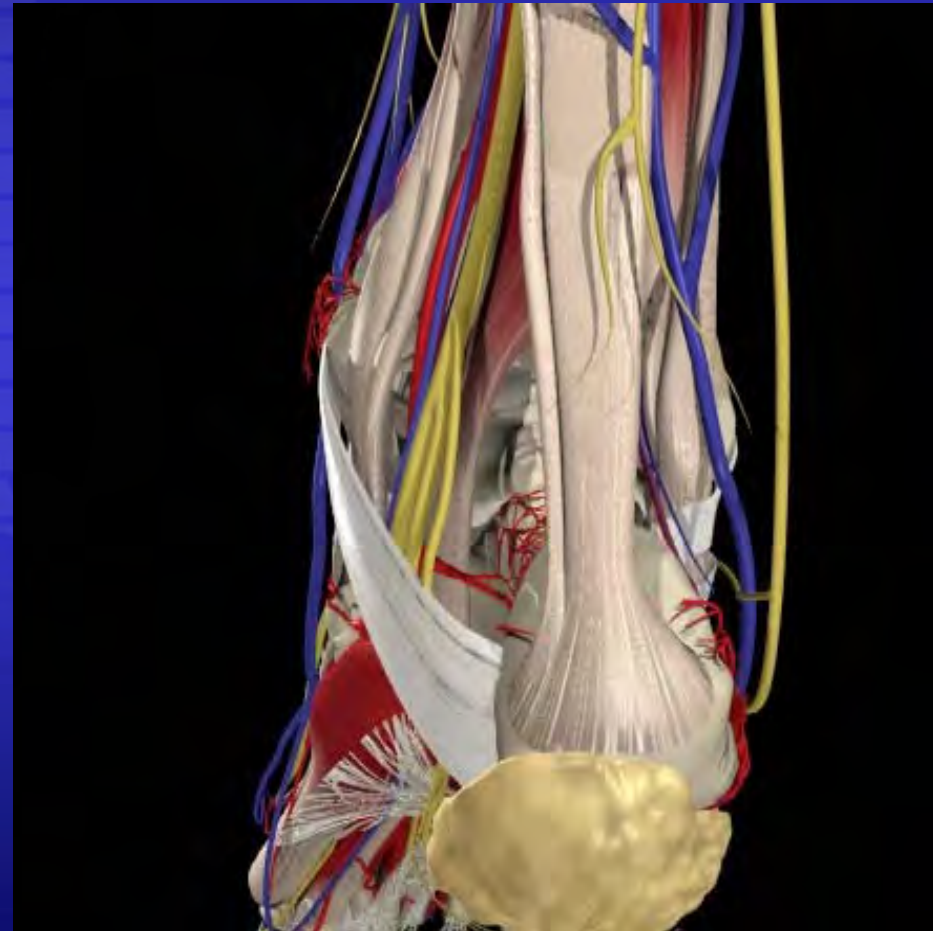
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# Blood Supply

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



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# Terms - Confusing

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



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# Symptoms of tendinosis

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



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# 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



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# Investigations used

- Plain x-ray
- Ultrasound – operator dependent
- MRI – very operator dependent
- Bone Scan – not much used today

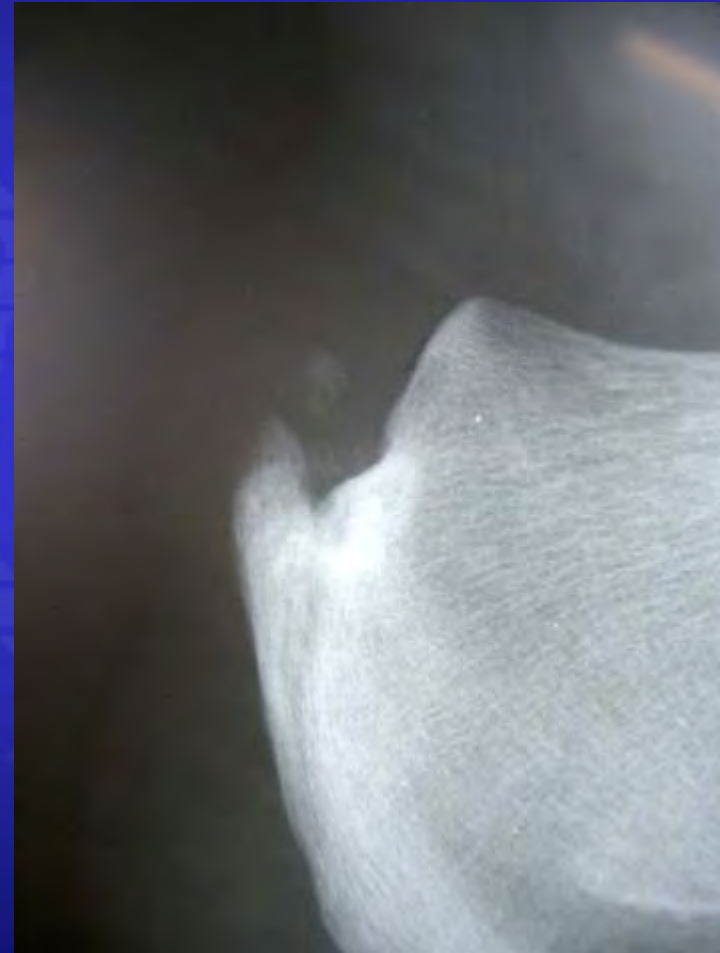


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# Don't forget plain X - ray



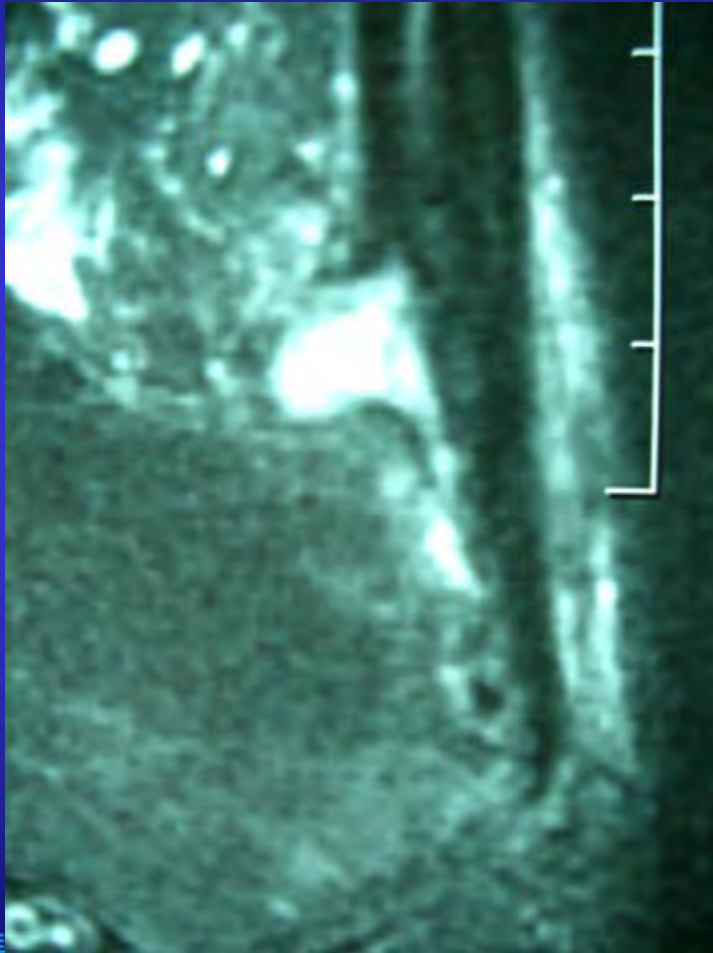
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# MRI used extensively



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



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# Treatment

“Evidence free zone”



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# Treatment

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



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# 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



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# Surgical options

- Percutaneous longitudinal tenotomy
- “Stimulates healing”
- ??How does it improve biology of healing??



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# Achilles tendonitis “FHL wrap”

Presented  
AOFAS annual meeting  
August 2008



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# What do I mean?

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



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# 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



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# The wrap



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# The wrap



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# 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



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# 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



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# Insertional tendinosis

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



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# 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



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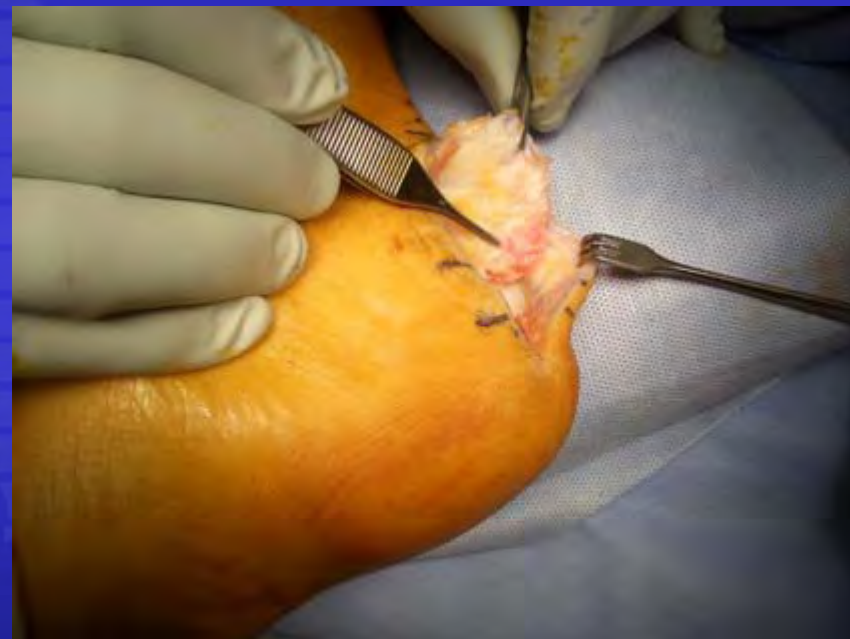
# Incision “de jour”



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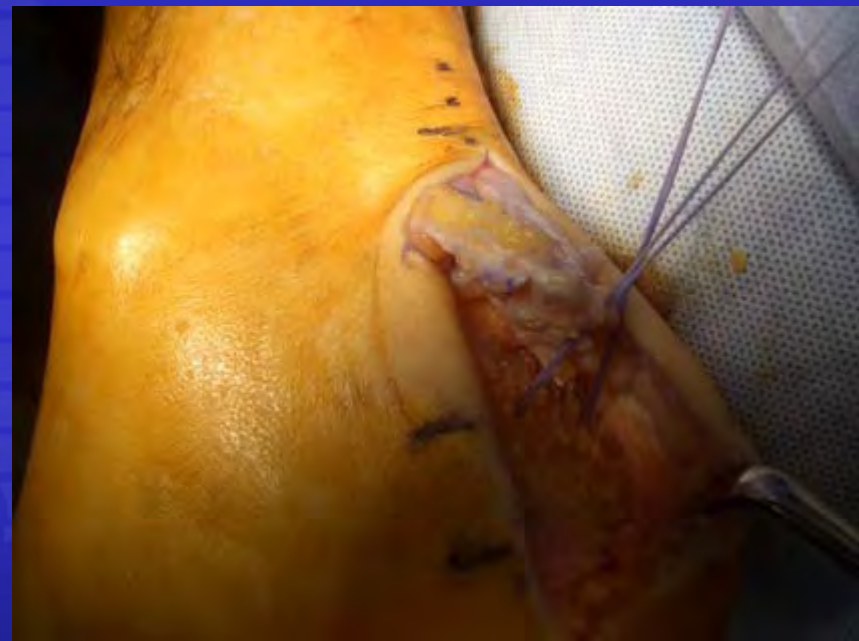
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# Double row repair



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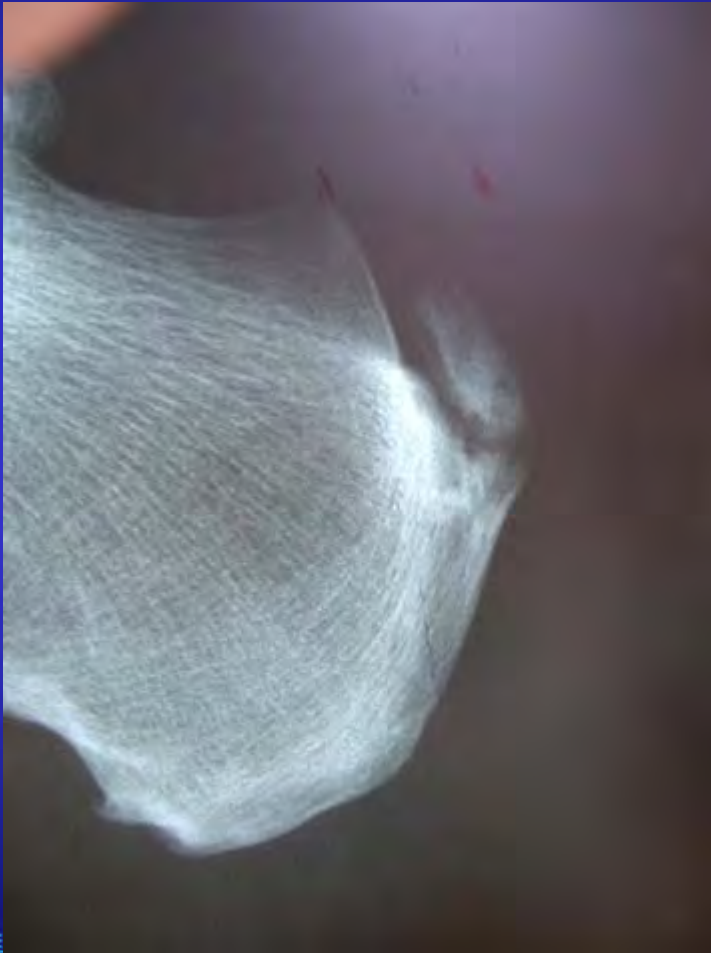
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# Achilles takedown



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# 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



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# Achilles rupture treatment

- Covered elsewhere
- Remember Ali Williams!!



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