Ankle Sports injuries

Common Extra-articular Conditions

- Lateral collateral ligament sprains (grades 1,2,3)
- Functional instability
- Mechanical instability
- Achilles tendonopathy (Achillodynia)
- superficial peroneal nerve injury
- Peroneal tendonitis
- Peroneal subluxation
- Syndesmosis pathology
- FHL tendonitis
- Deltoid ligament sprain

Common Intra-articular Conditions

- Osteochondral defect
- Anterior impingement
- Posterior impingement
- Os trigonum
- Sinus tarsi syndrome
- Subtalar joint sprain
- Meniscoid lesion
- Tarsal coalition
- Osteoarthritis
- Stress fracture


R
WEIGHT
BEARING


L

Osteochondral Defects of the Talus

- <6.5% of all ankle sprains
- may also be idiopathic
- bilateral in 10%
- medial posterior or anterior lateral

- HISTORY/PHYSICAL
- Hx of ankle sprain
- palpation
- Recurrent- swelling
  - stiffness
  - weakness
  - giving way
- Imaging:x-ray, CT, MRI

Lateral Ankle Sprains

- Commonest acute sports injury
- 53% of all basketball injuries (Garrick et al, 1973)
- 21% of all soccer injuries (Ekstrand & Tropp, 1990)
- 40% develop residual symptoms (Renstrom & lynch, 1999)
- 23,000 sprains/day in USA

Lateral Collateral Ligaments


RANGE OF MOTION

DIRECT PALPATION


ANTERIOR DRAWER
TEST(ATFL pathology)

Sprain Grading

- I: - Ligament stretch with no tear
  - no functional loss or instability
- II : - Torn ATFL or CFL
  - moderate pain, swelling, instability
- III: - ruptured ATFL, CFL, (PTFL)
  - significant pain, swelling, instability

Treatment of Ankle sprains

- RICE
- NSAID'S
- Ultrasound
- Interferential
- Laser
- Strengthening exercises
- Proprioceptive exercises
- Strapping: Figure of 6 or 8, Heel lock, basket weave, stirrup
- Brace
- Orthoses
- Footwear modifications
- Surgery

Brace vs No brace

- With acute injury immobilise in all 3 planes to allow weight bearing
- after 7 days allow sagittal plane motion but no frontal plane
- Brace during day until Rhomberg stable
- Brace during sport until wobble board stable

Eils et al 2002

- Comprehensive testing of 10 different ankle braces in subjects with ankle instability. Clinical Biomechanics 17; 526-535

X-ray Suspected Ankle Fracture (Ottawa Ankle Rules)

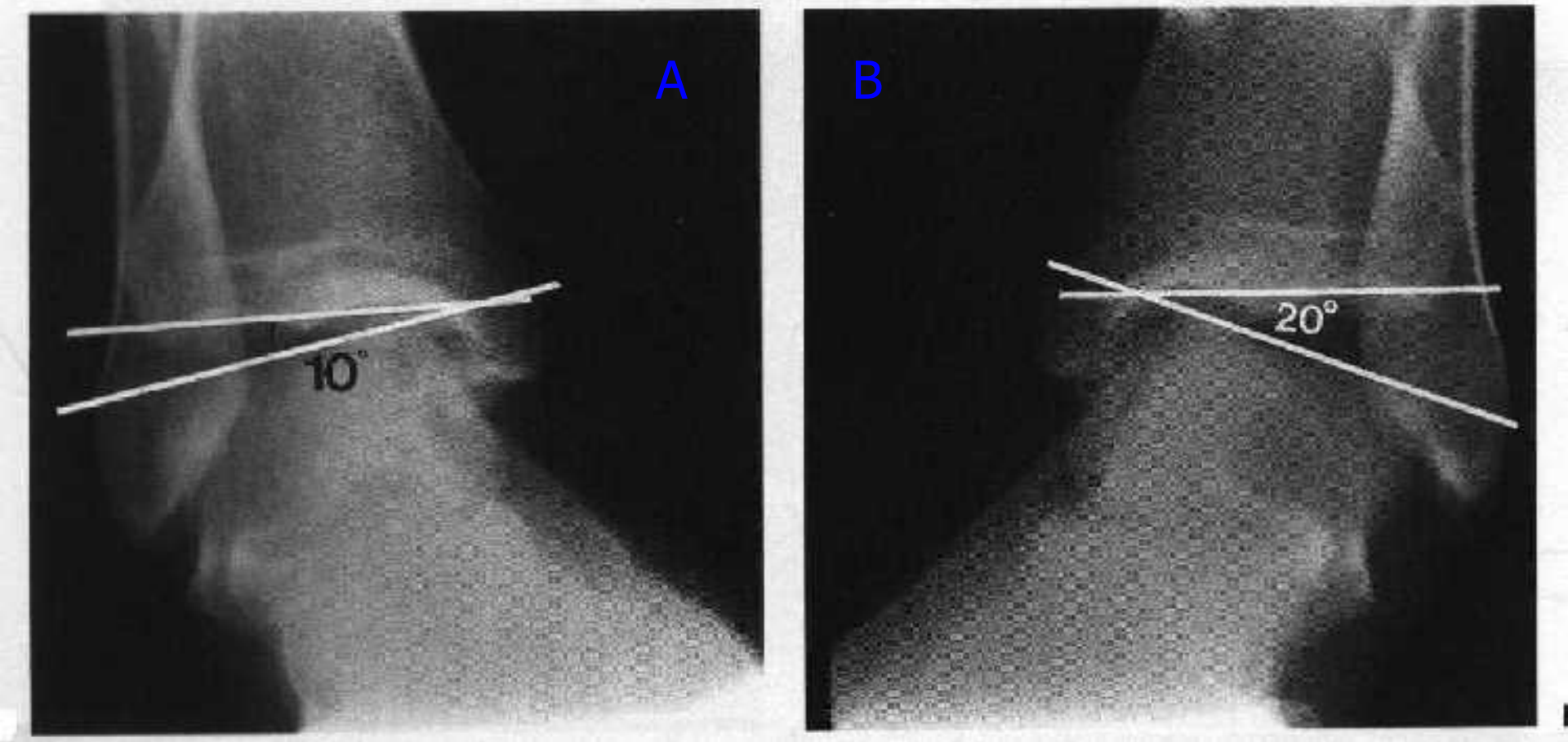
- Tenderness at either malleoli
- Inability to bear weight (for 4 steps)
- Pain at base of 5th metatarsal or navicular

X-ray Views- ? Fracture

- Standard Anterior-posterior
- Lateral View
- Mortise view (A/P with foot inverted)
- Foot views if pedal symptoms

X-ray Views- ? Instability

- Anterior drawer stress view- for ATFL instability. >10mm diagnostic (or >3mm from contra-l
- Talar tilt stres instability. Ti lateral side.



Inversion stress of the normal (A) and injured (B) ankle

Mechanical Versus Functional Instability

- FUNCTIONAL
- Motion within physiological limits
- Peroneal weakness
- Poor proprioception
- Poor balance
- STJ instability
- Reduced peroneal reaction time

- MECHANICAL
- Motion beyond physiological limits
- Grade 3 sprain (ruptured ATFL & CFL)
- Functional factors may also be present

Surgery ?

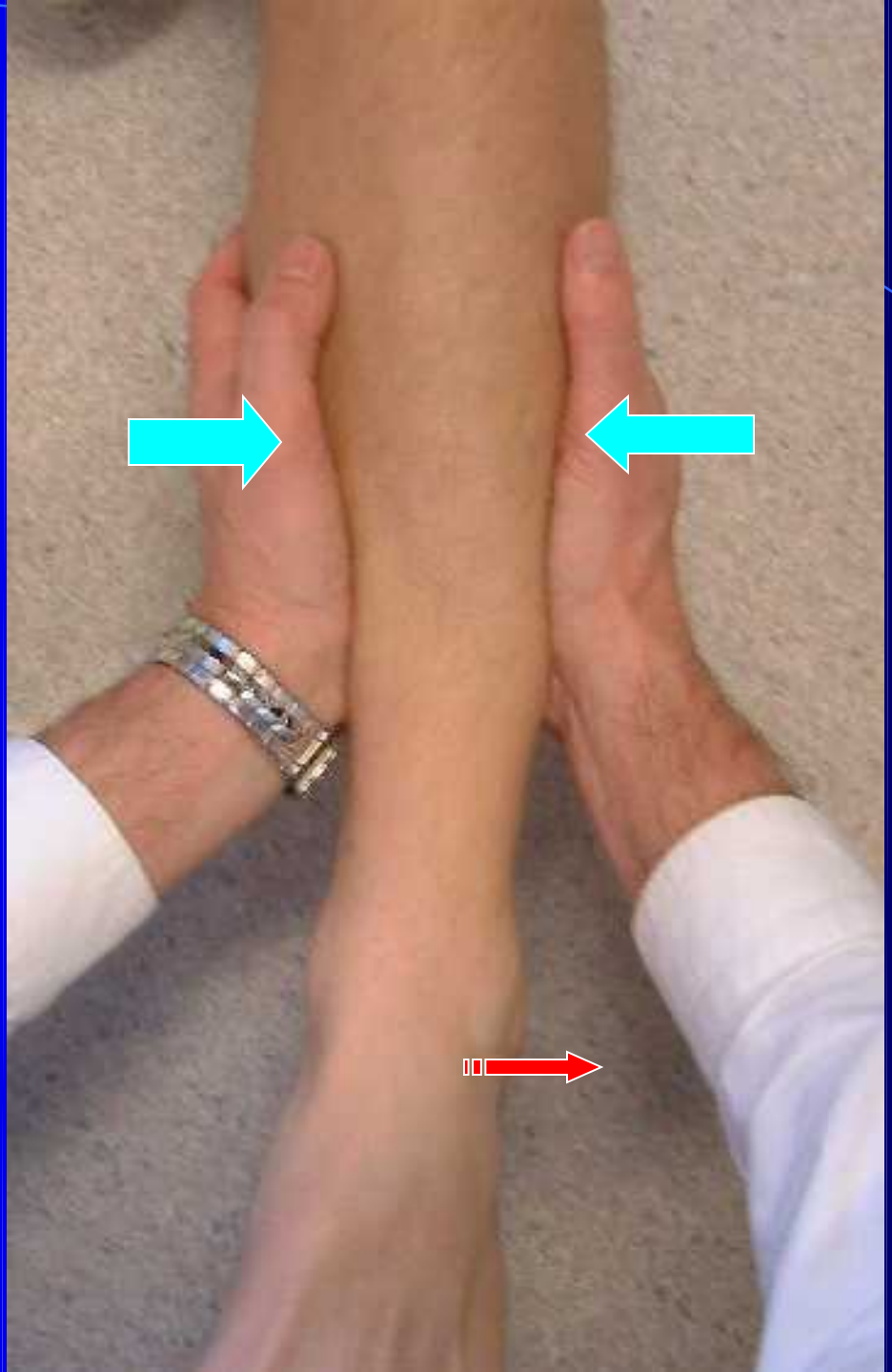
- FI with no MI = no surgery
- MI with no FI = no surgery
- MI with FI = proprioception, strength training. If no improvement then surgery

Other Pathologies With Ankle Sprains

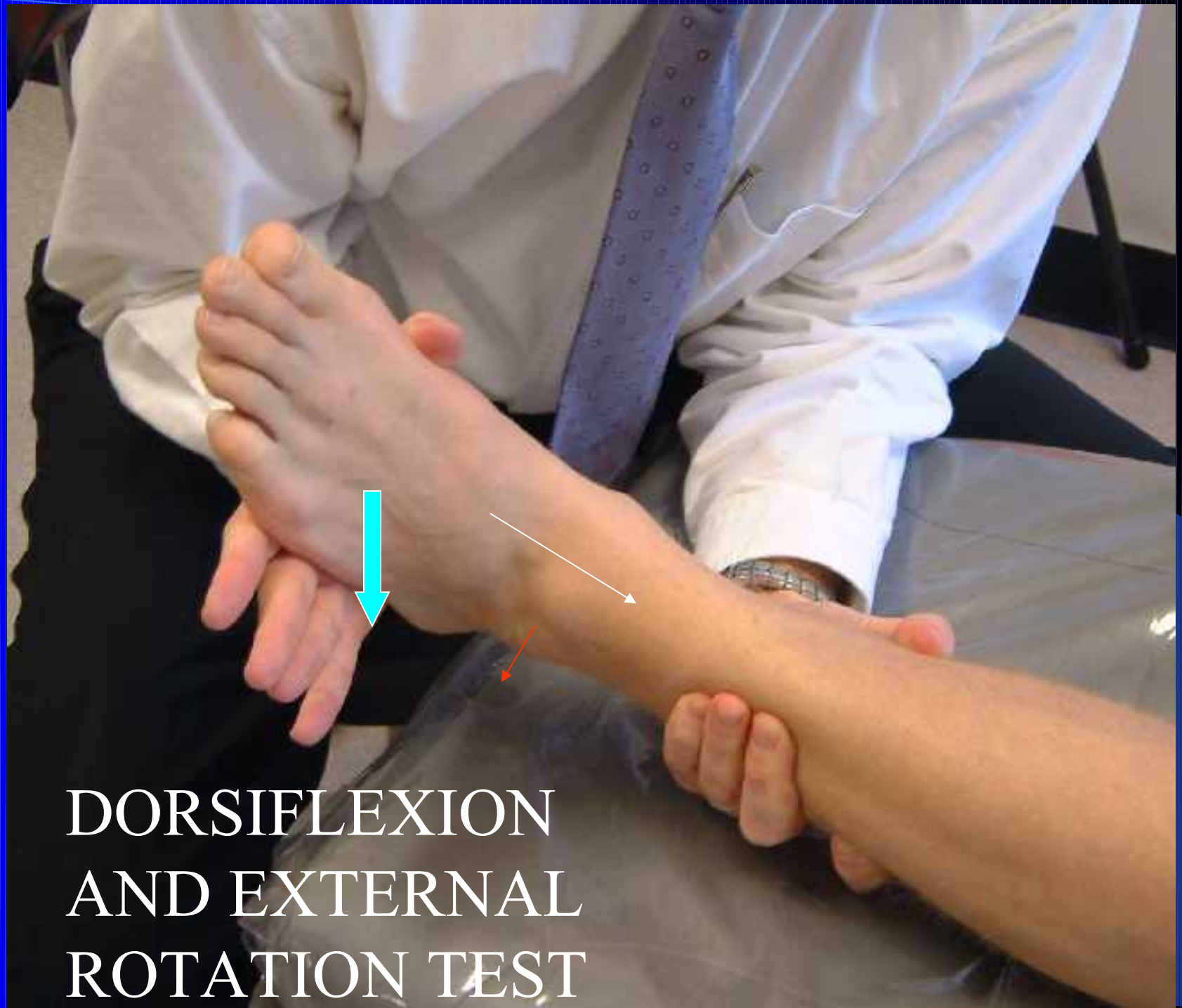
- Peroneal subluxation
- Osteochondral defect
- Talar stress #
- Syndesmosis injury
- Peroneal tears
- Soft tissue impingement
- Sinus tarsi syndrome
- Dorsal calcaneo-cuboid ligament avulsion
- Bifurcate ligament avulsion
- Neuropraxia
- Os Peroneum syndrome

Syndesmosis Pathology

- More common than instability (Gerber et al., 1998)
- Sprain or tear
- Usually anterior inferior tibio-fibula ligament
- Mid-shaft tib-fib compression test
- External rotation and dorsiflexion test



SYNDESMOSIS COMPRESSION TEST


DORSIFLEXION
AND EXTERNAL
ROTATION TEST

Treatment

- Strapping
- mobilisation
- Ankle brace
- Surgery

Subtalar Instability

- Difficult to differentiate from ankle instability
- Non-operative treatment is similar
- Can diagnose by subtalar tilt on inversion stress x-ray
- 40 degree Broden stress view

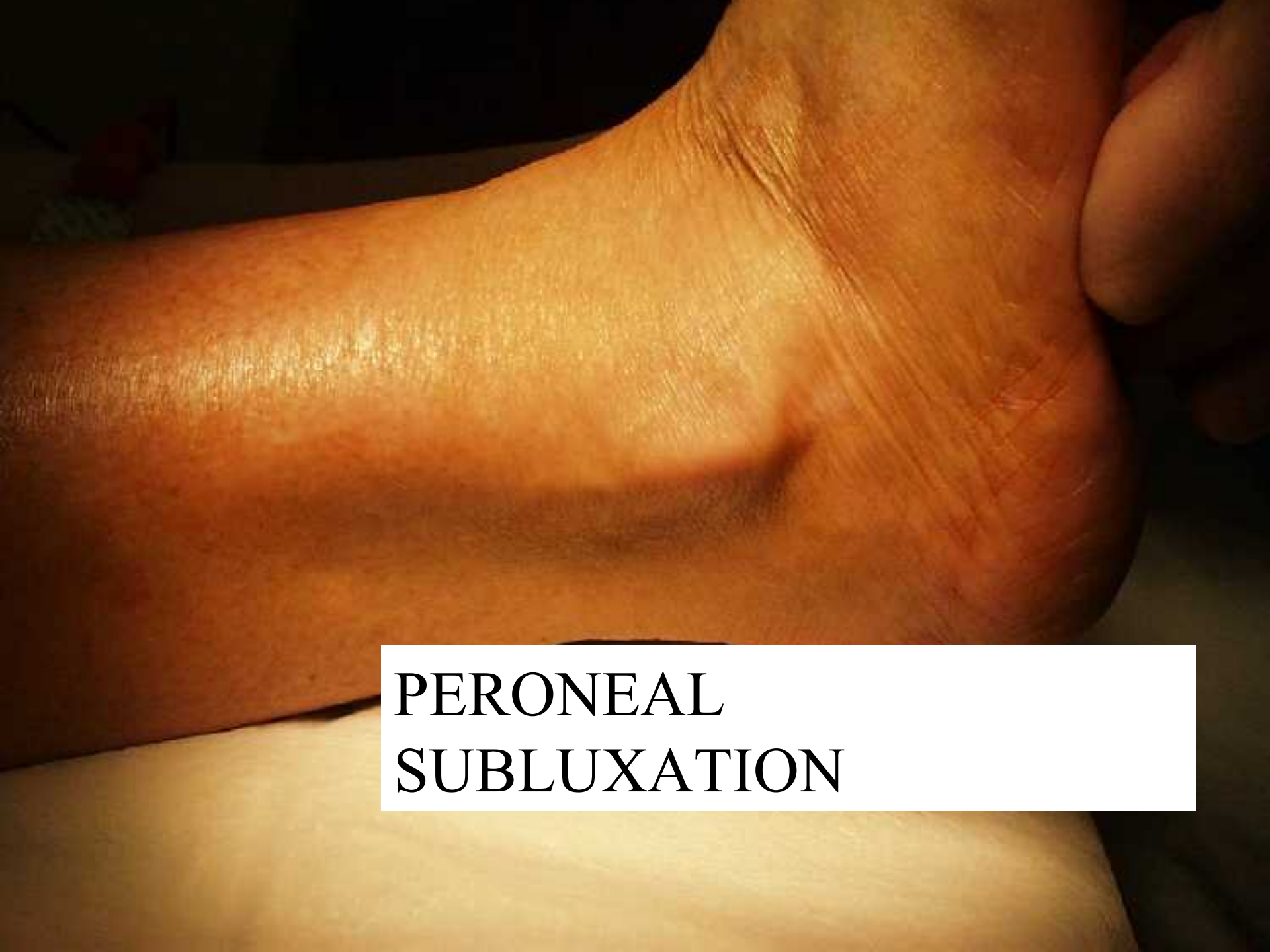
Peroneal Tendonitis

- Around the lateral malleolus (usually PBT)
- Lateral calcaneal wall and cuboid (PLT)
- Insertional PB Tendonitis (rare)
- Common post ankle sprain
- Usually with mechanical instability
- Often have occult intratendonous tear

Peroneal Tendonitis

- ASSESSMENT
- observation
- palpation
- resisted eversion
- U/S, MRI

- TREATMENT
- RICE
- ankle strapping
- brace
- lateral wedge/orthosis
- exercises
- surgery



PERONEAL SUBLUXATION

Peroneal Subluxation (Ruptured peroneal retinacula)

- Relatively rare
- Occurs with ankle dorsiflexion and eversion
- Seen in skiers, rugby players
- Visible subluxation
- Audible “snapping”
- Usually require reconstructive surgery

Achilles Tendonopathy (Achillodynia)

- Tendonitis
- Insertional tendonitis
- Paratenonitis
- Tendonosis
- Calcific tendonitis
- Tears and ruptures

Classification (Marks, 1999)

- Grade I: Peritendonitis
- Grade II: Pantendonitis
- Grade III: Tendonosis
- Grade IV: Insertional pathology

Achilles Tendonopathy Aetiology

- INTRINSIC
- Age
- Sex
- Obesity
- Hypovascularity
- Systemic disease
- Flexibility
- Structure

- EXTRINSIC
- Sporting activity
- Training errors
- Footwear
- Corticosteroid injections
- Steroids
- Flouroquinolone Antibiotics

Assessment

- Observation
- Palpation
- Resisted pl.flexion
- U/S, MRI
- Intrinsic factors
- Extrinsic factors


A
5 cm

Treatment

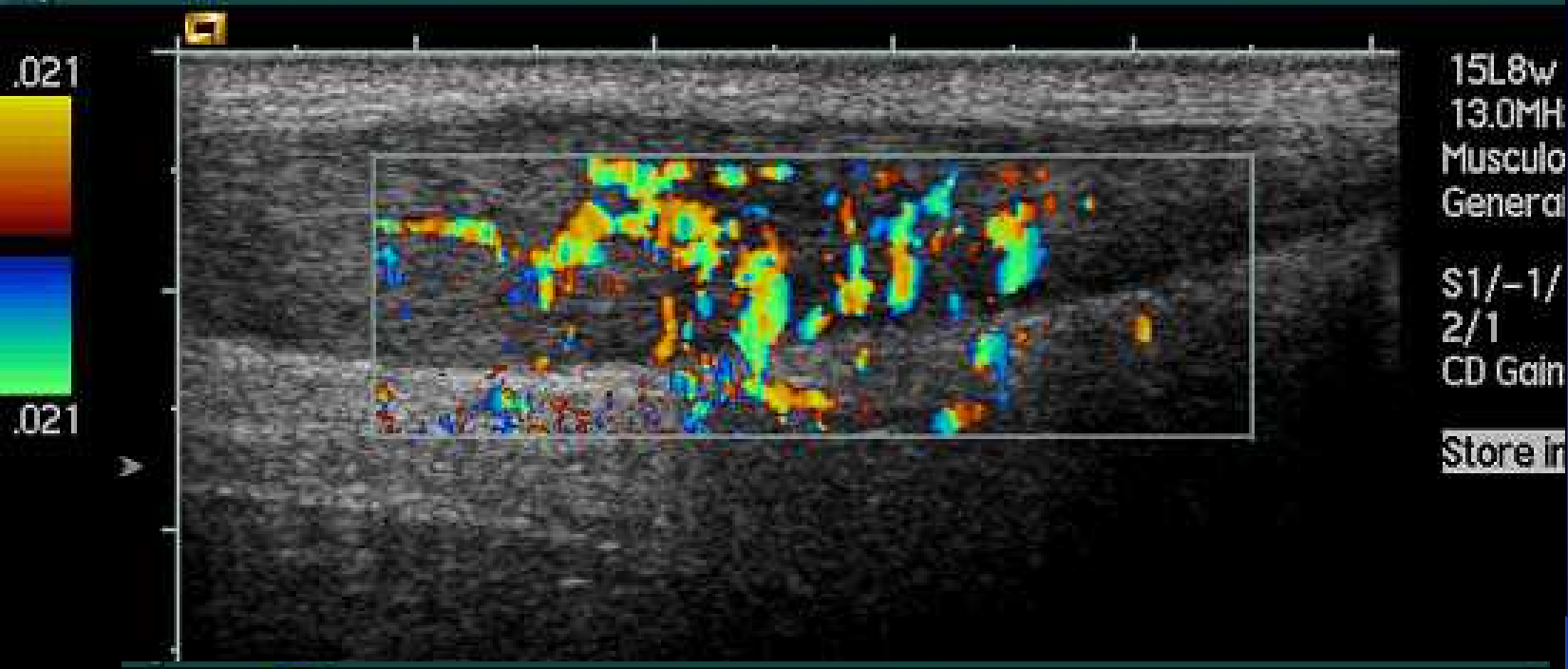
- Eccentric heavy load exercises
- Activity modification
- Training errors
- Increased flexibility
- Footwear
- Surgery
- NSAID's
- Strapping
- Orthoses
- Cold therapy
- other physical therapies
- Steroid injections

Eccentric exercise with Achilles tendonopathy

- Silbernagel et al 2001, Alfrederson et al 1998
- eccentric compared to concentric programme in 44 patients
- 82% full return with eccentric loading compared to 36% with concentric

Ohberg & Alfrederson 2002

- Use of pilidocanol injected into the neo-vessels of tendonosis under ultrasound guidance
- 80% cured at 6 months follow-up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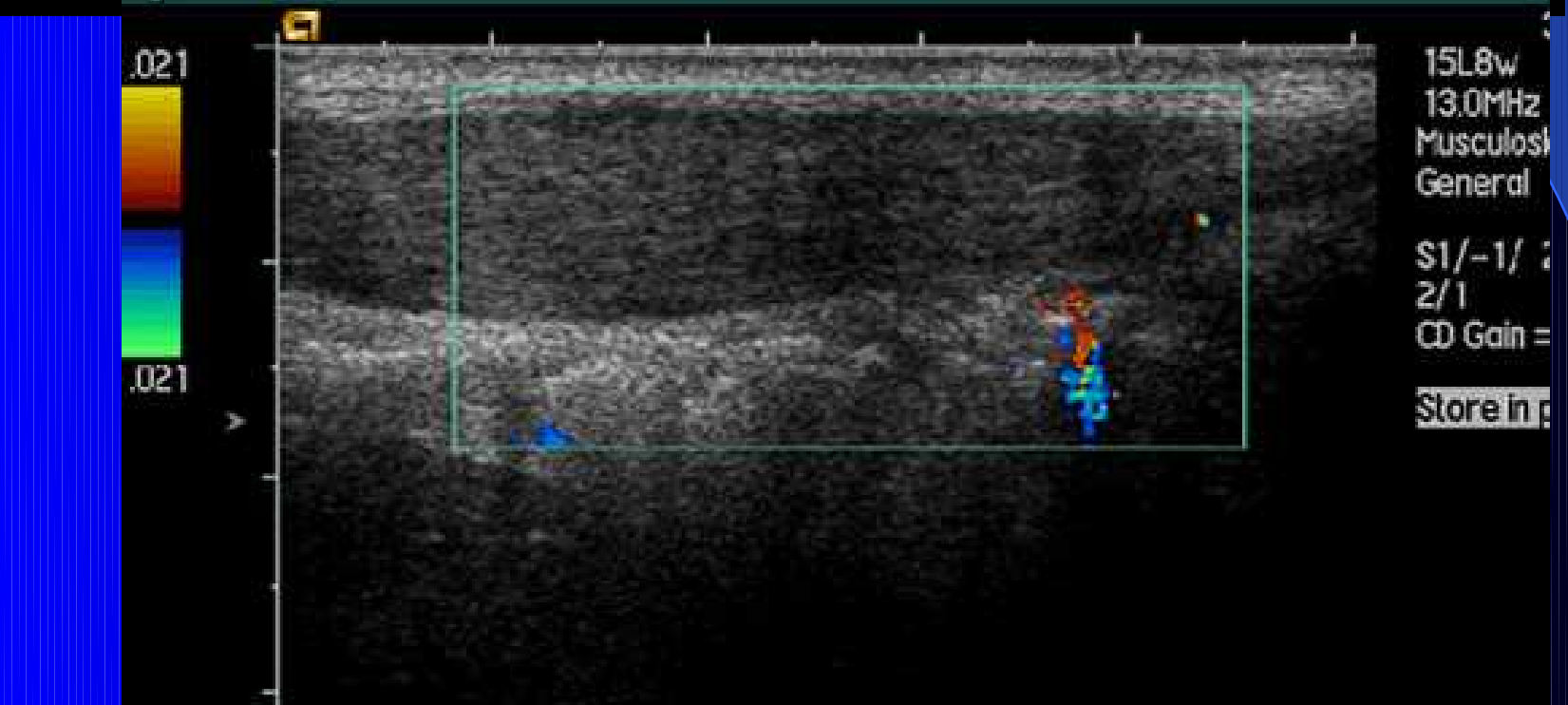
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QUESTIONS ?