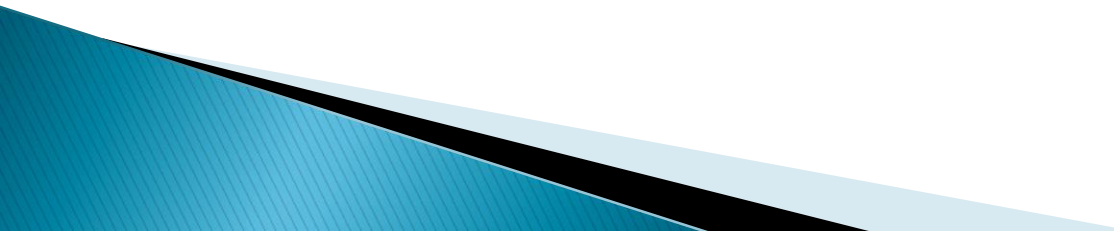


Sports Medicine Workshop– Pearls of Sports Medicine

Dr Chris Milne
Sports Physician
Hamilton

Topics to be discussed

- ▶ Bad backs
 - ▶ Tennis elbow
 - ▶ Difficult ankle sprains
 - ▶ Practical help for OA
 - ▶ Anything else you care to ask
- 

Living an active lifestyle



Bad backs – my approach

- ▶ Simple Waikato stuff, nothing fancy [from the people who brought you the rolling maul and Stephen Donald]
 - ▶ Identify the pain generating structures via history and examination
 - ▶ Use imaging selectively
 - ▶ Make a diagnosis, as specific as practicable
 - ▶ Treat what is treatable
 - ▶ Counsel for the rest, stay positive
- 

The bad back ? A design fault



Low
Back
Pain

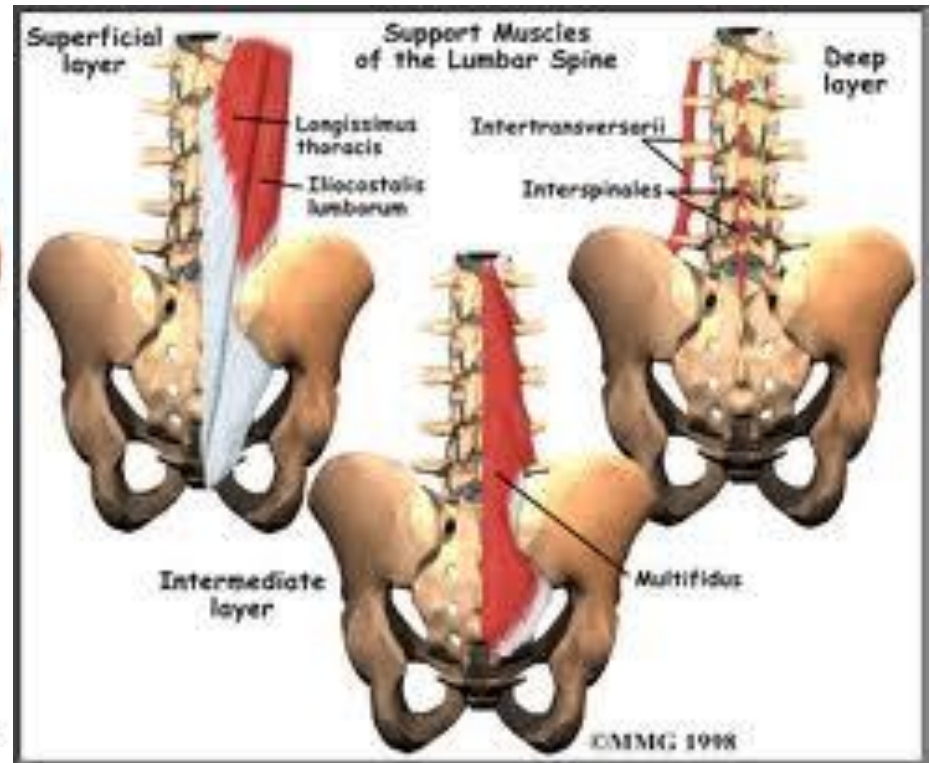
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7 scenarios

- ▶ Simple mechanical– the vast majority
 - a–disco genic
 - b–facet joint related
 - c–SI joint related
 - d–Mixed picture
 - ▶ Complex mechanical – following high energy injury
 - ▶ Radicular pain
 - ▶ Inflammatory condition
 - ▶ Spinal stenosis
 - ▶ Non spinal cause– intra abdominal pathology
 - ▶ Significant non organic component
- 

Mechanical pain– the most common cause of back problems



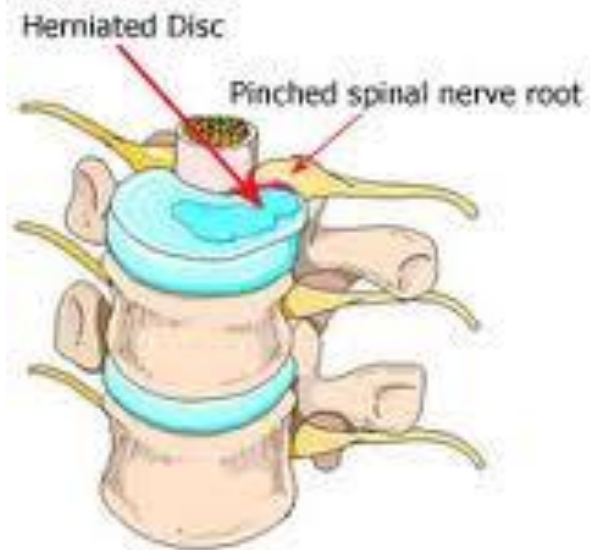
Simple mechanical– diagnosis and treatment

- ▶ Disco genic– flexion related
- ▶ Facet joint– extension related
- ▶ SI joint– pain on change of position
- ▶ Mixed picture
- ▶ Extension based exercises [a la Robin McKenzie]
- ▶ Manual therapy
- ▶ SI joint mobilisation, pelvic belt, injection
- ▶ Treat all components

Diagnosis– DIRECTIONAL PREFERENCE is key

Treatment – specific to diagnosis

Mechanical pain– the big 3 causes



Facet joint
arthritis

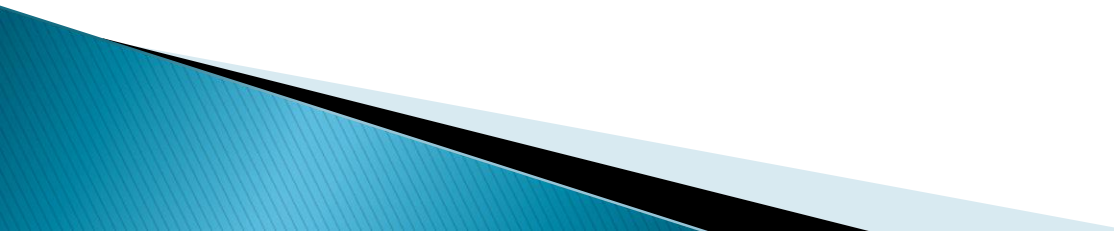


Sacroiliac
Joint
Dysfunction



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Core stability exercises

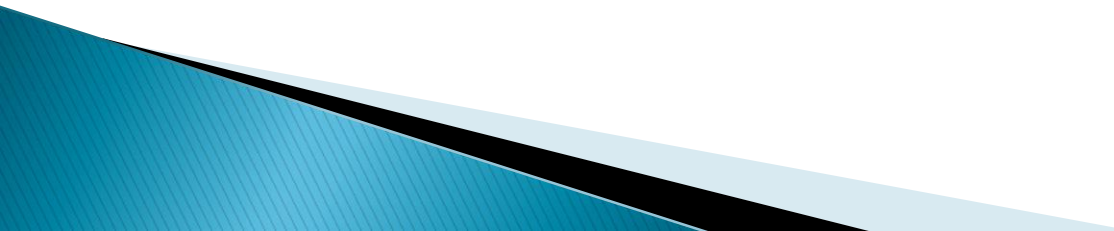
- ▶ Concept of the 'functional lumbar corset'. First popularised by Joseph Pilates about 100 years ago. Rediscovered after research by Stuart McGill about 20 years ago. EMG studies to back up the theory.
 - ▶ Largely replaced those old back braces of yore.
 - ▶ In the past 20 years, these exercises have become the mainstay of good back care
 - ▶ Patients need to do them daily to maintain function
- 

The core is key– you need a stable platform to operate from

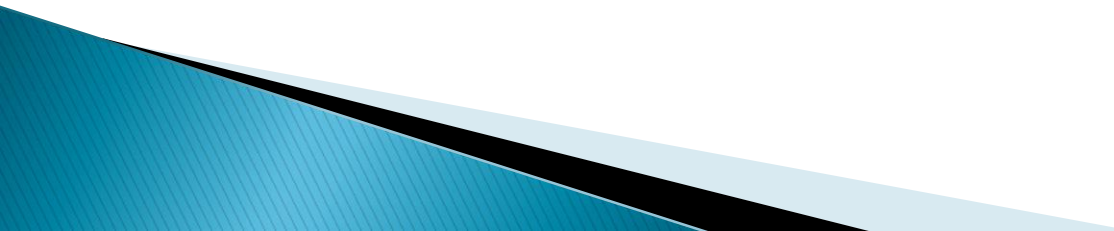


Examples of exercises McGill (2002) recommends to improve endurance of spinal stabilizers.

My tests for SI joint pain

- ▶ Tender over SI joint
 - ▶ Pain on active +/- resisted SLR
 - ▶ Pain on shear testing
 - ▶ Pain on FABER testing
 - ▶ Pain on forced extension of hip
- 

Complex mechanical

- ▶ High energy injury for that person, eg fall off roof for fit person, fall down 2 steps for elderly lady
 - ▶ Low threshold for x-rays, these may show # of vertebral body
 - ▶ Most have pain +++ for a few weeks which then settles well
 - ▶ Strong analgesia, ? avoid NSAIDS– may slow # healing
- 

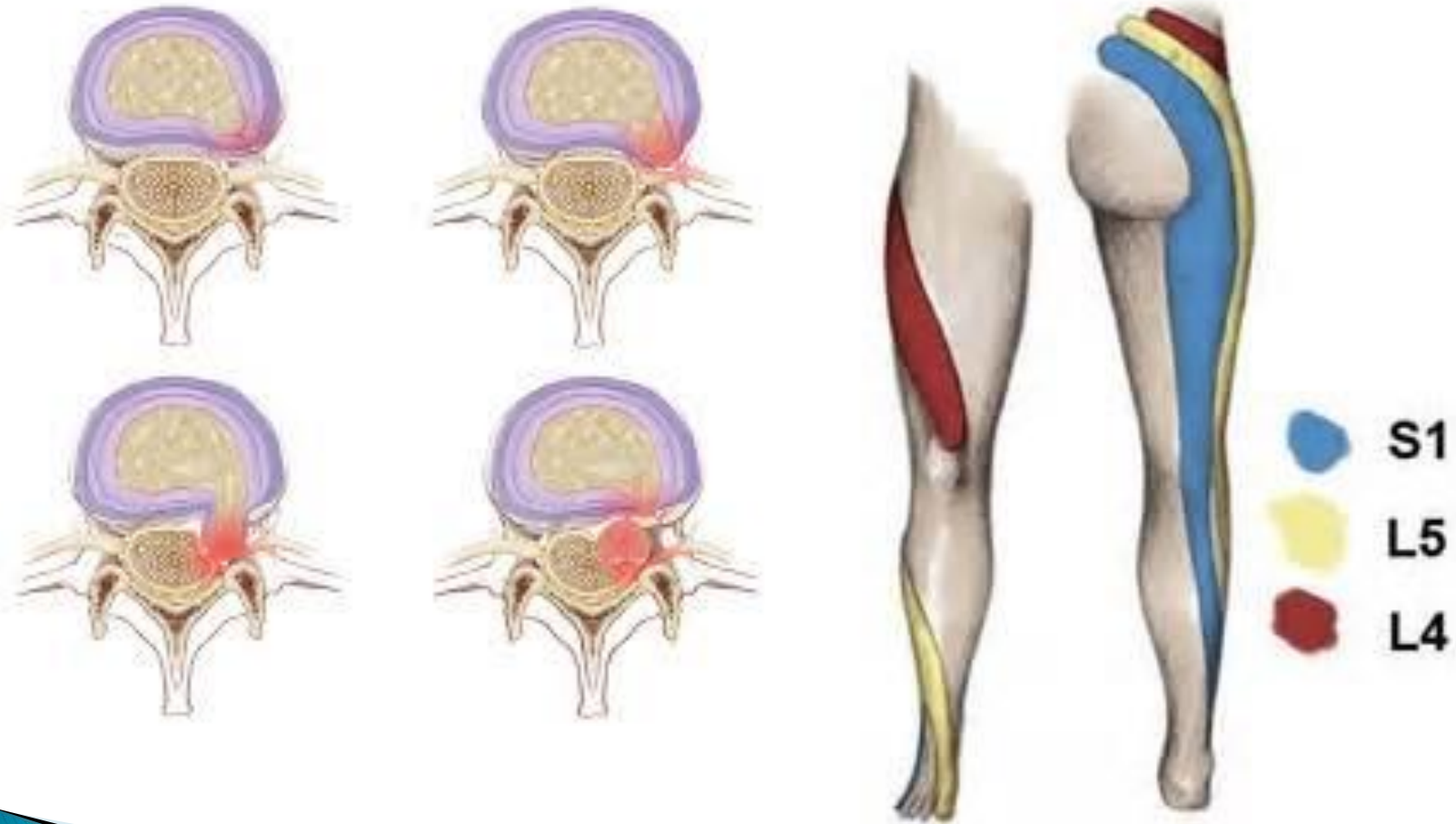
Wedge fractures– signify high energy injury for that individual



Radicular pain

- ▶ Leg pain > back pain
- ▶ Sharp, well defined, usually post leg [sciatica] but may be ant thigh [femoratica]
- ▶ Epidural steroid injections are marvellous, but you need to get them in for treatment rather than send them to manual therapists
- ▶ Know your myotomes and dermatomes
 - S1 [50%]– Plantar flexion weakness, sensory loss plantar surface and lateral foot, ankle reflex loss
 - L5 [30%]– Extension of big toe weakness, sensory loss dorsum of foot, no reflex change
 - L4 [10%]– Extension of knee weakness, sensory loss ant thigh and medial shin to big toe, knee reflex loss
 - L3 [5%]– Extension of knee weakness, sensory loss ant thigh only, not below knee, knee reflex loss

Disc herniation and its effects



Inflammatory pain

- ▶ Night pain with sleep disturbance
- ▶ Morning stiffness, hours rather than minutes
- ▶ Responds well to NSAIDs
- ▶ Young man with prolonged back pain and morning stiffness, think– could this be early ankylosing spondylitis?
- ▶ SI joint pain, usually bilateral
- ▶ X ray changes occur late
- ▶ Blood tests, check CBC, ESR, CRP [NB– in most other cases of low back pain, the yield from blood tests is poor, unless red flags are present]

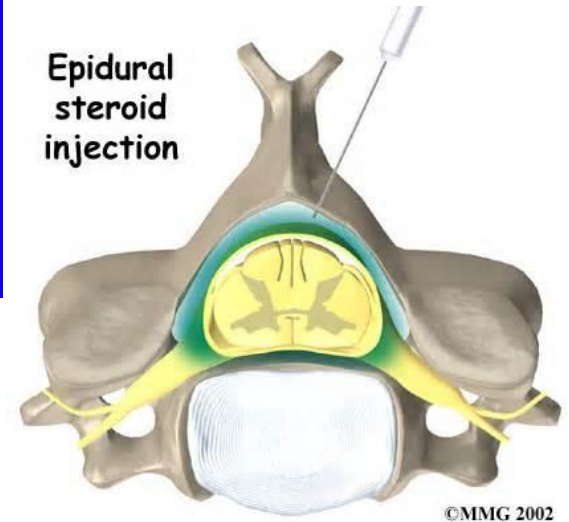
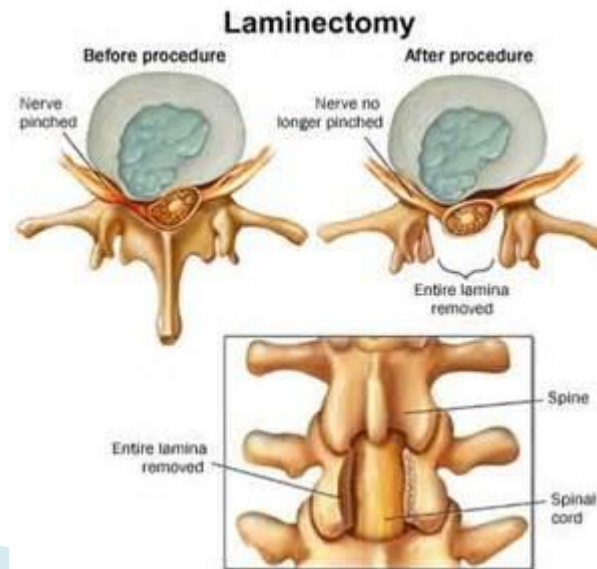
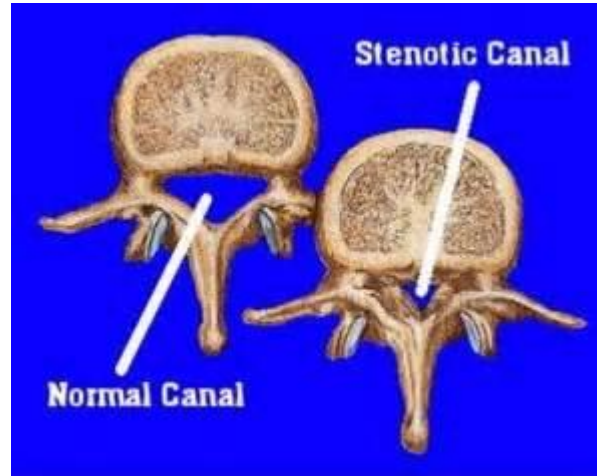
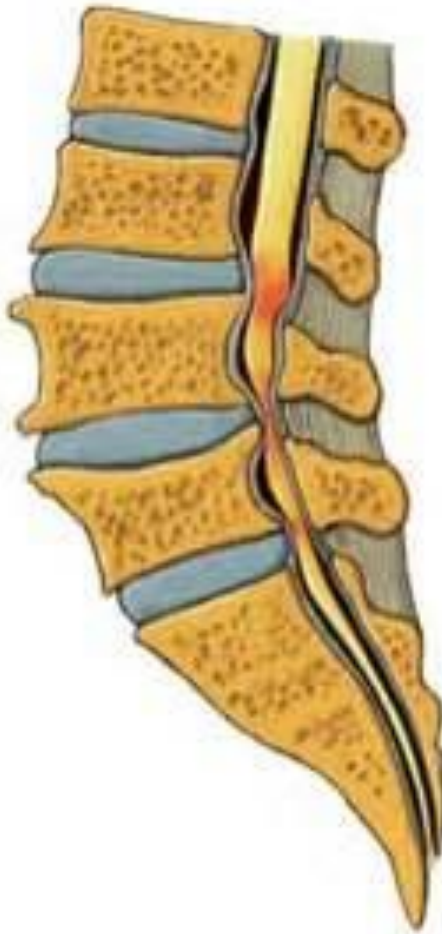
Young man with a stiff back– think possible ankylosing spondylitis



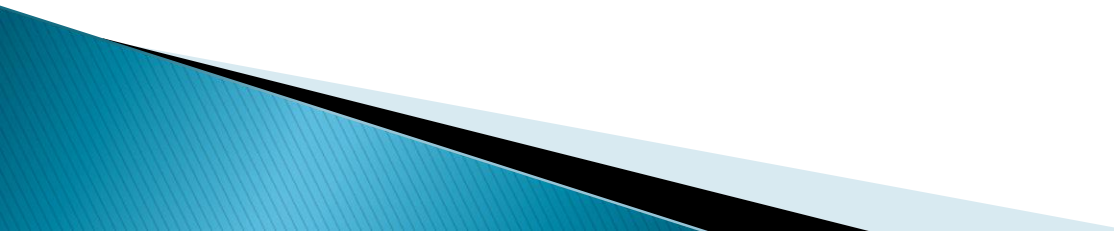
Spinal stenosis

- ▶ Older patient, leg pain predominates
- ▶ Progressive reduction in walking tolerance
- ▶ Worse downhill [as this narrows the central spinal canal] , compared with claudication, which is worse uphill
- ▶ Usually significant disc plus facet joint disease
- ▶ ACC will pay for specialist consultation and probably MRI scan, but not for surgery [don't give your patient false hope about this]
- ▶ They need surgical decompression or a drastic change in lifestyle. Epidural injection may give temporary relief for a month or two [may help them get through a trip overseas]

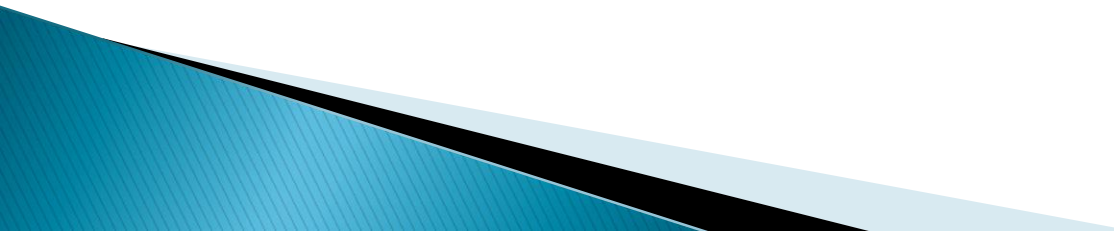
Spinal stenosis– pathology and treatment



Non spinal cause– usually intra-abdominal pathology

- ▶ Need to pick this up, as this is what patients come to see doctors rather than physios for
 - ▶ Check for red flags eg weight loss, PR bleeding, jaundice, haematuria
 - ▶ Things to look out for–
 - 1–GI– Carcinoma colon, pancreas, liver
 - 2–Renal– tumour, stone [although usually this will be pretty obvious with painful haematuria]
 - 3–Vascular eg aortic aneurysm
- 

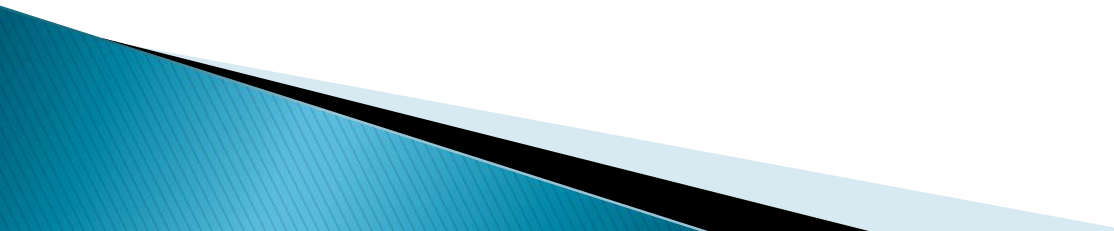
Significant non organic component

- ▶ Common scenario– man in heavy manual job with limited education who gets back pain in his 30s or 40s– not many other options he is familiar with, pressure from his boss
 - ▶ Also, those with mental health issues and back pain have a poorer prognosis than those who are mentally well. Less chance of remaining at work ,and secondary social issues that follow. Friday afternoon patients.
- 

Non organic pathology– do NOT try to manage this on your own



Things GPs could do better

- ▶ Consider directional preference, as this may give a clue to the pain generating structures
 - ▶ Identify those with radicular pain and get them to a medical specialist who can arrange referral for an epidural injection
 - ▶ Don't give patients the expectation that a specialist will order an MRI scan, as all that does is tie the specialists hands behind their back!
- 

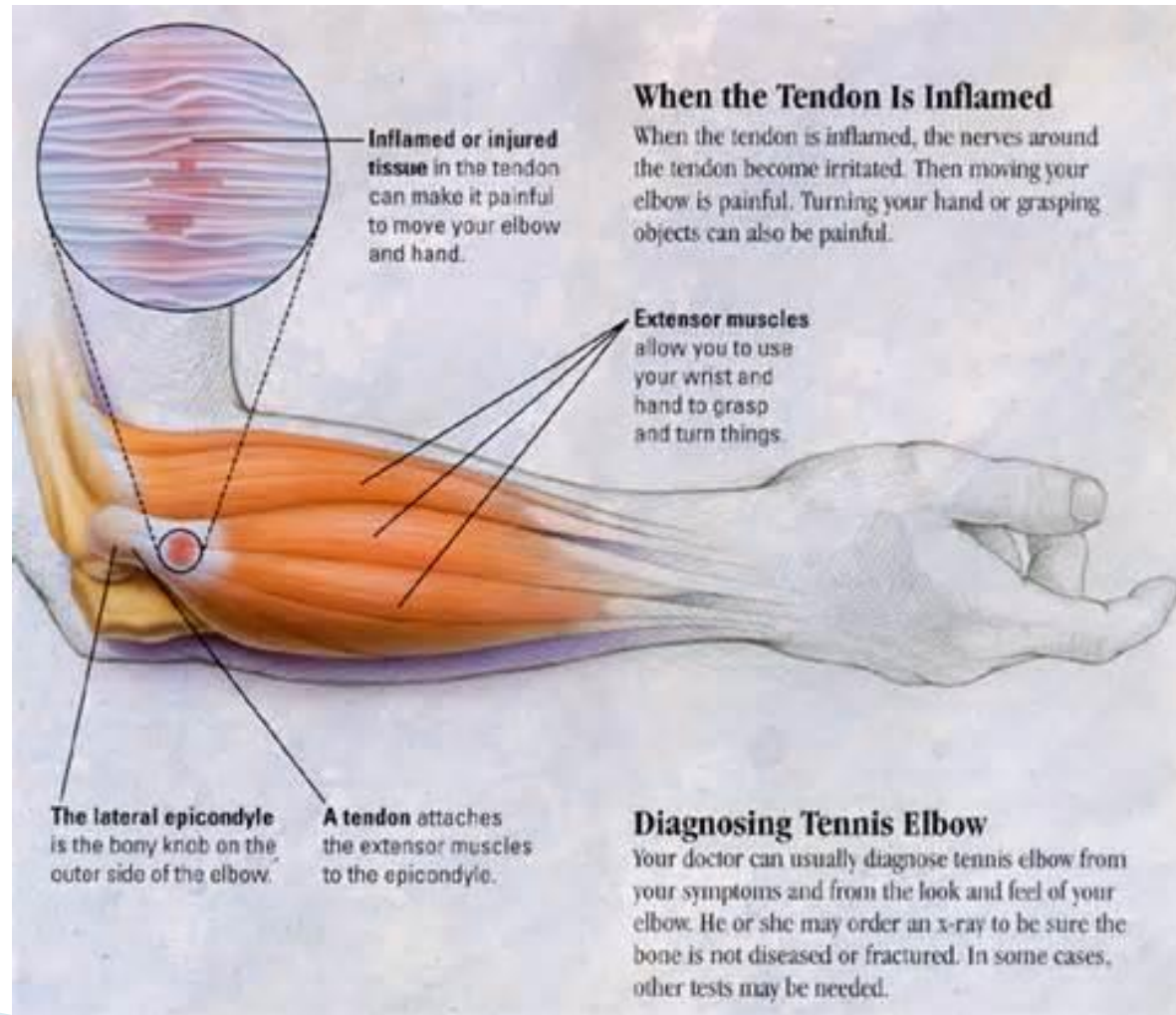
**Get someone else involved– it will
take the heat off you!**



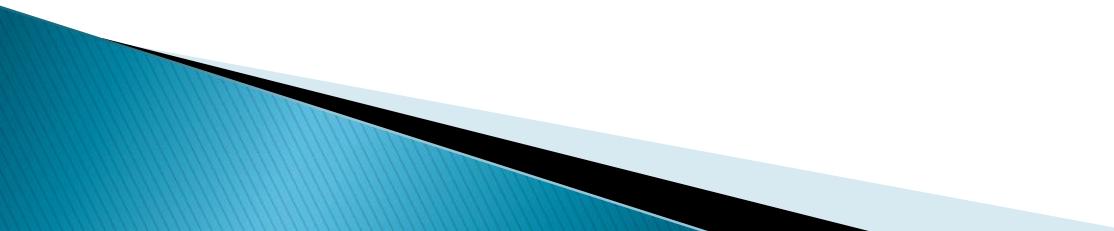
Tennis elbow

- ▶ It is a tendinopathy of the ECRB [extensor carpi radialis brevis] tendon
 - ▶ Tendinopathy implies a failed healing response in the tendon
 - ▶ Therefore, a progressive concentric then eccentric loading regime is ESSENTIAL to get clinical improvement
 - ▶ All other treatments eg cortisone, blood injections are adjunctive treatments to the exercise regime
 - ▶ Only rarely is surgery required
- 

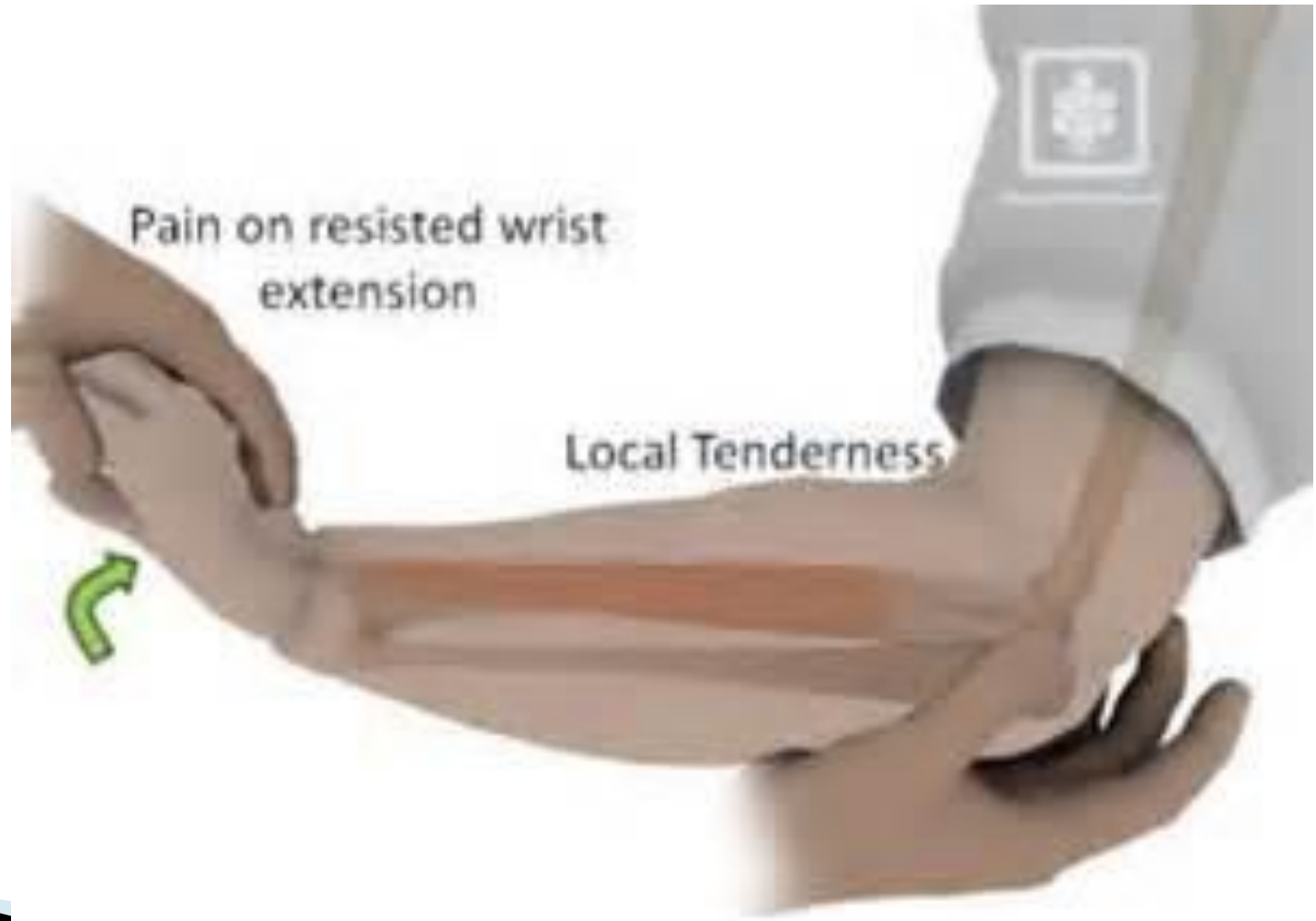
Tennis elbow– usually involves tendinopathy



Clinical testing

- ▶ Tender over lateral epicondyle
 - ▶ Full range of motion of elbow
 - ▶ Stable elbow joint [to valgus and varus stress]
 - ▶ Pain over lateral epicondyle on resisted extension of wrist and middle finger
 - ▶ Absence of vasomotor change [otherwise suspect CRPS]
- 

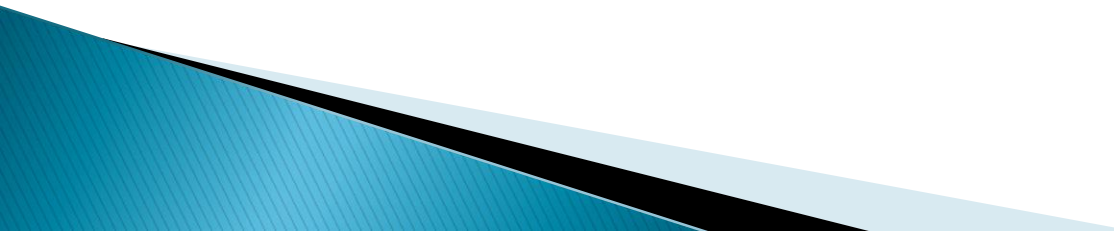
Tennis elbow– confirmation of the diagnosis



Imaging for tennis elbow

- ▶ May be indicated if not settling with standard regime
- ▶ Also if a blow to the elbow has occurred [think partial tear of ECRB]
- ▶ If ordering an ultrasound, get an X-ray too– it may show joint space narrowing that you will otherwise miss

The exercise regime

- ▶ Get a weight in an old sock or stocking
 - ▶ Start with 250 grams ie a small tin of baked beans
 - ▶ Perform repeated lowering and raising of the weight, with the forearm supported
 - ▶ Tell the patient to watch TV or have some other distraction, or they will get bored and stop their exercise
 - ▶ They must build up to 90 reps/day
 - ▶ Week 1–start with 3 sets of 5 reps, twice per day
 - ▶ Week 2– go up to 3 sets of 10 reps, twice per day
 - ▶ Week 3– go up to 3 sets of 15 reps, twice per day
 - ▶ Week 4– increase the weight to 500gm and repeat the incremental sequence
- 

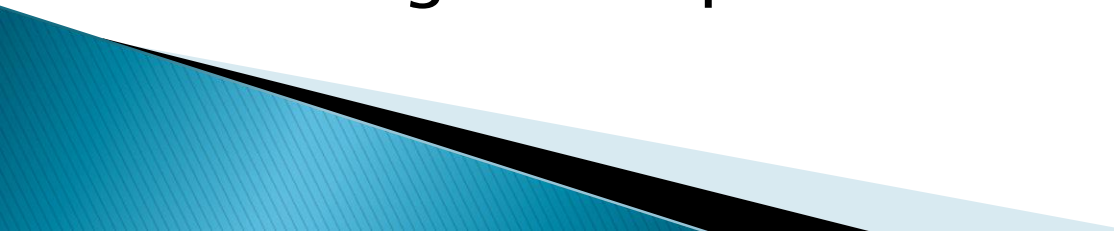
Differential diagnosis of lateral elbow pain

- ▶ Partial tear, esp after a blow to the area. May be helped by an u/s guided blood injection
- ▶ Entrapment of PIN [posterior interosseus nerve]– pain 2–3 cm distal to lateral epicondyle. Worse with tennis elbow band, due to local pressure. Needs surgical decompression
- ▶ Referred pain from neck, ? C7 root lesion, may have weakness of elbow extension present. Consider cervical epidural injection
- ▶ # of radial head– may need oblique view to profile this. Orthopaedic referral required
- ▶ OA of lateral compartment of elbow– no simple magic, just load reduction

Tennis elbow treatment



Things GPs could do better

- ▶ Recognise the central role of concentric then eccentric exercises in rehab of tennis elbow
 - ▶ If new vessel formation seen on ultrasound scan, consider early LA/steroid injection to deal with the new vessels
 - ▶ If a partial tear is seen on ultrasound scan, consider a blood injection to try and speed up healing of the partial tear
- 

The cure for tennis elbow is a long way off!



Difficult ankle pain

- ▶ Mechanism– 90% inversion injuries [patients call these rolling out] 10% eversion injuries [patients call this rolling in]
- ▶ Rx RICE, strapping, analgesics, progressive activity
- ▶ Most ankle sprains settle well in about 3–4 weeks
- ▶ If not settling, need to consider the following
 - 1–Lateral gutter irritation– pain on lunging, felt over lateral gutter. Consider medial foot support plus ? cortisone injection
 - 2–Functional instability [patients call this ‘weak ankles’]. They roll their ankles repeatedly. Need proprioception and everter muscle strengthening exercises. Remind them it’s THEIR ankle, not yours, and the function they get out of it is directly proportional to the work they put in. Only 2 out of 168 hours per week max will be spent at physio– hence home based programme

Antero-lateral ankle impingement

Common and easily treatable



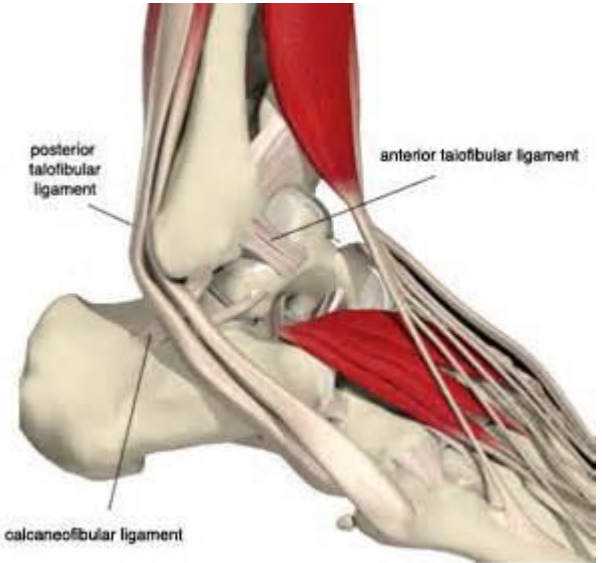
Difficult ankle continued

3-Posterior impingement- need x-ray including a 'lazy lateral' view to look for an os trigonum or prominent posterior process of talus. Cortisone injection very helpful, and should work within days

4-ATFL rupture. If a positive anterior drawer test is present, put them in a moonboot for 3 weeks to enable this to heal.

5-Peroneal tenosynovitis- lateral swelling plus occasional instability of tendons. Consider u/s guided injection to tendon sheath

Posterior and anterior ankle spurs, rupture of ATFL, peroneal tendons



Copyright Primal Pictures

Difficult ankle continued

6–Associated ankle fracture

a–Lateral malleolus

b–Talar dome

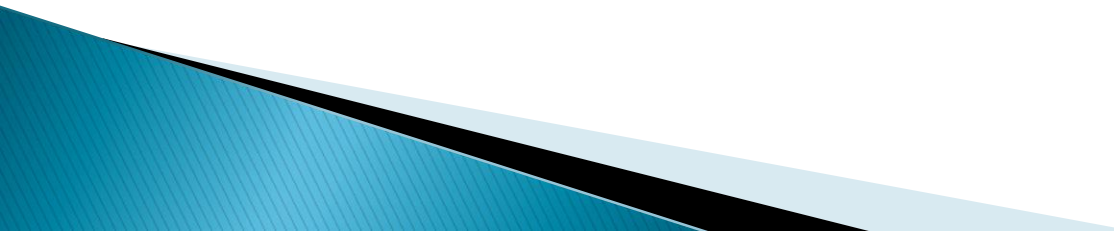
c–Base of 5th metatarsal

d–Medial malleolus

e–Anterior process of talus

f–Anterior process of calcaneus

7–High ankle sprain– syndesmosis injury. Consider this after an eversion injury. Needs specialist referral, as otherwise get post traumatic arthritis.



Talar dome lesions, syndesmosis injury [high ankle sprain]



High ankle sprain

What is a common ankle sprain?

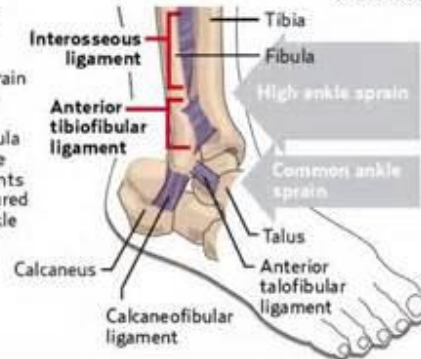
A tearing of the ligaments that connect the Fibula to the Talus or Calcaneus.

Injured ligaments

A sprained ankle occurs following a sudden sideways or twisting movement of the foot.

Detail of high ankle sprain

A high ankle sprain is a tear of the ligaments that connect the Fibula to the Tibia. The adjacent ligaments may also be injured when a high ankle sprain occurs.



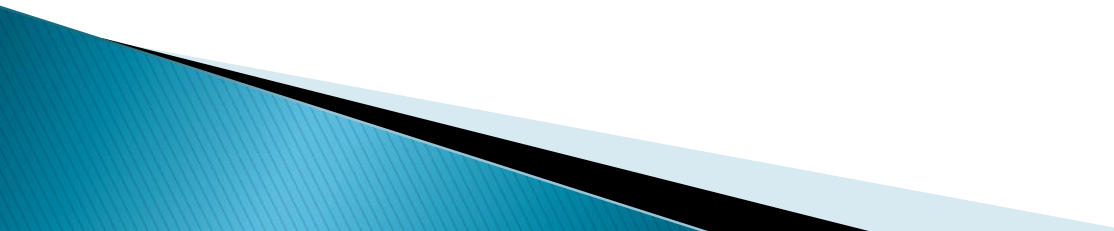
SOURCES: MCT AND TRIBUNE-REVIEW RESEARCH

BOB NEWELL/TRIBUNE-REVIEW



Difficult ankle continued

8-Complex regional pain syndrome [CRPS]. Pain +++ with vasomotor change. You may feel you are suffering more than the patient. Need atypical pain modifiers. I start with low dose Nortriptyline 10 mg at night and titrate the dose upwards. Otherwise use Gabapentin or Clonidine patches. All of these can cause side effects- find what works best for your patient.



Complex regional pain syndrome

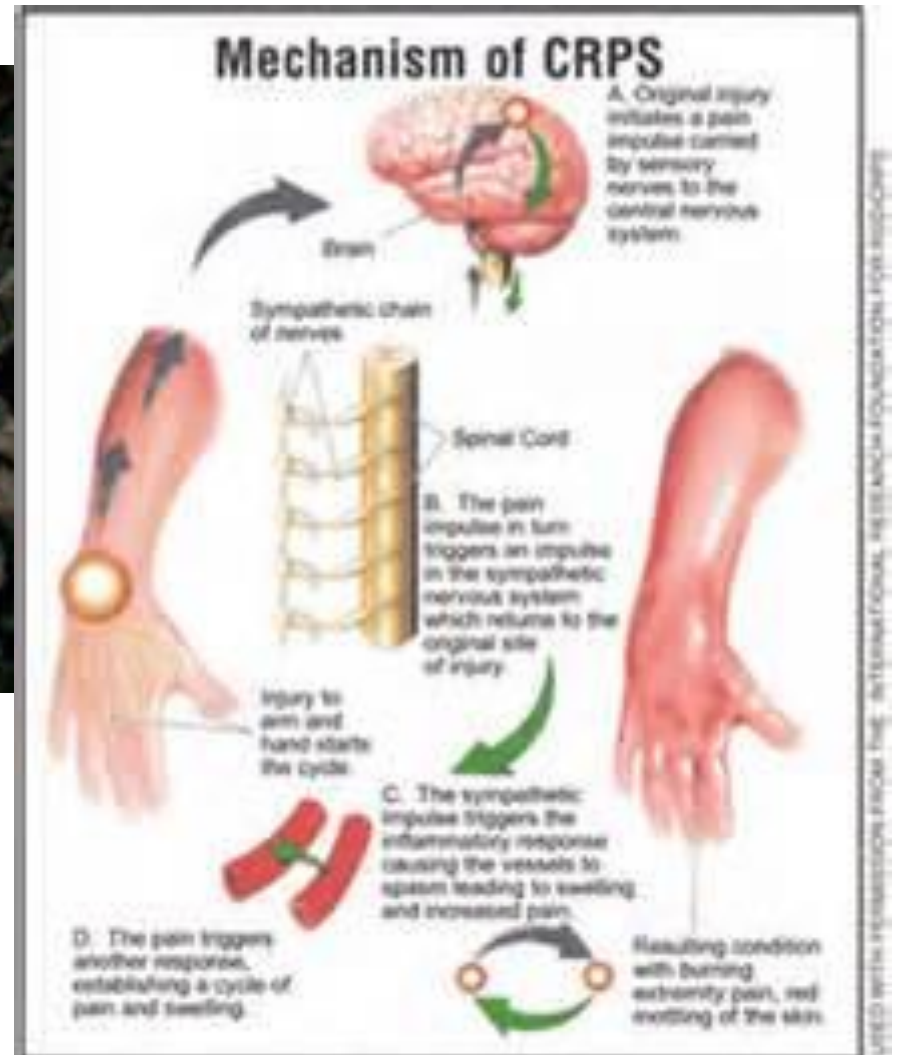
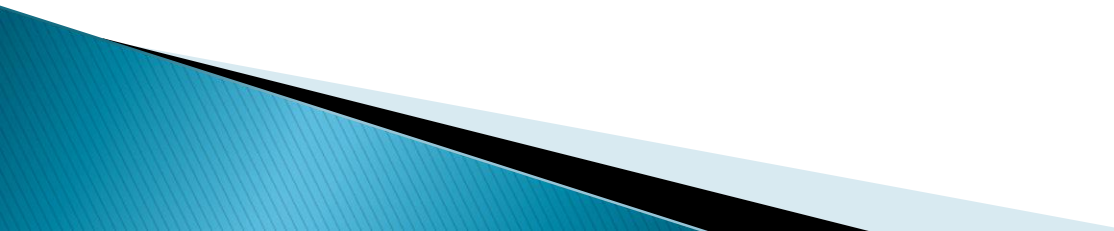


Figure 1. The exact mechanism of complex regional pain syndrome (CRPS) is unclear. This depicts a simplified version of how an injury might result in the symptoms associated with CRPS.

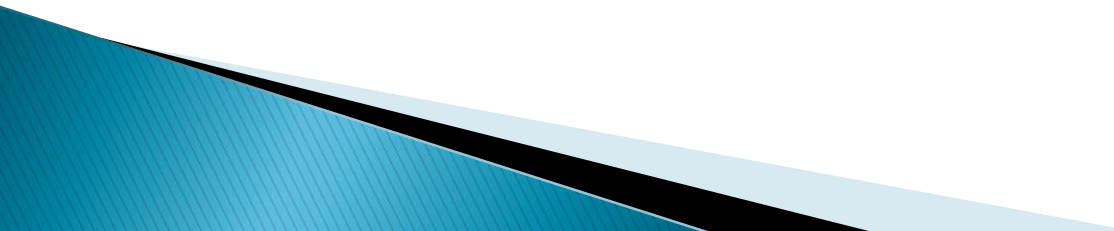
Things GPs could do better

- ▶ Identify lateral gutter irritation and manage this actively or refer on for specialist management
 - ▶ Identify functional instability and emphasise that it is the PATIENTS responsibility to work on their exercises. Too many people are passive consumers of health care, soaking up doctor and physio time, and as much fuss as they can get.
- 

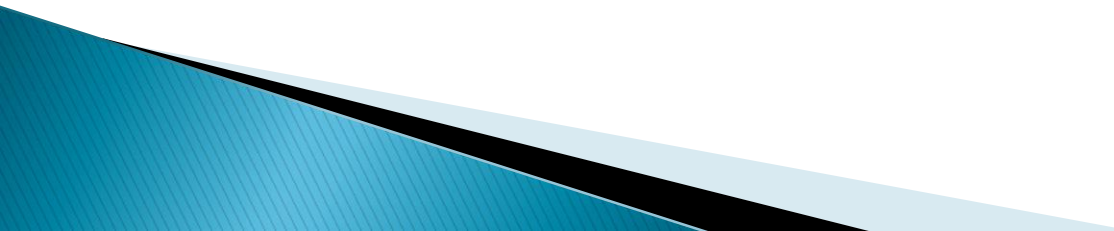
Restore plantar flexion and you will make her very happy!



Practical tips for OA

- ▶ Education – OA is a pan joint disorder, affecting all parts of the joint.
 - ▶ Pain is mainly mechanical, so demands a mechanical solution
 - ▶ Arthritis does not equal wheelchair
- 

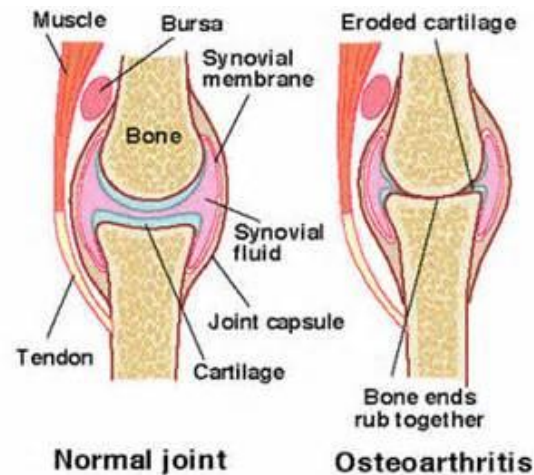
Is it OA or post traumatic arthritis?

- ▶ Eg for knees– post menisectomy, post ACL rupture, post intra-articular fracture
 - ▶ ACC assistance may be available
 - ▶ Patient needs to track down their old records
 - ▶ Hip pocket reflex operates– this will focus the patient's mind!
- 

OA of major joints is a major challenge to all of us

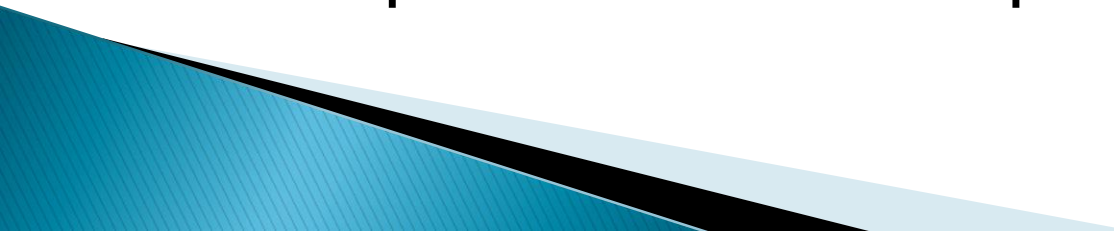


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Bonsall

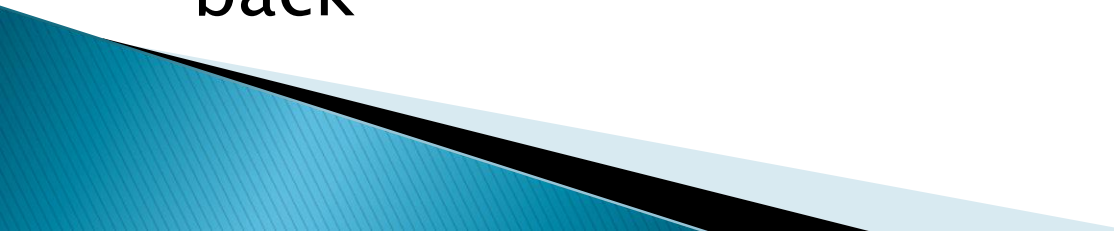
Strategies to employ for OA

- ▶ Activity modification– substitute cycling for running
 - ▶ Well cushioned footwear
 - ▶ ? Orthotics, over the counter or custom made, depending on the circumstances
 - ▶ Judicious use of NSAIDs or COX2 agents eg before golf or fishing, or going shopping
 - ▶ Occasionally, a cortisone injection can help a patient over an important event eg much anticipated overseas trip
- 

Activity modification is key



When to image in OA

- ▶ Decreased function despite optimal non-operative measures
 - ▶ Night pain / sleep disturbance
 - ▶ Physical findings eg progressive fixed flexion deformity in knees
 - ▶ ? Referred pain from a proximal site eg low back
- 

X-rays taken at the right time can improve patient management



Things GPs could do better

- ▶ Have a greater appreciation of the role of appropriate footwear
- ▶ Consider a local cortisone injection prior to a major life event eg overseas trip

Get confident with backs, and you'll be a better doctor

