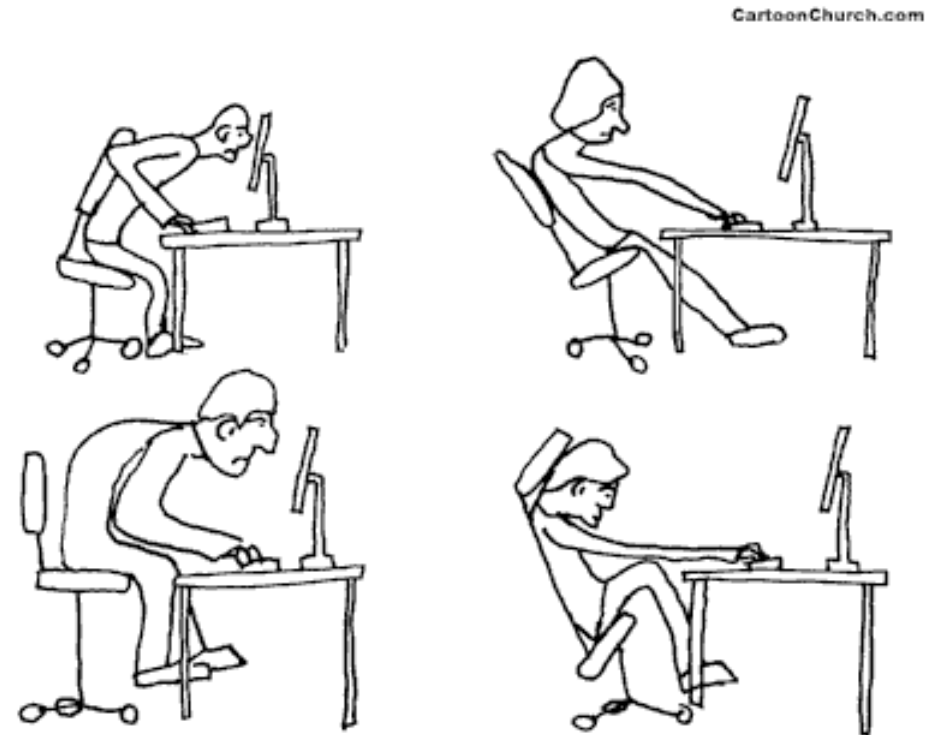


# Back pain

Degenerative disc disease

# Back pain is common

- Impacts on quality of life
- Limits ability to exercise
- Responds poorly to surgery

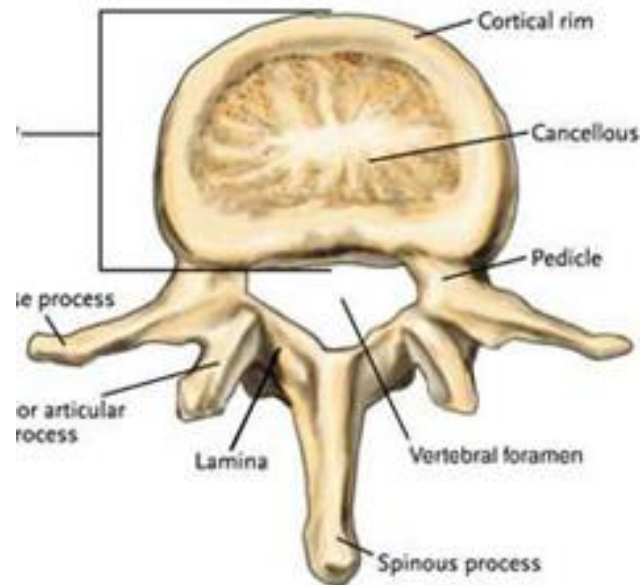
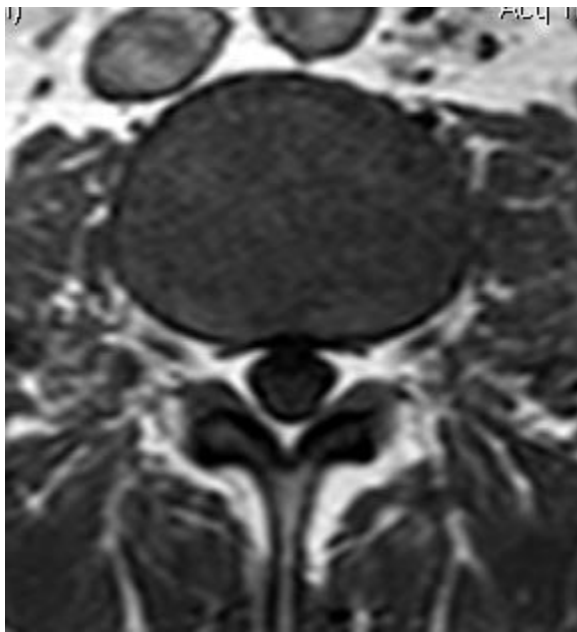
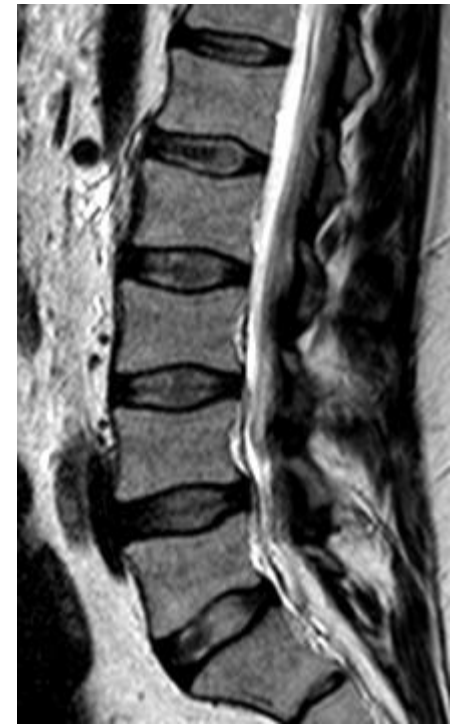
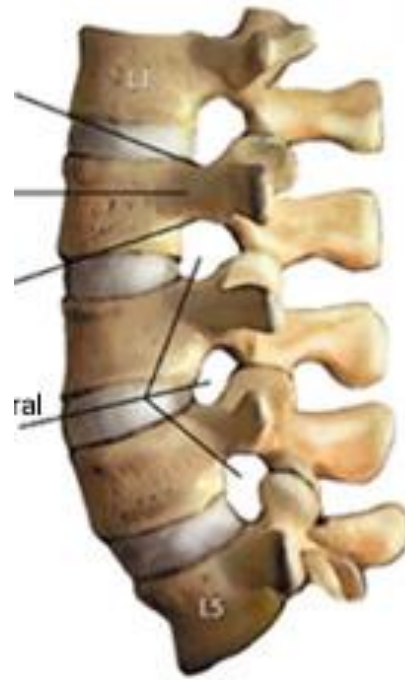


BAD POSTURE (EXAMPLES OF)

# Back pain assessment

- Clinical assessment is important to ensure that there are no worrisome features (see red flags)
- The mainstay of treatment rest, with simple pain relief, followed by simple exercises and then intensive exercises
- Pattern recognition is important
- Masking pain in order to exercise can be risky

# Anatomy models and MRI



# Degenerative Disc Disease

- **Dysfunctional phase**
  - Microtrauma to annulus
  - Impaired nutrition to disc
  - Disruption to proteoglycans
  - Disc dehydration
- **Unstable phase**
  - Loss of disc height
  - Disturbance to trijoint complex
  - Capsular laxity and subluxation
- **Stabilization phase**
  - Further disc narrowing and fibrosis
  - Endplate destruction
  - Osteophyte formation



# Back pain rarely has a focus

- Degenerative change in lumbar discs is part of the normal ageing process
- Degenerative change may be accelerated by injury
- Degenerative change is associated with abnormal motion in the segment
- Abnormal motion puts strain on the facet joints and adjacent segments
- Pain and abnormal motion affects the surrounding muscles
- Surgery is best for a focal / discrete abnormality
- Lumbar SPECT CT scan may identify target- the pain generator in a small number of cases. This nuclear medicine test (has radiation) identifies areas of increased metabolic activity.

# Volvo study

- “Volvo” study- 2001, Swedish Lumbar Spine study group
- N= 294, 19 centres
- 3 fusion methods, n=222
- Range of physiotherapy, n=72
- 2y fu – n=289, incl 25 cross over
- Back pain reduction (VAS) S-33%, C-7%,
  - max difference at 6m
- Back to work- S-36%, C-13%
- 17% early complication rate
- 7y outcome – unpublished – no difference

# MRC Spine Stabilisation Trial

- Randomised controlled trial (ie Class I evidence)
- Surgical stabilization of the spine versus intensive rehabilitation programme (with cognitive behavioural therapy) for chronic low back pain
- 19 centres in UK
- Primary outcome measures –
  - Oswestry disability index and shuttle walking test
  - At baseline (at randomization) and at 2y.
- Surgery n=176, rehab n=173, 284 (81%) follow up data at 2y
- Both groups showed reduced disability at 2y (possibly unrelated to intervention) . No clear evidence that surgery was more beneficial



# Physiotherapy / Exercise

- Physiotherapy and exercise program is the key
- Medications allow exercises to proceed
- Aim – restoration of:
  - Posture
  - Range of motion
  - Core strengthening
  - Weight optimization
- Surgery has a role – eg dealing with leg pain that limits ability to engage with exercise programme
- SPECT CT can demonstrate areas of increased metabolic activity and potentially define pain generators