

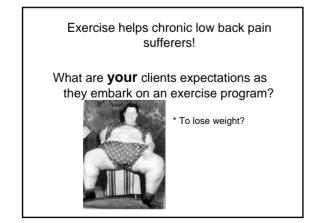
- * 80% of people in western communities will suffer low back pain
- 20% acute LBP will progress to being diagnosed as chronic (pain > 3 months)
- * A patho-anatomic injury is found in 15% of people with LBP (disc herniation, spondylolisthesis, arthritis)



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- * A patho-anatomic injury is found in 15% of people with LBP (disc herniation, spondylolisthesis, OA)
- # 20% of chronic LBP patients have a symptomatic sacroiliac joint (SIJ)
- * The other 65% are classified as non-specific LBP: i.e no *anatomical structure* can be radiographically identified as causing the pain mechanism



From D Lee, 2004





* Relieve back pain!

Aims:

- Consider how the research can assist you to be specific about retraining lumbar and pelvic stability
- Identify different reasons for Low Back Pain & when a team approach is best to provide appropriate treatment and exercise rehabilitation
- What exercise might put you at risk of causing a back injury
- Identify clients who need immediate referral to a doctor



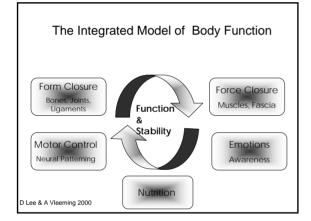
Optimal function: we always move under the effects of gravity

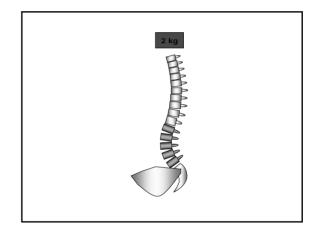


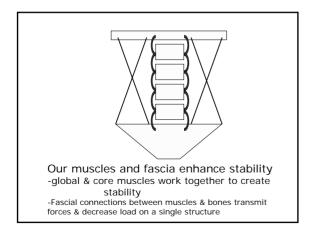
* 65% body weight transferred across L5 vertebra onto the sacrum in standing

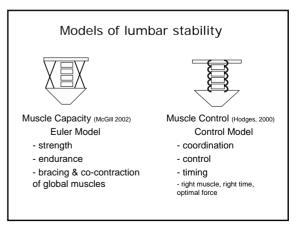
* Pelvis is the stable platform or hub of the skeleton

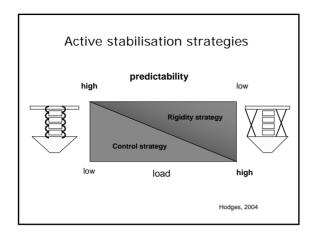
* 35 muscles attach onto the pelvis

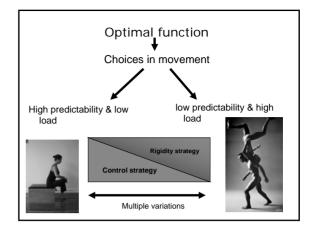


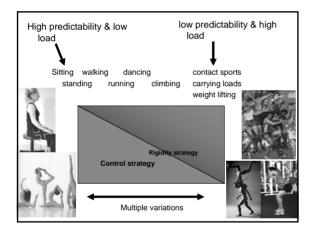








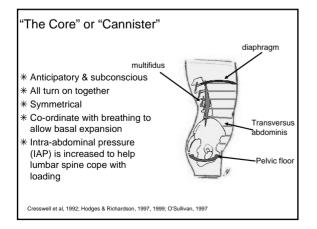


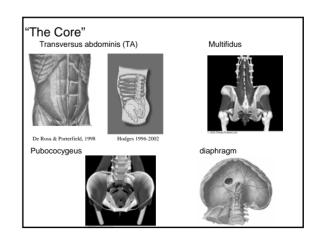


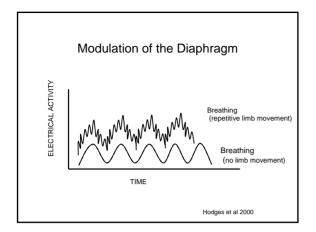


- "core" muscle activation is small & controlled by subconscious
 we don't feel them turn on!
- "core" remains activated throughout activity at a low % MVC (5-10%)
- "core" muscles create tension across individual lumbar segments, the sacroiliac joints & pubic symphysis

* Creates lumbar spine & pelvic stability so that global muscle force is more efficient







Optimal activation of core muscles must occur to allow effective load transfer

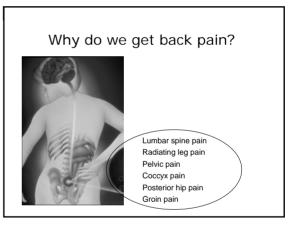


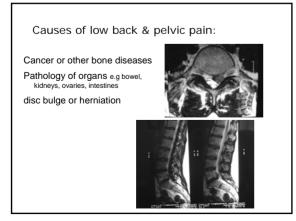
- Co-activation of core muscles prior to, and during movement
- Co-ordination of core with global muscles to ensure sufficient intraabdominal pressure (IAP) during quick OR sustained loading

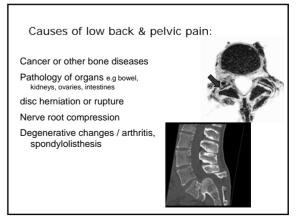




- Provides just enough joint compression to create lumbo-pelvic stability WITHOUT too much pressure on the organs
- Leaves the hips and rib cage free to move







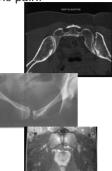
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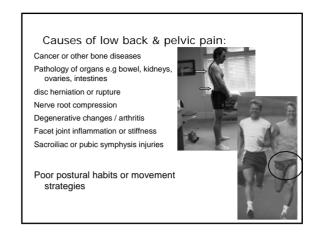
Causes of low back & pelvic pain: Cancer or other bone diseases Pathology of organs e.g bowel, kidneys, ovaries. disc herniation or rupture Nerve root compression

Degenerative changes / arthritis

Facet joint inflammation or stiffness

Sacroiliac or pubic symphysis injuries





Lumbar spine injury * Constant, severe back pain * Pain worse at night * Leg pain, numbness, weakness * Pain with weight bearing * Pain with movement manual therapist, * "Catching" pain and discuss appropriate * Muscle aches in back & buttocks timing for integration of lumbo-pelvic stability and occur regularly * Back ache after exercise or Specific exercise prescription standing long periods

* Poor posture

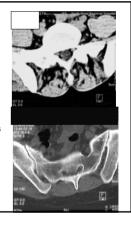
Refer immediately to a medical practitioner

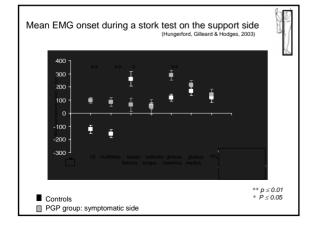
Refer to a physiotherapist or endurance exercise program

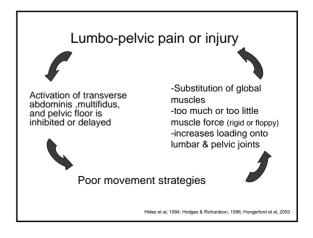
for lumbo-pelvic stability and endurance

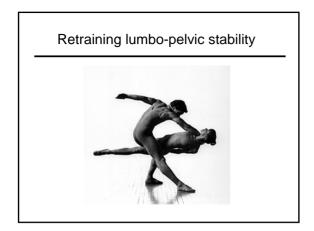
Sacroiliac joint injury

- * Loss of normal joint glide
- * Transverse abdominis & multifidus
- activity delayed * gluteus maximus inhibited
- * Pain with weight bearing e.g walking, sittina
- Often compensate by using piriformis, hamstrings, and hip flexors as stabilising muscles
- * Joint glide must be restored with specific manual therapy before retraining core and gluteal function









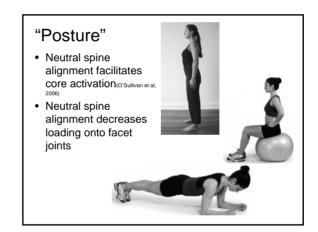
Practice makes **PERMANENT**

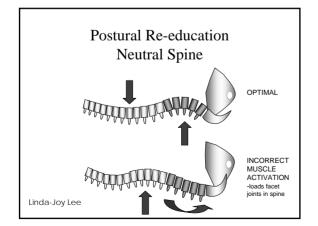
NOT ALWAYS PERFECT!

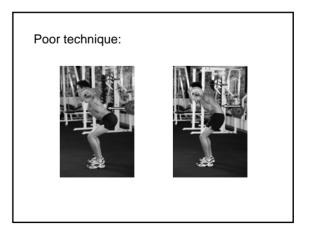
Therefore consider

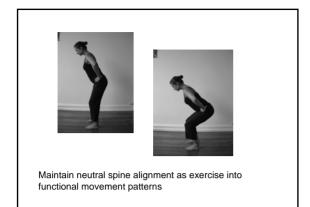
- what is optimal?
- which muscles would the brain normally activate in a healthy body
- functional positions for retraining
- control & endurance before power

Retraining lumbo-pelvic stability Posture Unwind Reboot Retrain





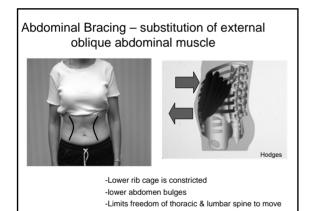




"Unwind"

* Create awareness of over active muscles

- "Relax your bottom" (the butt gripper)
- · "relax your belly" (the tummy bracer)
- "relax your neck" (the stressed apical breather)
- · Soft rib cage & breath gently into lower ribs
- · Hips and legs relaxed (psoas & hamstring dominant)



The butt gripper

- > Overactivity or tonicity in > Deep hip external rotators
 - > Piriformis > Posterior pelvic floor
 - Effects ability to bend forward in
- the lower back
- Hip pulled into external rotation, with increased posterior capsular tension
- Femoral head gets pushed forward tension onto anterior hip capsule & hip ligaments
- Lumbar spine held in flexion so they can't bend forward





"Unwind"

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- "Relax your bottom" (the butt gripper)
- "relax your belly"
- "relax your neck"
- · Soft rib cage & breath into lower ribs
- · Hips and legs relaxed (psoas & hamstring dominant)
- Use specific stretches to unwind or unload muscle tension
 - · Hip flexors
 - Piriformis
 - Erector spinae
 - · Quadratus lumborum hamstrings



"Reboot"

- Low grade tonic activation of 'the core'
- Remember 10%MVC
- Images that facilitate co-contraction of
 - anterior pelvic floor
 - Transverse Abdominis
 - multifidus
- · Neutral spine alignment
- Independent of breathing •
- Watch for substitution patterns
- "activate your core prior to all • exercises and maintain throughout activity"





(the tummy bracer)

(the stressed apical breather)

Retrain

- *Always start by rebooting core muscle activation
- *Encourage neutral spine

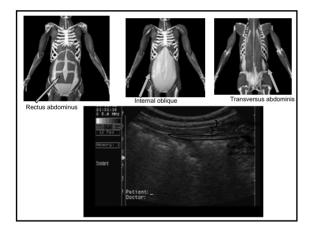


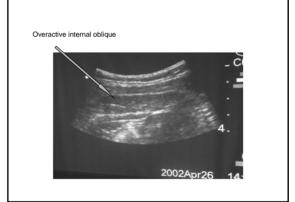


* Single leg weight bearing









Summary

- 1. Communicate with health professionals if -clients low back pain is not changing or worse with exercise
- -or is suggestive of significant injury/ pathology
- 2. When retraining lumbo-pelvic stability

Posture

- Unwind
- Reboot

Retrain