# Greater Trochanteric Pain Syndrome (GTPS): Assessment & Management

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Thank you to Professor Jill Cook & Dr Tania Pizzari for their contribution to the slides

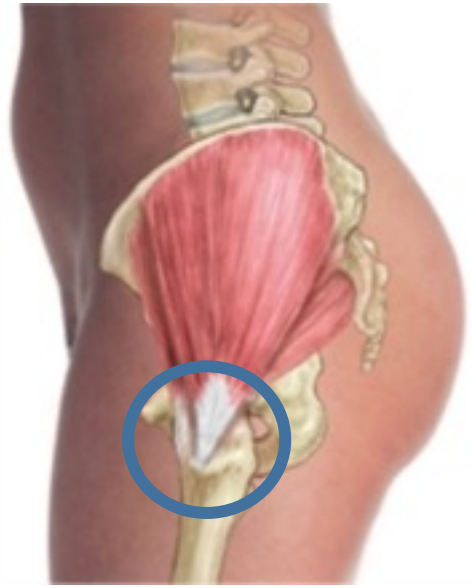


**@rachaelmarymac**

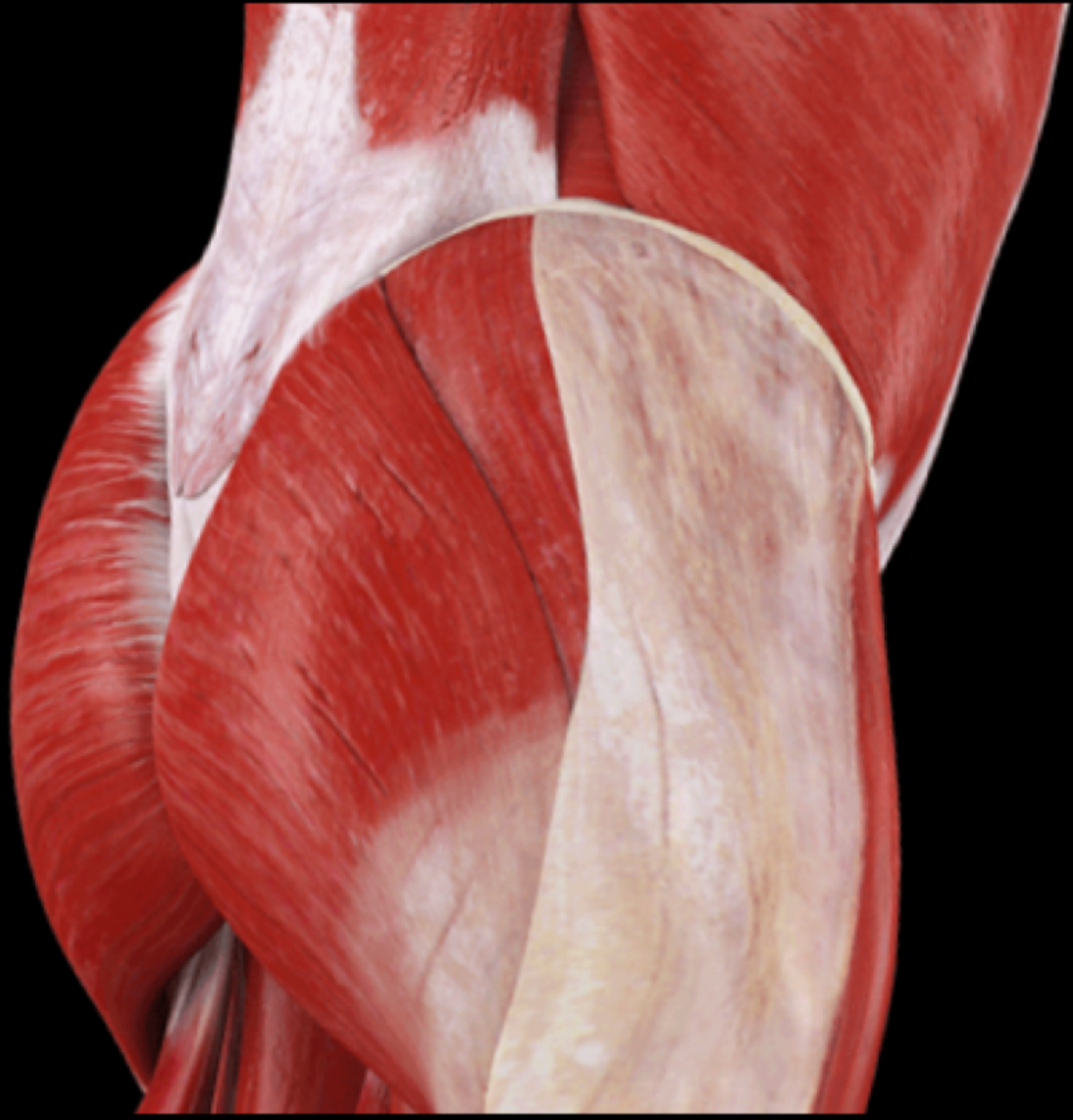
# Overview

- Introduction
  - Gluteal muscles and tendons
  - Tendinopathy
  - Gluteal tendinopathy and GTPS
- Assessment of GTPS
- Management of GTPS
- Practical – afternoon

# Greater trochanteric pain syndrome (GTPS)

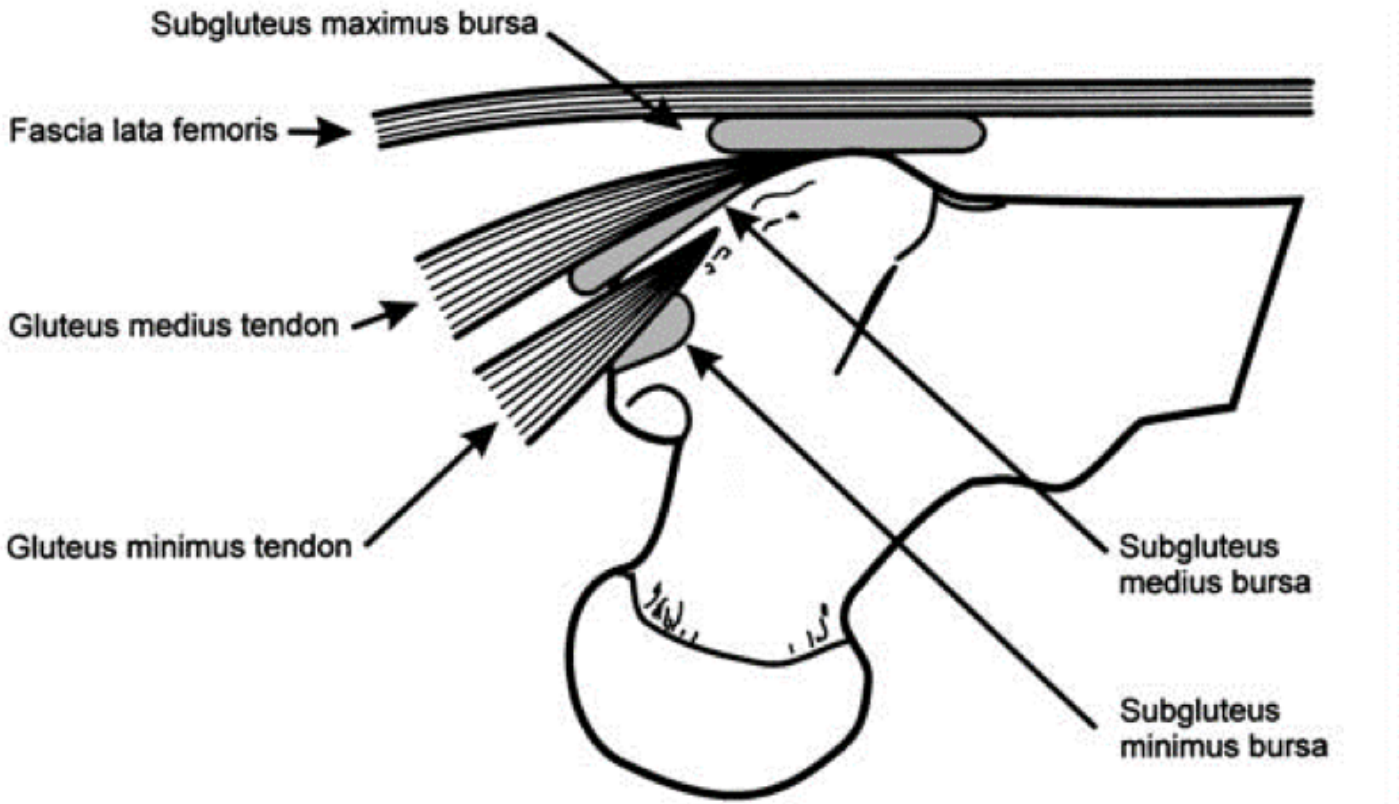


- Pain in the region of greater trochanter
  - Pathology in gluteus medius and gluteus minimus tendons, and associated bursae
  - All age groups
  - Most prevalent in women
  - Functional impairments, impacting QoL
- Also linked with knee and low back pain
- Prevalence underestimated
  - Lack of recognition > 18 months from onset to diagnosis



# Anatomy

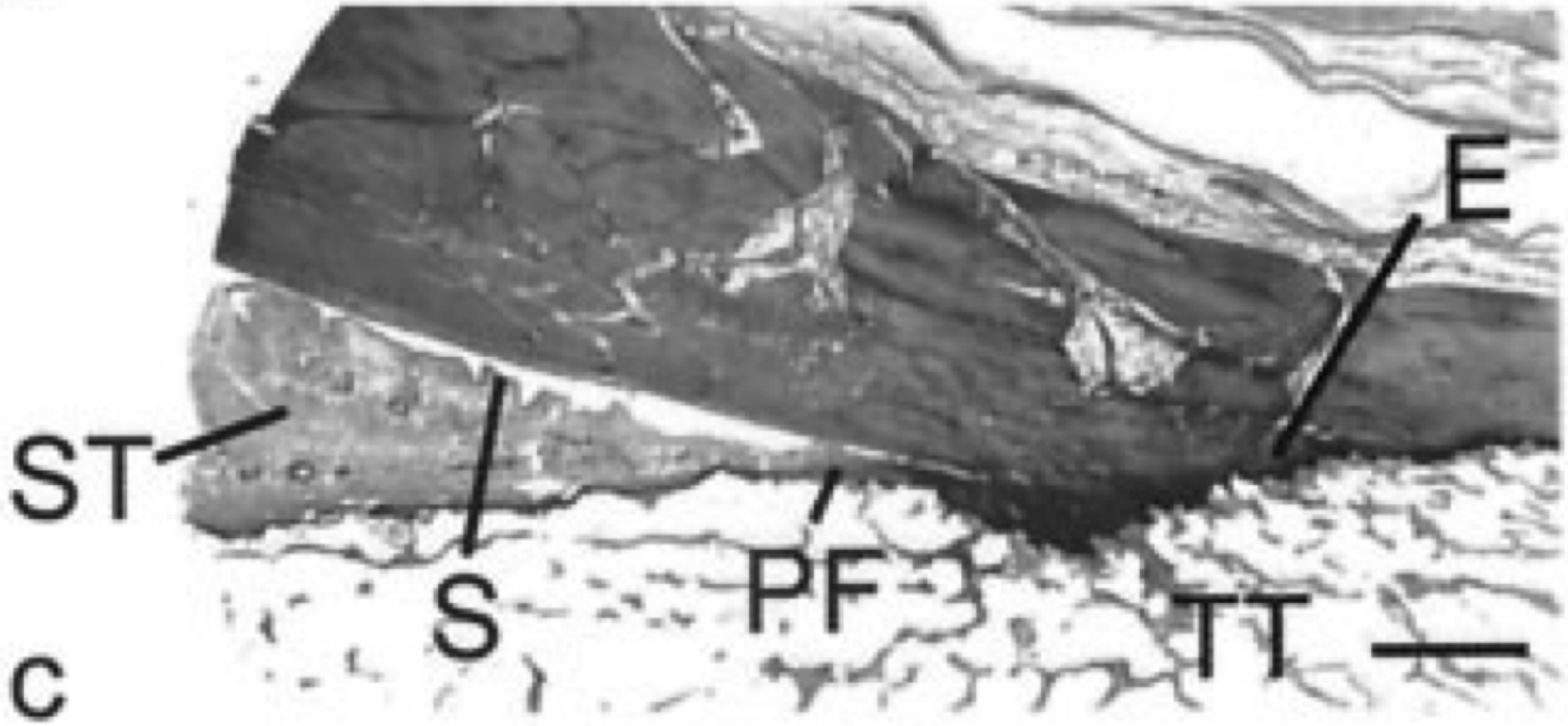
- Gluteal muscles
- Gluteal tendons
- Bursae
- Enthesis organ complex
  - (Benjamin & McGonagle 2009; Benjamin et al. 2004)




Connell D, Bass C, Sykes C, Young D, Edwards E. Sonographic evaluation of gluteus medius and minimus tendinopathy. European Radiology. 2003;13(6):1339-47.

# Enthesis organ complex

(Benjamin & McGonagle 2009; Benjamin et al. 2004)

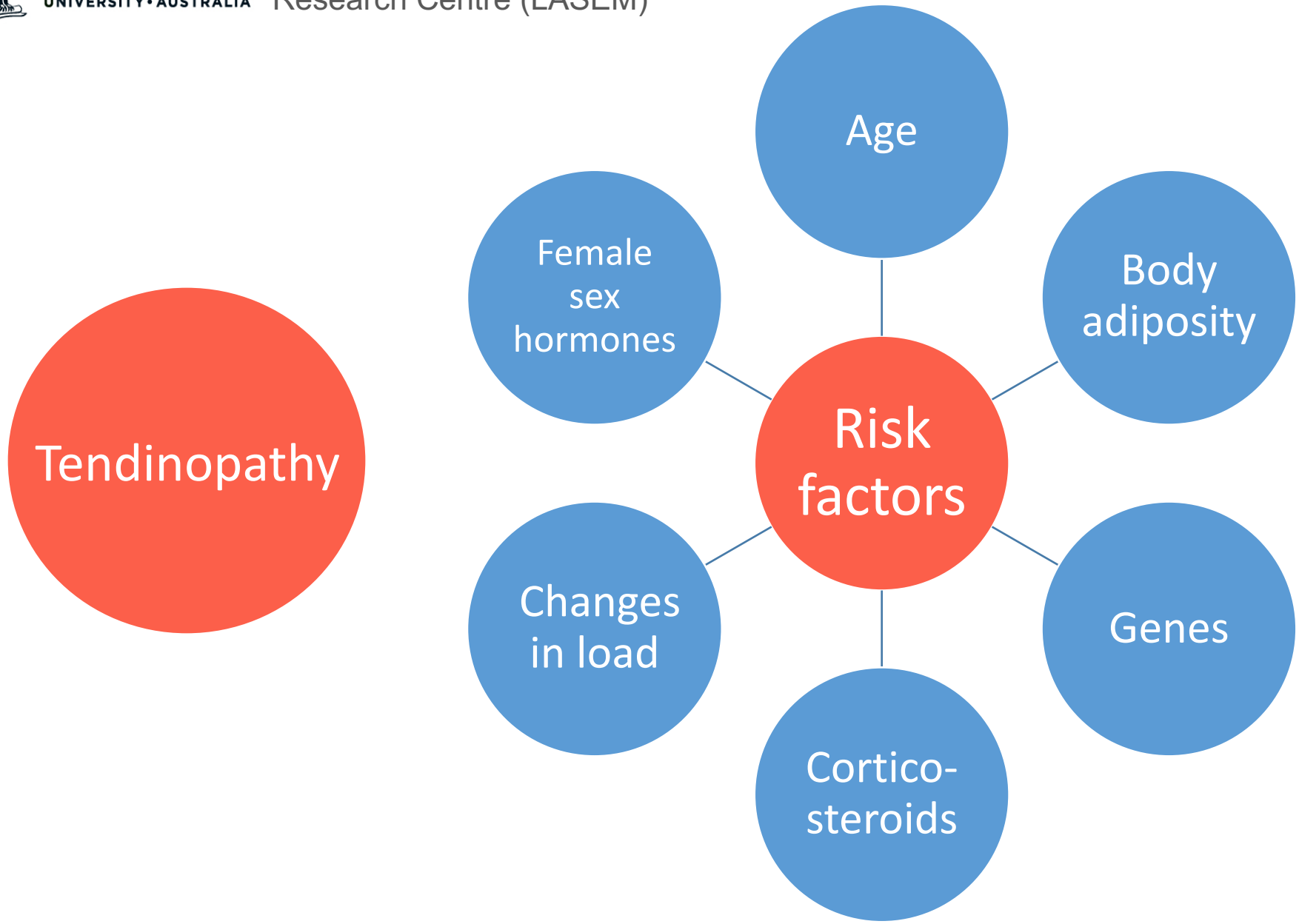



Benjamin, M., Moriggl, B., Brenner, E., Emery, P., McGonagle, D. and Redman, S.
The “Enthesis Organ” Concept. Arthritis & Rheumatism. 2004;50(10):3306-3313.

All kinds of clever

# Tendon changes

- Tendinopathy
  - Tendon pathology = cell function, ground substance, disorganisation of collagen and neovascularisation
    - (Cook et al. 2004; Kountouris & Cook 2007)
  - May Pain, exercise tolerance, function
    - (Cook & Purdam 2009)
  - Tendon pathology symptoms
    - (Blankenbaker et al. 2008; Cook et al. 1998; Ganderton, Semciw, Cook & Pizzari 2017; Shalaby & Almekinders 1999; Woodley et al. 2008)


Tendinopathy
Risk factors
Age
Female sex hormones
Body adiposity
Changes in load
Genes
Cortico-steroids

# Load

- Loads a tendon may be exposed to
  - Tensile
    - Maintains fibrous tissue
  - Compressive
    - Forms/maintains cartilage
  - Friction/shear
  - Combination
    - Forms/maintains bone
- Gluteal tendinopathy
  - Gluteal tendon = susceptible to injury due to acute angle of attachment
  - A result of compressive + tensile loads

# Imaging

- Not used for assessment
- Pathology ≠ symptoms
  - (Blankenbaker et al. 2008; Cook et al. 1998; Ganderton, Semciw, Cook & Pizzari 2017; Shalaby & Almekinders 1999; Woodley et al. 2008)
- Most older patients will have tendon and muscle changes

| **Diagnostic study:** (Ganderton, Semciw, Cook & Pizzari, 2017) | **Asymptomatic n (%)** | **Symptomatic n (%)** |
|---|---|---|
| **No pathology** | 0 | 0 |
| **Mild tendinosis** | 10 (76.9) | 3 (42.9) |
| **Moderate tendinosis, partial tear** | 1 (7.7) | 1 (14.2) |
| **Full thickness tear with fatty infiltration/muscle atrophy** | 2 (15.4) | 3 (42.9) |

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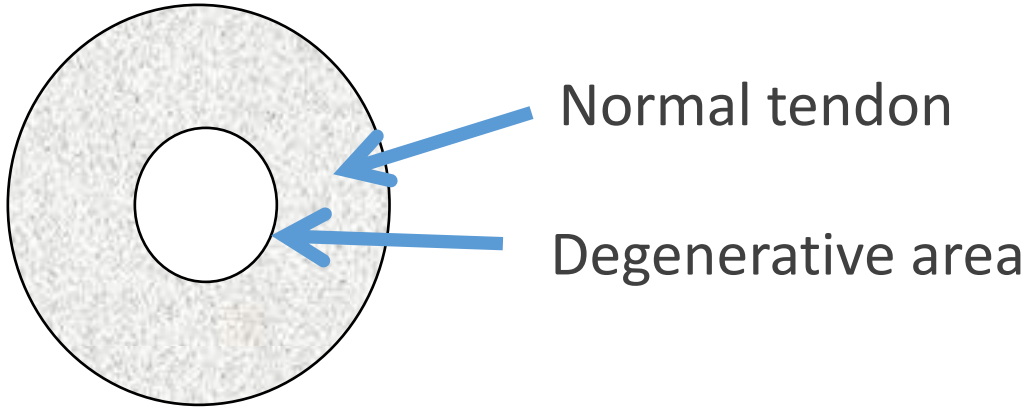
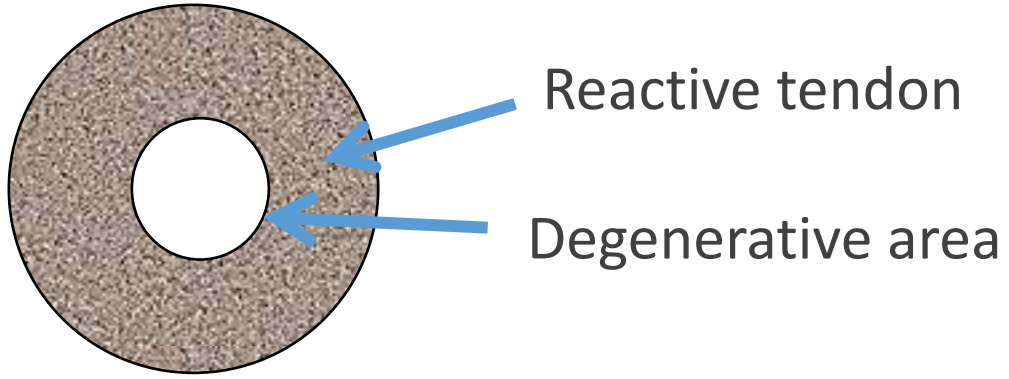
# Imaging

- Focus on change in tendon **function**




*Acknowledgement Dr Sean Docking*

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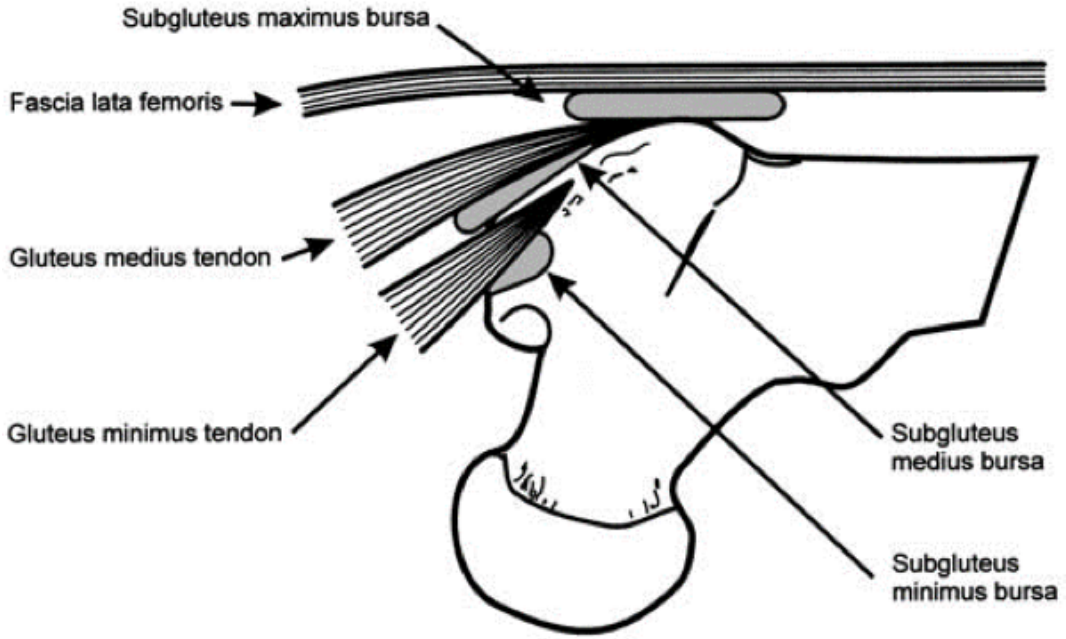
# Imaging

- Bursal involvement
  - Not always pathological
    - (Blankenbaker et al. 2008; Mallow & Nazarian 2014; Rome et al. 2009; Segal et al. 2007; Silva et al. 2014)
  - Never treat a bursa as an isolated pathology!!



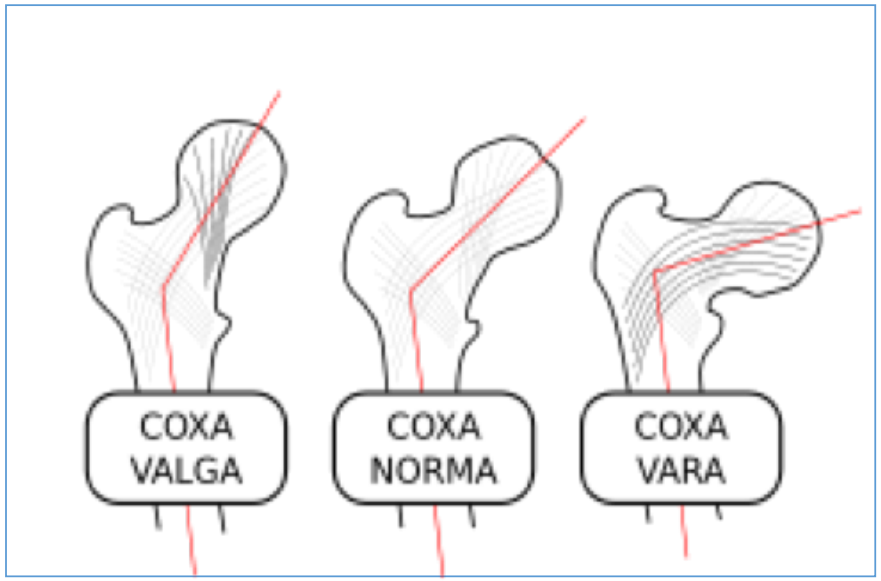

Retrospective study: 20.2% of patients with GTPS had bursal pathology on ultrasound. Only 8.1% these had isolated bursitis
(Long et al. 2013)

Connell D, Bass C, Sykes C, Young D, Edwards E. Sonographic evaluation of gluteus medius and minimus tendinopathy. European Radiology. 2003;13(6):1339-47.

# Assessment

- Subjective
  - Change in load
    - Fitness program, yoga, trip to Europe
  - Change in health
    - Commonly post-menopausal woman… not always!
      - Reduced oestrogen levels
      - Breast Cancer
  - Night pain
  - Activities, employment, sport
  - Tendon compression?
  - Key questions…
    - Pain with: lying on ipsi-lateral side, sit to stand, walking up/down stairs or slopes?
    - Shoes & socks? (Fearon et al. 2011)

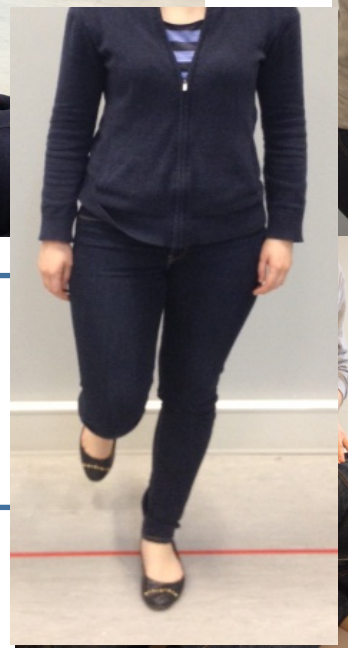
# Assessment

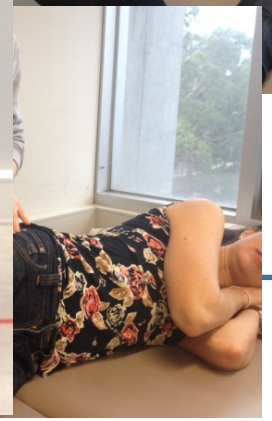



- Objective
  - Bony morphology (women with GTPS)
    - Wider hips, coxa vara, flared pelvic rim
      - (Fearon et al. 2012; Segal et al. 2007)
  - Increased body adiposity
    - (Cook, Bass & Black 2007; Fearon, Stephens, Cook, Smith, Neeman, Cormick & Scarvell, 2012)
  - Poor lumbo-pelvic control
    - (Kimpel et al., 2014; Mulligan et al. 2015; Segal et al. 2007)
  - General lower limb weakness and dysfunction
    - Quadriceps and calf
  - Positive on clinical testing
    - Battery of tests

# Clinical tests

- Resisted external derotation test
- Modified external derotation test (compression)
- Modified resisted external derotation test (contraction)
- Modified Ober's test
- Standard Ober's test
- Patrick-Faber test
- Resisted hip abduction
- Trendelenburg test
- Palpation of the greater trochanter
- Resisted hip internal rotation test





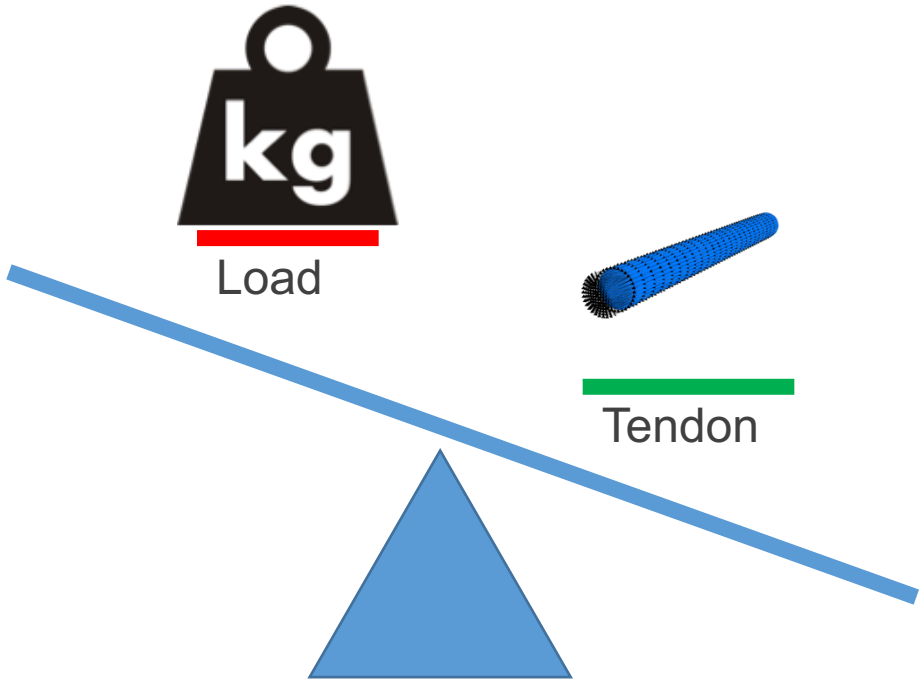
# Management

- Corticosteroid injection (CSI), anti-inflammatory medication, passive modalities, exercise, rest, ice/heat
- Abundance of research into injection therapy and surgery = inconclusive
- Exercise = long-term benefit (Rompe et al. 2009)
- Exercise + education
  - Any exercise + education
    - (Ganderton, Semciw, Cook, Moreira & Pizzari 2017)
  - Exercise & education better than CSI at 8-weeks and 52-weeks
    - (Mellor, Bennell, Grimaldi, Nicolson, Kasza, Hodges, Wajswelner & Vicenzino 2018)

All kinds of clever

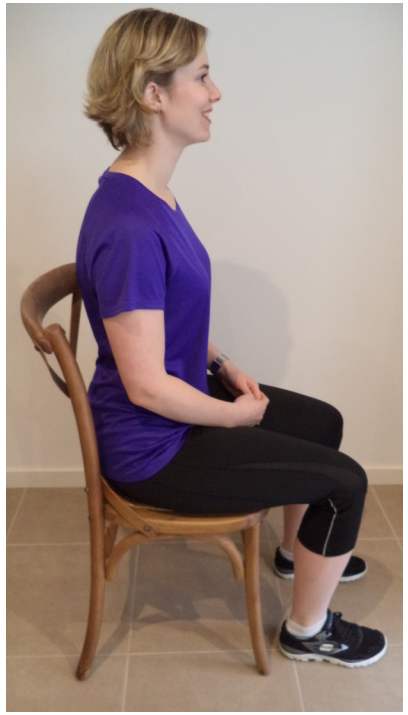
# Management – key principles

- Initially UNLOAD
- Education
- Reduce pain
  - Isometric holds, start early
    - (Rio, Kidgess, Purdam, Gaida, Moseley, Pearce & Cook 2015)
  - Hip hitch
    - (Ganderton, Pizzari, Cook & Semciw, 2017)
- Increase strength
  - Consider the kinetic chain
- Consider functional requirements, sports, activities
  - Dynamic exercises

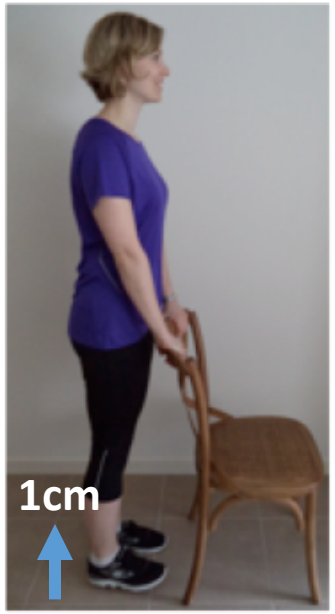


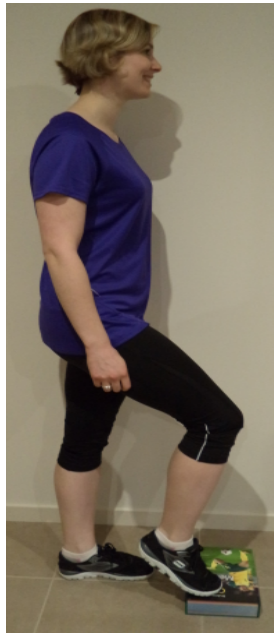
# Management – education

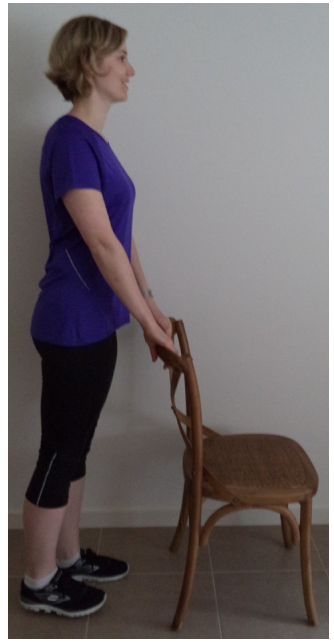
- Daily activities
  - Modification
- Posture – standing
- Posture – sitting
- Posture – sleeping



# Management – isometric holds & strengthening







Consider dosage & Progressions

45 sec hold x 5
2 min rest
(Rio et al. 2015)

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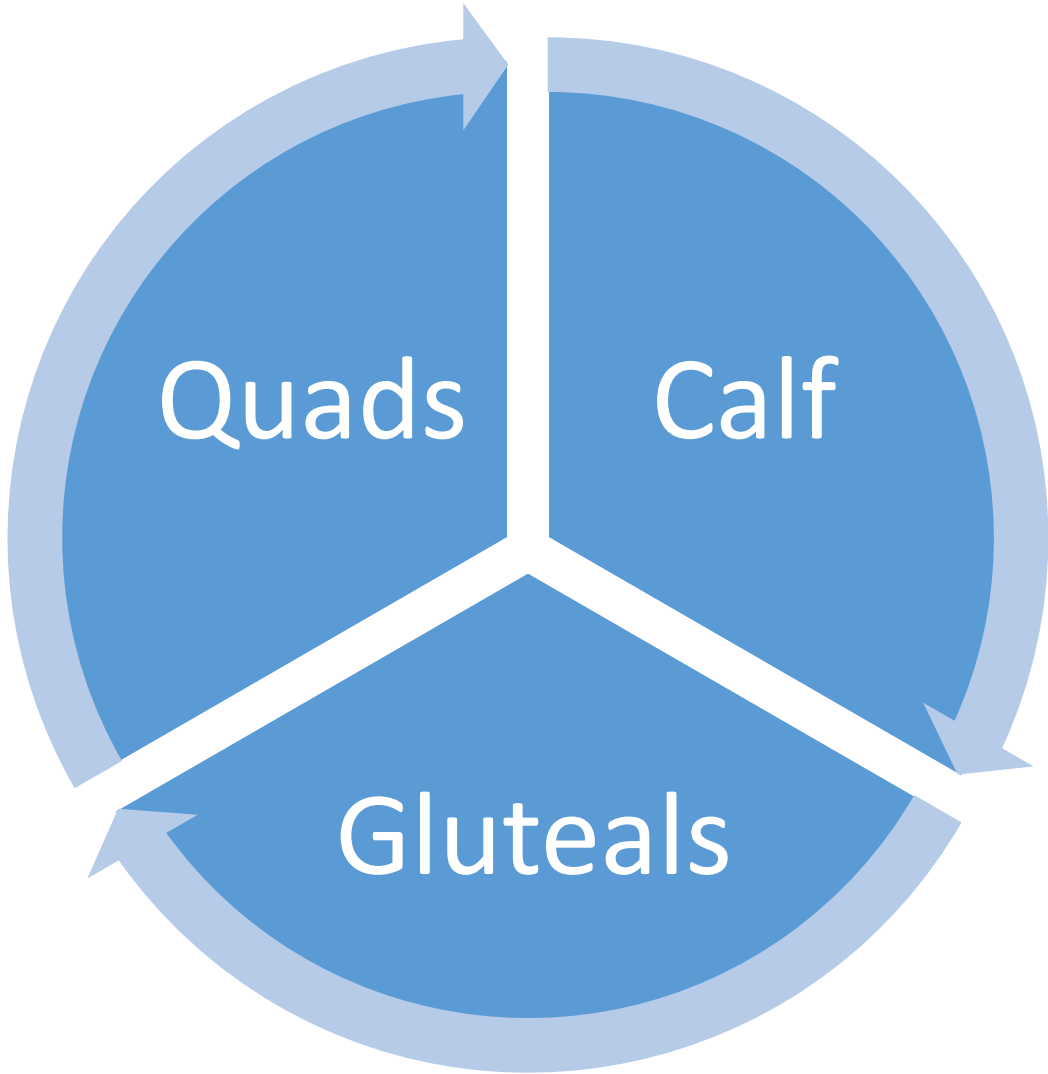
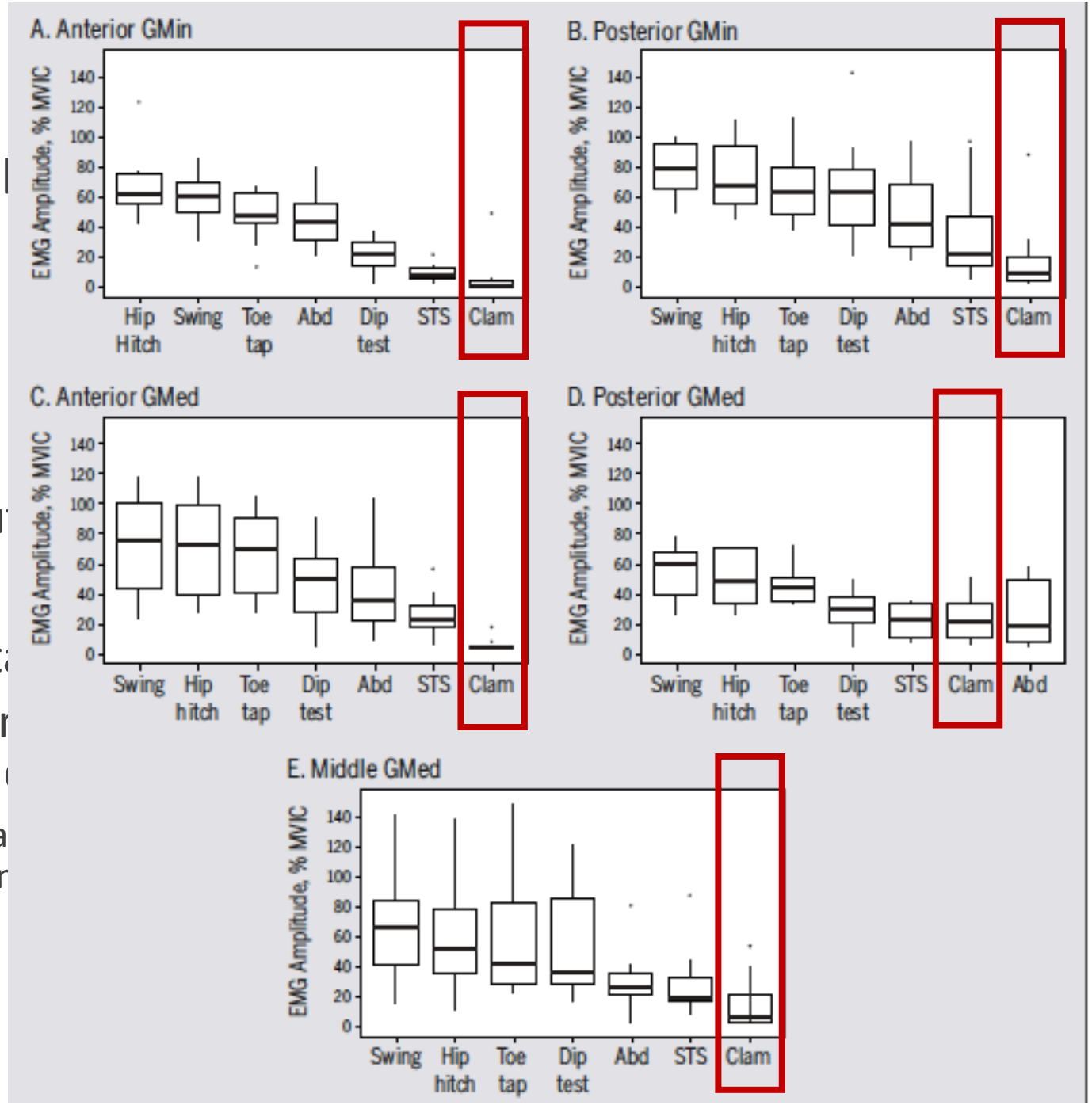
# Management – kinetic chain




**Get creative & functional!**

# Management – strengtheni

- Out with the old… clams
  - (Ganderton, Pizzari, Cook & Semciw 2017)
- In with the new!
  - Upper gluteus maximus, glu
- Myth…
  - Over-active tensor fascia lat
  - No difference between TFL r asymptomatic women with
    - MRI study investigating gluteal a compared with symptomatic cor

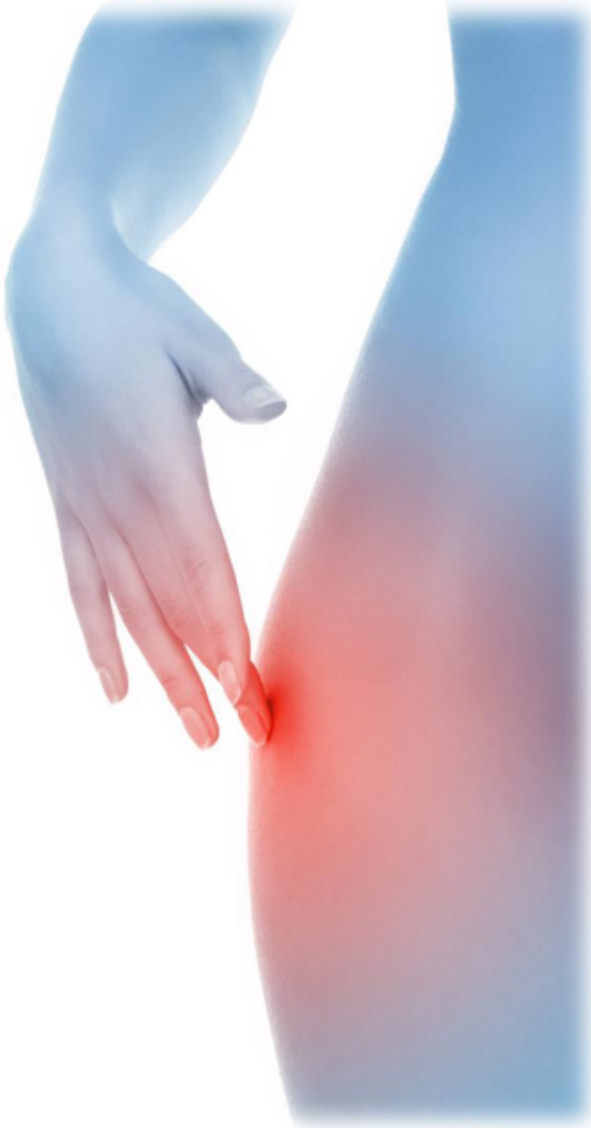


**KEY MESSAGE**

↓Compression

- Think daily activities
- Ongoing subjective
- Reminders

# Thank you
# Questions



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