

# Dr John Best

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# Resistance Training and Major Shoulder Injury



# Why this topic?

- Resistance training (RT) in different forms has exploded in popularity
- Repeat shoulder injury from RT, especially following surgery, carries a much poorer prognosis



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# What is Resistance Training (RT)?

## Is it useful?

- Any exercise that causes a muscle to contract against external resistance
- Usually this involves weights, but includes body weight exercises and bands
- Health benefits are clear – improved daily function, proprioception, bone strength, tendon strength, reduced arthritis pain, sleep improved, improved BSL, etc (CDC Home page)



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# RT causing shoulder pathology

- 36% new injuries (Kolber et al 2010)
- “Press” positions (especially in abduction with external rotation = ABER)
  - Bench and overhead press
  - Dips
  - Push-up (= plank, yoga salutations)
- Increased risk in older patients (>50 years) and with previous injury (Sousa et al 2014)



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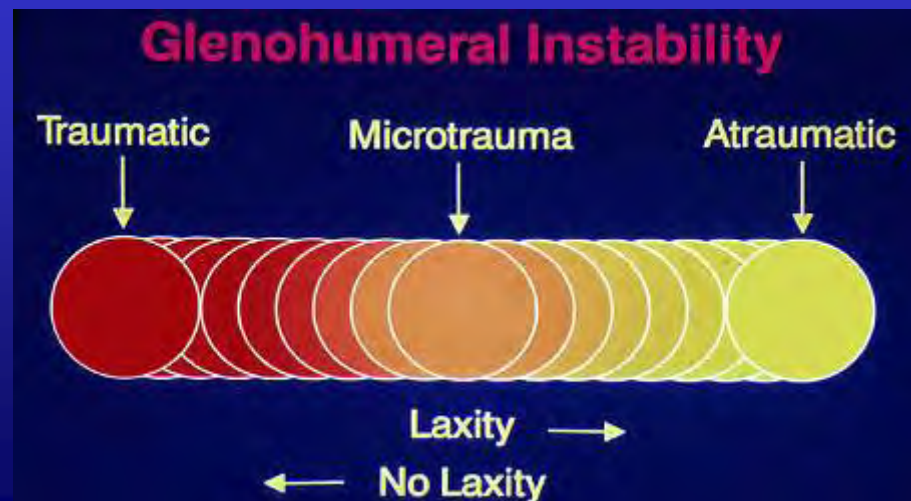
# Rotator Cuff Disease

- Common in >50yrs
- Fatty infiltration occurs with tendinopathy (Gladstone 2007)
- Younger patients with instability may have associated rotator cuff disease
- Manual strength testing for weakness in functional positions



# Gleno-Humeral Joint Instability

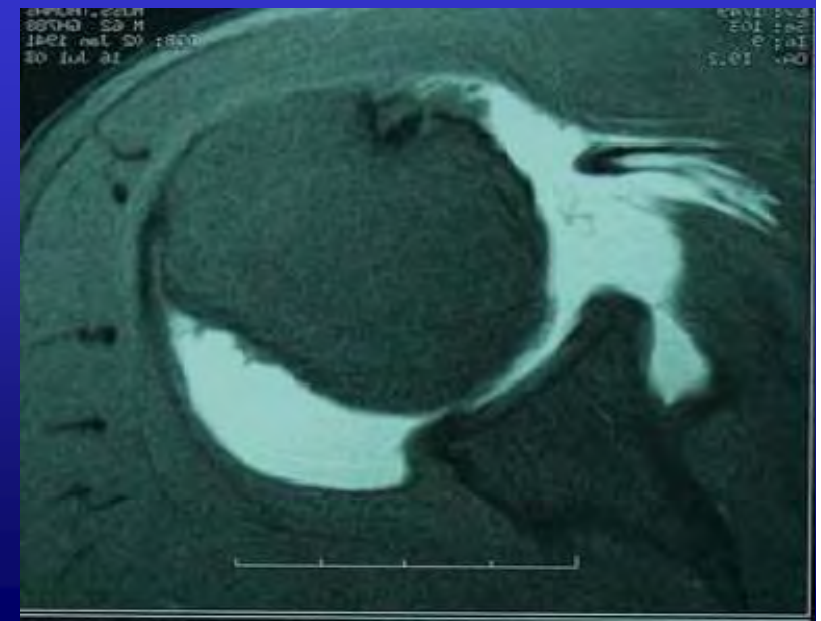
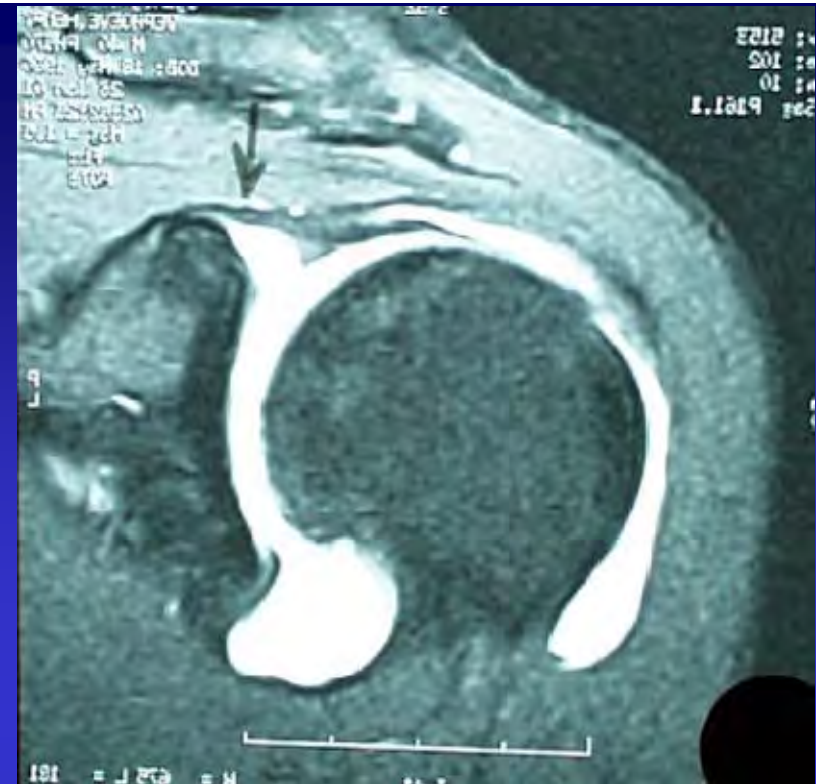
- GHJI occurs following acute or repeated trauma
- Underlying laxity effects the ability to handle load in the ABER position
- Repeat instability may cause rotator cuff disease or GHJ osteoarthritis (Cameron et al 2002)



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# Gleno-Humeral Joint Instability

- Expectation that young patients to return to full RT
- Underlying laxity, the type of surgery and cuff quality are all a factor
- Consider alternate exercises to reduce shear forces, especially in ABER



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# Biomechanics in RT and Safety

- In the bench-press position shear forces through the GHJ are massive (Duffy PhD 2008)
- Technique and experience are major injury risk factors
- Risk and load is similar to other exercises in the ABER position



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# RT Advice – be smart!

- Assess the cuff and stability
- Include good RCuff exercises
- RT technique is critical
- Be clear on the goals
- Consider alternate exercises
- Never push through pain
- In general over 50 years olds do not need to lift above the head



# An alternative chest exercise

## Standing cable press



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# A word about Yoga...

- Popular



- Varied



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# Certain Yoga poses are dangerous for many patients

(Corroller et al 2012; Mikkonen et al 2008)

- Salutations = greet the sun, mountain, downward dog
- Chateranga = yoga push-up or low plank



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# Main Points

- Rotator Cuff Pathology - high risk of re-injury which carries a poorer prognosis
- Gleno-humeral Instability – although these patients are younger and more powerful, be cautious when loading the GHJ in the ABER position
- Consider alternate RT exercises, focus on good technique and create clear goals



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# Thank you

- Traumatic GHJ Instability
  - Open stabilisation (age 23)
- Rotator Tear doing 'dips'
  - Open repair (age 29)
- Residual laxity and subtle weakness
- No bench press
- World Champion (age 30)

