**Outline**

1. The stiff, painful shoulder

2. Common Knee Injuries in Sport
   - Clinical context and anatomy
   - Terminology
   - Practical tips
   - Injection Techniques

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**Part 1**

Approaching the Stiff, Painful Shoulder

*Impingement, capsulitis and biceps pain*

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**Anatomy**

**Terminology – impingement**

- Impingement Syndrome
- Rotator Cuff Tendonitis
- Bursitis
- Subacromial bursitis
- Subacromial Impingement

*Concept of compression beneath the coracoacromial arch*
Pathophysiology

Acute
- traumatic
tear
- GHJ instability
- AC joint
calcific tendonitis
- neurological
- infective

Chronic
- cuff degeneration
- previous trauma
- genetic
  - Tendinopathy
  - lamination

Anatomical Considerations

1. “Hard Tissue”
2. “Soft Tissue”

Anatomical Considerations

- Hard Tissue
  - Acromial morphology
    - types 1, 2, 3
    - unfused acromial epiphysis
  - AC Joint
    - degenerative/osteophytes
    - separation, previous fracture
  - Greater tuberosity
    - prominence (primary/ fracture)

Acromial morphology

Unfused Acromial Epiphysis
Anatomical Considerations

- Soft tissue
  - instability/laxity
  - congenital/acquired (traumatic)
  - medial capsular insertion
  - muscle imbalance
  - poor scapular control
  - tight anterior structures
  - thoracic dysfunction/postural

Clinical Features

- Symptoms
  - Pain
    - ache with sharp component on active movement
    - anterolateral shoulder and arm
    - secondary myofascial pain
    - night pain
    - difficulty with overhead tasks
  - Stiffness – active or passive
  - Weakness

- Signs
  - Wasting - deltoid, infraspinatus
  - Reduced ROM - initially IR
  - Pain mid-range active movement, end-range of motion
  - Positive impingement signs
  - Tender greater tuberosity +/- ACJoint
  - Weakness on resisted testing - must test through range

Observation

Documenting range of motion
Impingement Signs
Hawkins

Neer

Testing for Strength
– your flag

• Test in all directions
• Forward Elevation
• External rotation
• Internal rotation (lift-off)
• Abduction
• Functional testing – in positions relative to sport / work

Similar to Rehab Exercises

Strength
– resistance testing

Investigations

• Xrays with supraspinatus outlet view
• Dynamic ultrasound
  - operator dependent 30-90% accuracy
• Arthrography single contrast
  - 97% accuracy for full thickness tears
• CT Arthrography - associated instability
• MR Arthrography - assess cuff tear size and site

Xrays
MR Arthrography – size and site of tear

Beware.. subscapularis tear!

Differential Diagnosis
Stiff, painful shoulder

- Adhesive capsulitis
- Osteoarthritis GHJ
- Calcific Tendonitis
- Long head of biceps tendinopathy
- SLAP lesion
- Infection, inflammatory

Adhesive Capsulitis

- Usually present at 2-3 months
- Pain / stiffness
- ‘ER overpressure’
- Medical factors
  - diabetes
  - thyroid
  - inflammatory
  - RSD in past
- Worse with physio
- No better with SA injection
- Intra-articular injection
- MUA/RELEASE
Glenohumeral Osteoarthritis
- Pain / stiffness
- Gradual
- Previous trauma
- History of OA
- Consider AVN and other causes
- Worse with physio

Calcific Tendonitis

Long Head of Biceps and SLAP
- Pain
- Catching
- Clicking
- Loss of power with overhead mvt
- Instability
- Reduced IR
- ?repair/ tenodesis

Management Principles
- Diagnosis
- Control inflammation and pain
- Regain ROM
- Restrengthen including scapular control
- Prevent recurrence
  No quick fix
  Follow-up essential
Management Specifics - Subacromial cortisone

- 2ml corticosteroid + 4ml 1% xylocaine
- 20 day activity
- Repeat 4 weeks
- Most people respond with 1-3 injections
- Up to 6 in a year
- Risks: infection <1% - tendinopathy

Summary
- the stiff, painful shoulder

- Diagnosis is critical
- When stiffness is present consider severe impingement, capsulitis and GHJ osteoarthritis
- Weakness is a serious finding
- Don’t rely on investigations alone
- Rehabilitation needs to be supervised in the initial phase

Break

Part 2
Common Knee Injuries in Sport
Patello-femoral pain, ACL Injuries

Dr John P Best
Sports Physician

The Knee

- Two Main Joints
  - Patellofemoral
    - small and at the front
  - Tibiofemoral
    - The main weight bearing structure
Patello-Femoral Pain Syndrome (PFPS)
Previously “chondromalacia patella”
“Irritable Kneecap”
Overuse Injury

PFPS - What is it?
- Anterior knee pain usually of gradual onset.
- Aggravated with loaded knee flexion
  – i.e., Stairs, squatting, hills, running and often with prolonged sitting with the knee flexed.
- Sometimes crepitus or grinding on loaded knee flexion
- Occasionally feeling of insecurity
- No specific diagnostic test

ANATOMY
- Extensor Mechanism
  – Q-angle

ANATOMY
- Extensor Mechanism
  – patella height
ANATOMY

- Extensor Mechanism
  - lateral femoral condyle

Multifactorial causes Biomechanical Abnormalities
- Overpronation
- Increased Q angle
- Femoral anteversion
- Poor gluteal control of the pelvis (glut. Medius)
- These factors may contribute to a tendency of the patella to track laterally.

Other Factors
- VMO insufficiency (onset and magnitude)
- Tight lateral structures (ITB and lateral retinaculum)
- These factors lead to excessive lateral forces acting on the patella.

Treatment Patellofemoral Taping
- Reproduce pain on single leg squat.
- Min. 50% reduction in pain (immediately) with tape.
- Components: medial glide, tilt, lift, rotation.
- Tape is worn for prolonged periods initially then gradually reduced.
- Tape reduces pain, improves VMO activation, changes patella position.

Exercise Therapy
- VMO facilitation
- Gluteal activation
- Timing
- Single knee squats – decline board
- Post capsule – control of extension

Treatment Muscle Retraining
- VMO retraining using EMG biofeedback
- Closed chain exercise is preferable
- Training must be painfree.
- Glut. Medius activation/ control on single leg squat.
- Resisted gluteal training using theraband and hip machines.
**Treatment**

**Tight Lateral Structures**
- Soft tissue massage techniques to ITB and lateral retinaculum
- Patella mobilisation
- ITB stretches

**Strengthen gluteals**
- One-legged squats in mirror
- Sideways SLR
- Hip drops off step
- Hip extensions, prone and on all fours
- Hamstring ‘bridging’ on chair, with knee straight

**Strengthen adductors**
- Supine ball between ankles, between knees @ 30°, between knees @ 90°
- Same in seated position
- Cable, theraband exercises
- Resistance adduction machines
- Don’t stretch

**Summary**

**Patello-femoral pain**
- Identify predisposing biomechanical factors
- Positive response to tape
- Strengthen VMO (biofeedback) and gluteals
- Loosen tight lateral structures
- Activity and training modification. Must be painfree.

**Anterior Cruciate Ligament**

**ACL Tear**

**Acute Injury**
The ACL

The PCL

History and management

- Giving way episode, noise, left field
- Swelling, pain, antalgic gait
- Possible locking /meniscus
- Further instability
- Xray
- RICE regime, regain motion
- ?ACL reconstruction

Thank You