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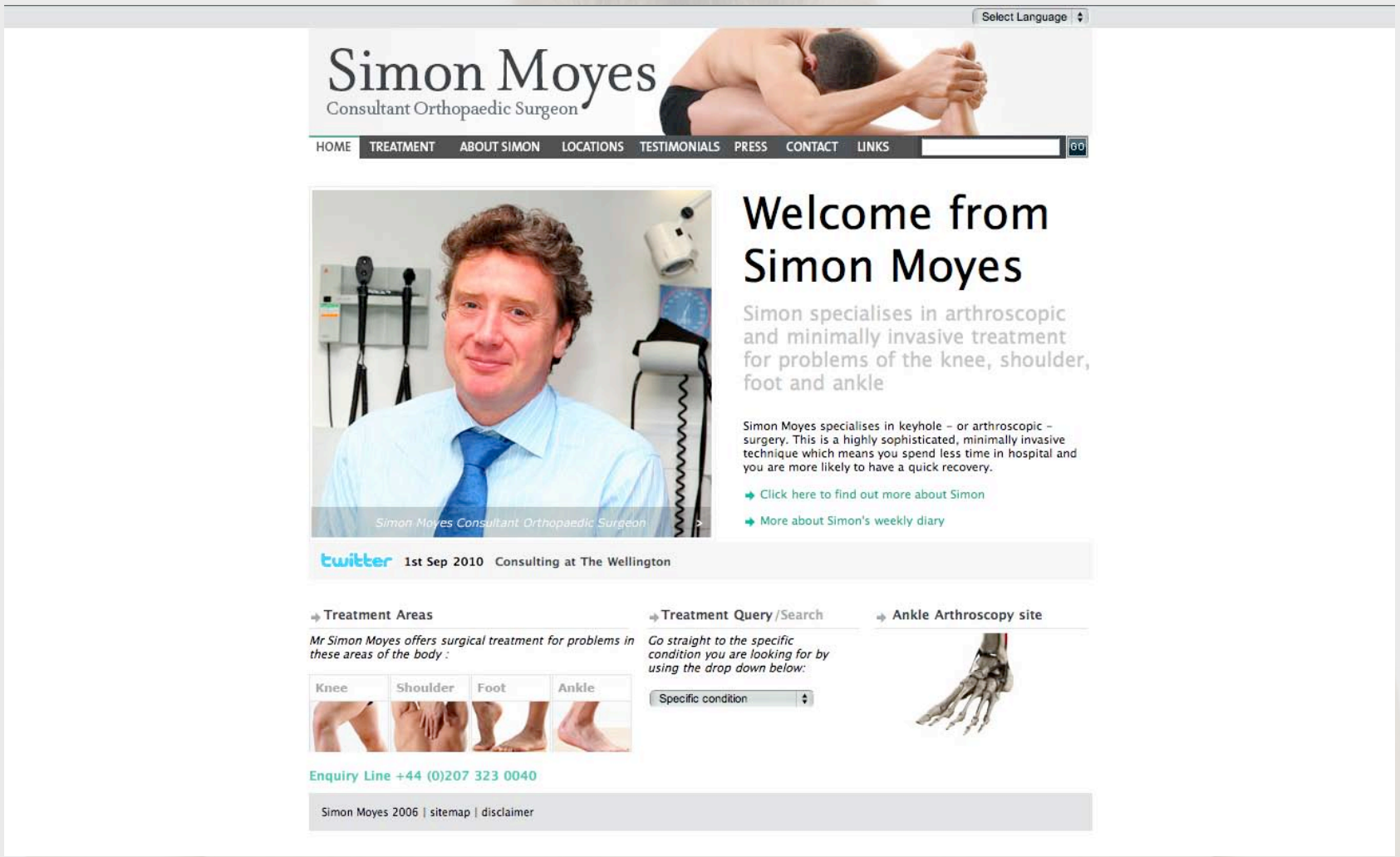
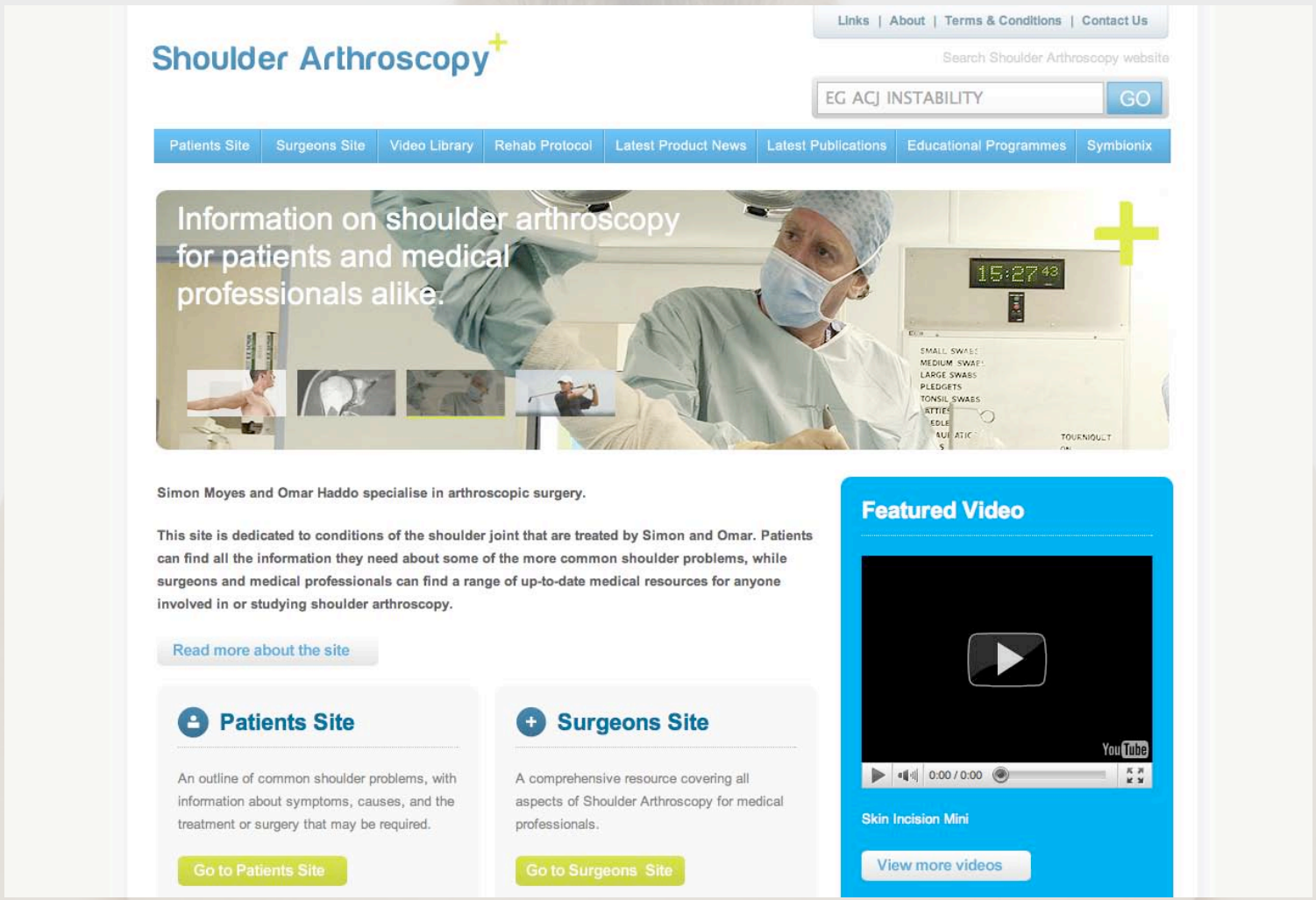
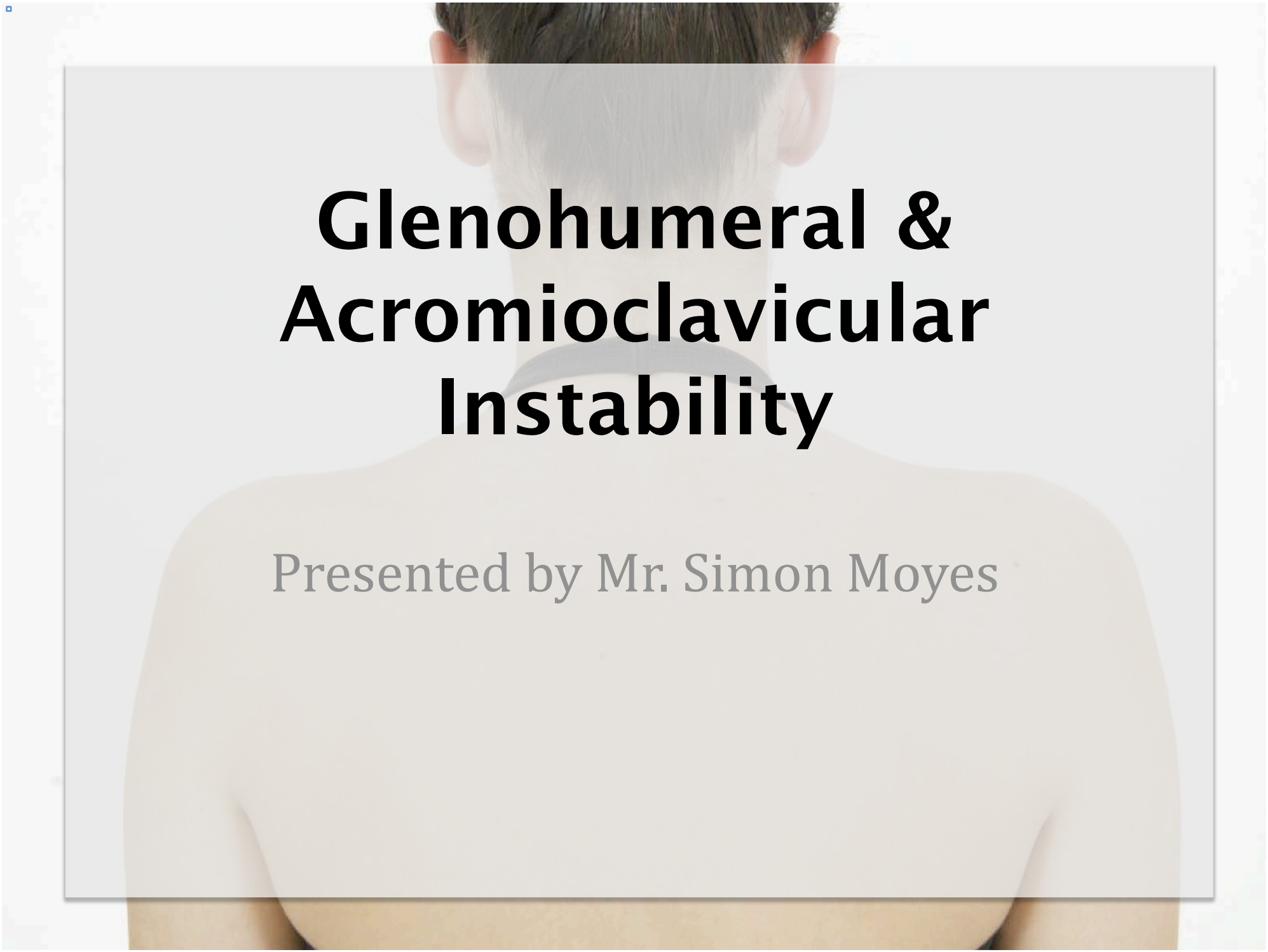


www.shoulder-arthroscopy.co.uk





Glenohumeral & Acromioclavicular Instability

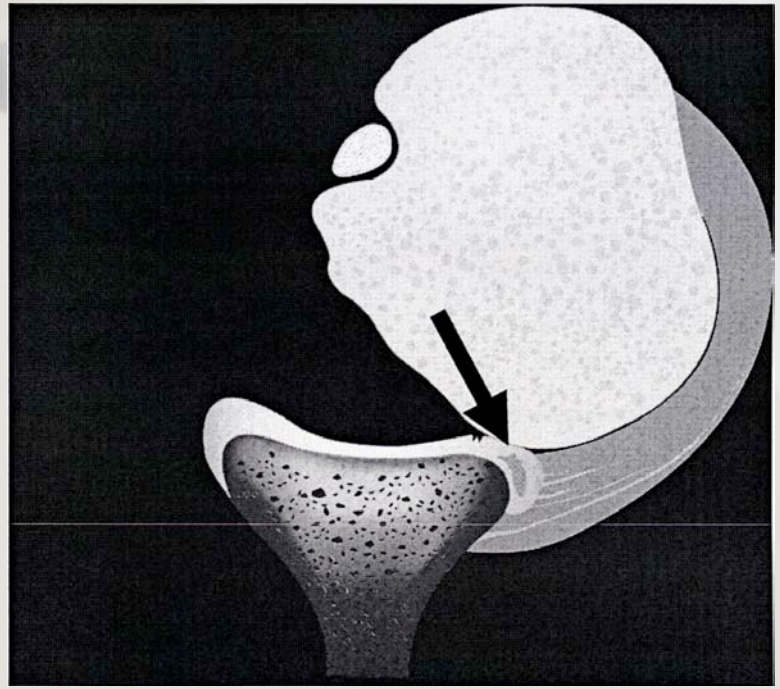
Presented by Mr. Simon Moyes

Introduction

Papyras 3000 BC
Hippocrates 460 BC Traction plus heel in axilla
1900s non anatomical procedures developed
- Bone grafting of glenoid
- Tendon and bone transfers
- High recurrent instability rates

Putti, Bankart, Platt and Bristow 1939
- Successful
- Limited mobility = price to pay

Arthroscopy 1980s
- Precise pathologies identified

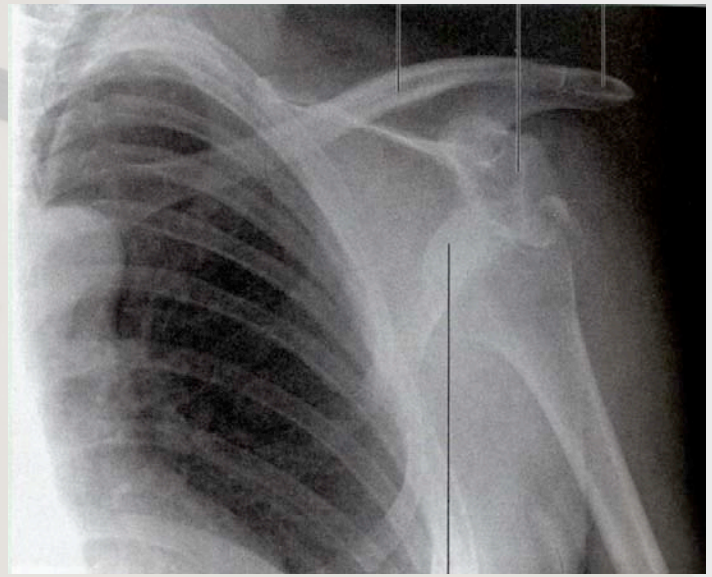


Terminology - Laxity versus Instability

Laxity – Degree of asymptomatic translation

Instability – Abnormal symptomatic motion producing:

- Pain
- Subluxation
- Dislocation



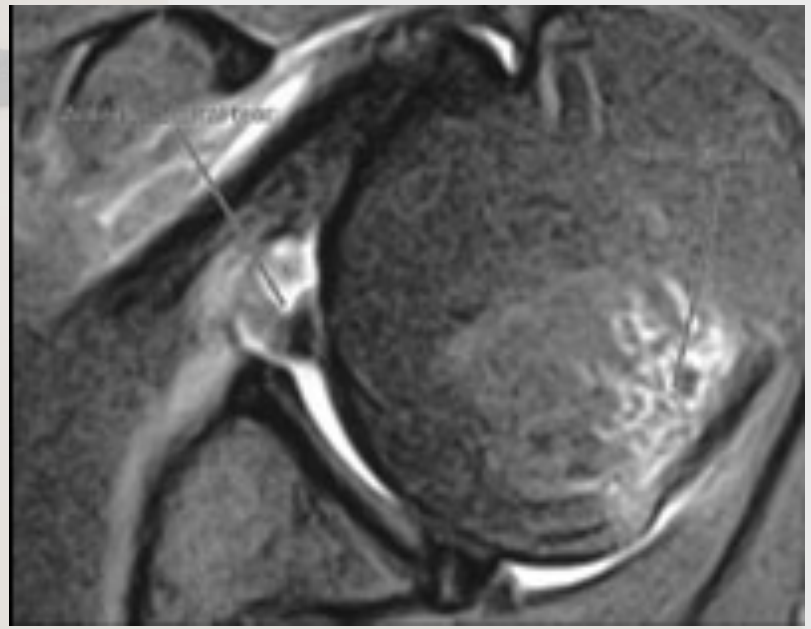
Glenohumeral Instability

(A) Degree of instability

1. Dislocation = complete separation of glenohumeral surfaces
2. Subluxation = Symptomatic separation of surfaces without dislocation

(B) Chronicity of instability

1. Acute instability caused by acute symptomatic traumatic shoulder dislocation
2. May improve with time or progress to recurrent chronically unstable shoulder



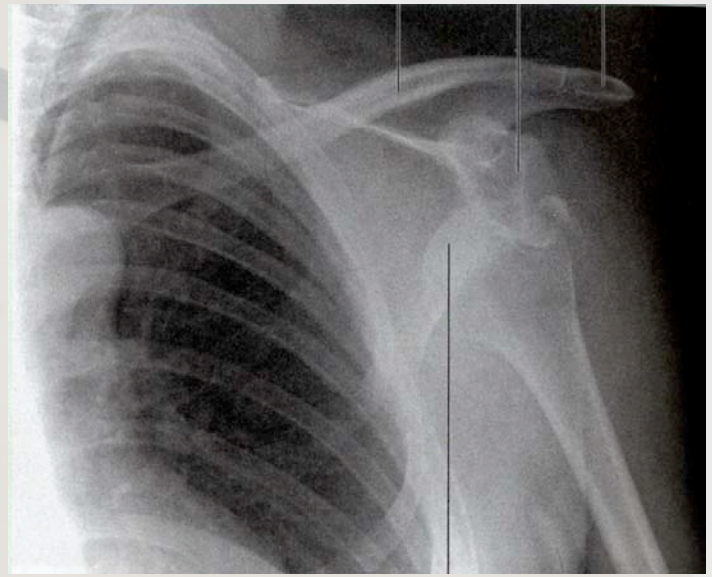
Glenohumeral Instability

(C) Volition of instability

1. Carter Rowe 1973 ‘Trick’ movement
2. Involuntary (more common) muscle patterning component
3. Voluntary can progress to involuntary with the unbalanced muscle action becoming ‘deeply ingrained’.

(D) Direction of instability

1. Bankart Lesion 1939 unidirectional anterior instability (most common)
2. Neer 1980s multidirectional instability (MDI)
3. True MDI should have both anterior and posterior instability with an inferior component.

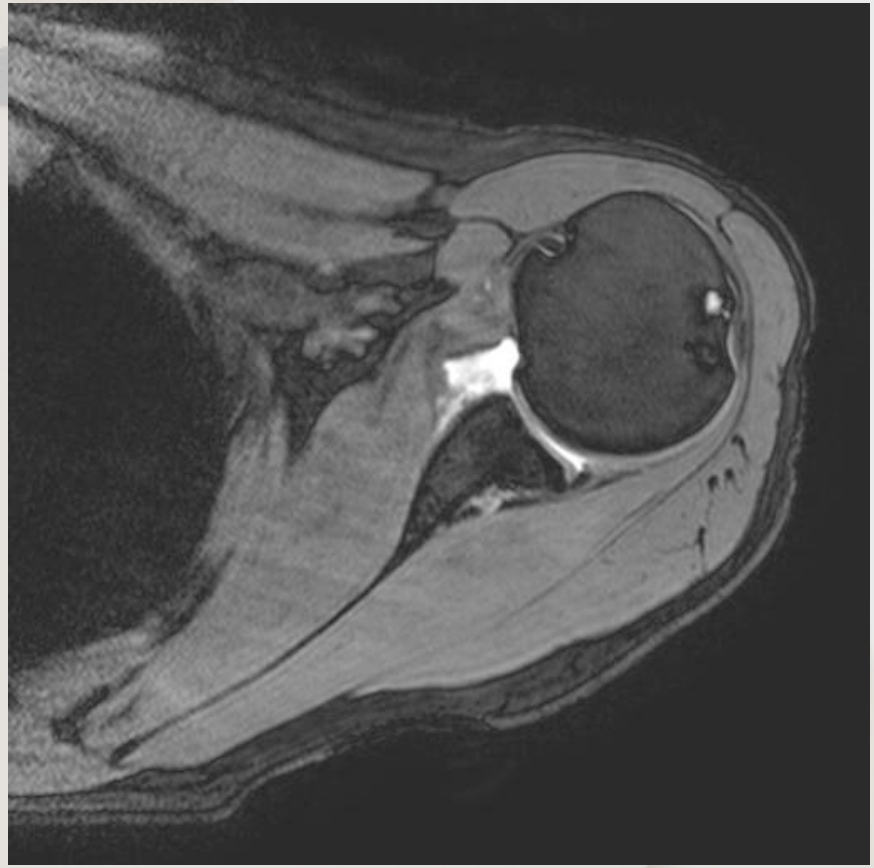


Aetiology of Instability

(A) Distinction critical in selection of treatment

(B) Rowe 1963

1. 96% traumatic
2. 4% atraumatic



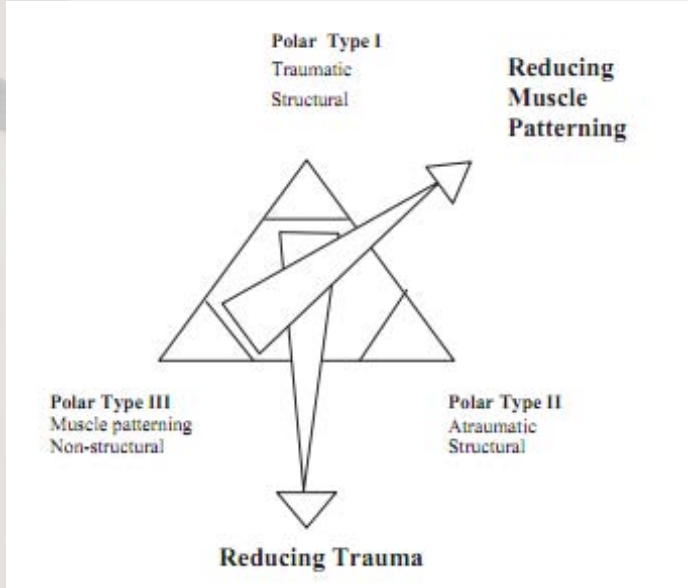
Thomas and Matsen Classification 1989

TUBS – Traumatic
Undirectional Bankart Lesion treated with surgery

AMBRI – Atraumatic multidirectional Bilateral treated with rehabilitation +/- Capsular shift/ closure of rotator interval

Stanmore Classification

When assessing treatments for patients, the patients are classified into three polar groups: Type I (True TUBS), Type II (True AMBRI), or Type III (Muscle patterning disorders/Habitual non-structural). In using this system over the years it has been made aware that there is a continuum between these polar groups with some patients falling in between. It is found that the best model in which to capture these cases is in the form of a triangle with the polar groups at each corner.



The system therefore:

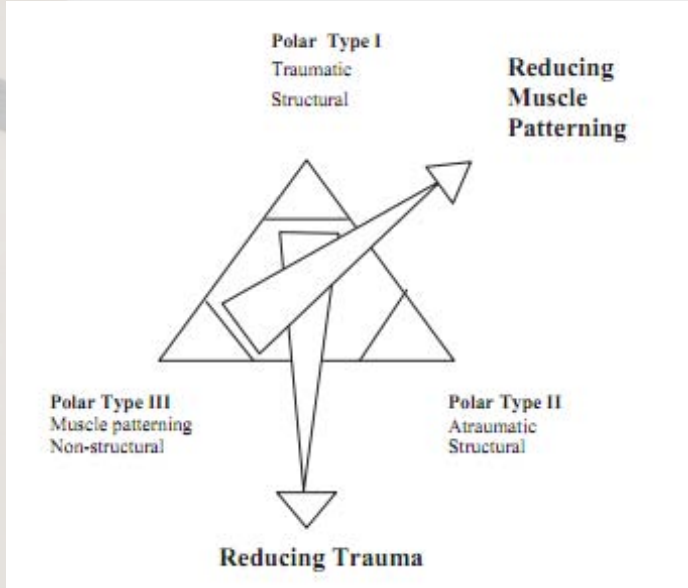
- Takes into account the shifting nature of the pathology in shoulder instability.
- Allows patients to be positioned between the poles.
- Incorporates a gradation from traumatic to atraumatic causes.
- Incorporates a gradation from muscle patterning to purely structural causes.

Stanmore Classification

The benefits of this system are:

The triangle system does provide a means of classifying all presentations of shoulder instability with a unifying system.

- It allows for a shift in the pattern of instability with time.
- It is a simple system to implement and easy to remember.
- It provides a route for treatment of all the varieties of instability



Stanmore Classification

Table 2 Demonstrates the characteristics of the subgroups.

Pathology	Group I (II)	Group II (I)	Group I(III)	Group III(I)	Group II(III)	Group III(II)
Trauma	+++	++	++	+/−	+/−	+/−
Articular surface damage (Humeral head and/or gleniod rim)	Yes	Yes	Yes	No	Yes	Yes
Muscle patterning	No	No	Yes	Yes	Yes*	Yes

*_BUT_ apparent on functional EMGs.

Principles of treatment

(a) History
(b) Examination
(c) Investigation

1. EUA
2. Imaging MRI- CT
3. Arthroscopy
4. Functional EMG

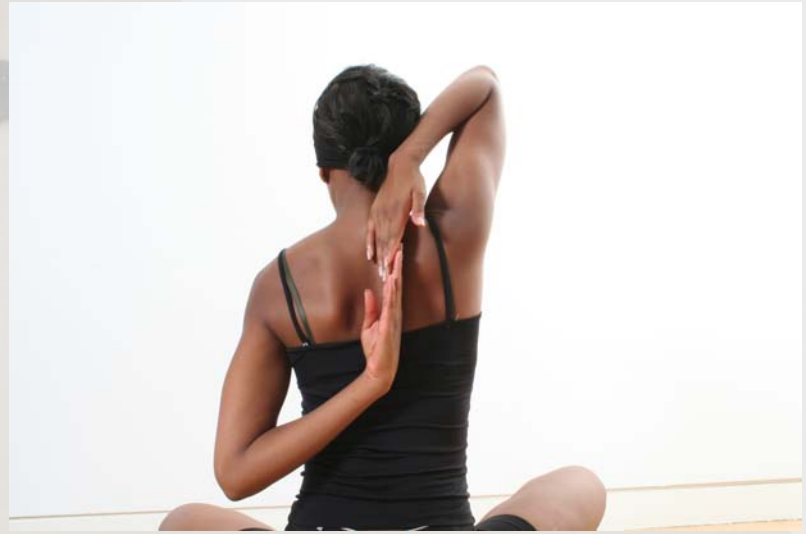
Polar Group 1

(traumatic structural instability)

- Anterior structural instability the most common 90%
  - 2% of the population
  - 88 - 95% recurrence under age 20 years
  - 14% recurrence over 40 years
- ‘Gold standard’ Bankart 1939
  - Restore detached labrum
  - Reattaching IGHL
- Rockwood 1978
  - 97% stability at 5 years
  - Open vs Arthroscopic

Polar Group II and III

- Define whether structural or non structural
- Assess muscle patterning and direction of instability
- Abnormal muscle patterning
    - EMGs
    - Bio-feedback
        - Joint position sense
        - Muscle movement patterns
        - Closed circuit TV
- Surgery only
    - Definite structural component
        - Bone
        - Labral
        - Capsular

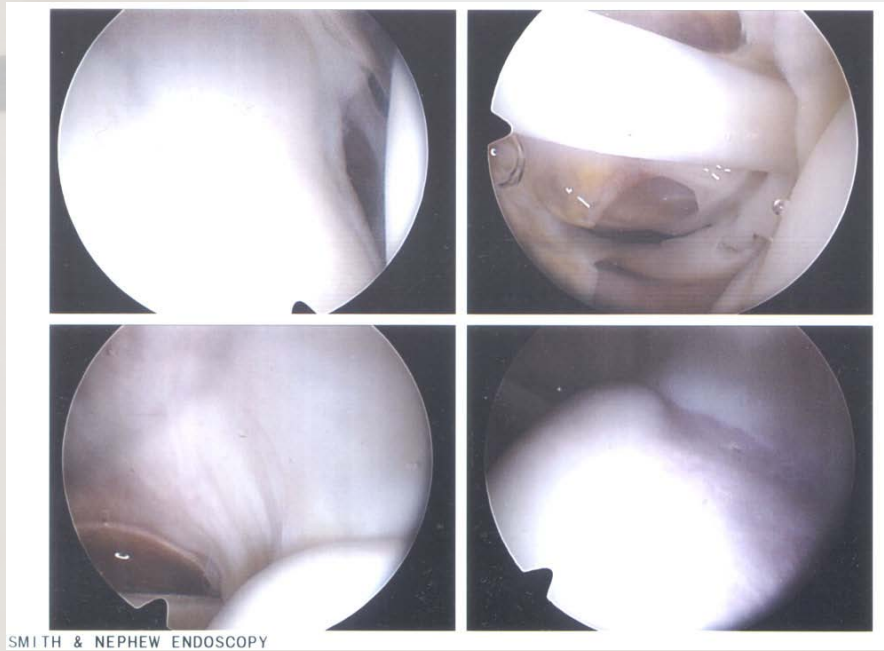


Surgery

- Arthroscopy best way to assess structural damage.

- Identifies subtle humeral head and labral defects. Vital in difficult cases.

- A Hill Sachs (Broca) lesion can occur in 80% of patients with recurrent instability at arthroscopy compared to only 47% of Hill Sachs lesion diagnosed radiologically.



Surgery

Arthroscopic repair has potential advantages:

- Improved cosmesis
- less postoperative pain
- shorter operative time
- decreased blood loss
- better preservation of external rotation
- avoidance of subscapularis related complications.

Recurrence rates as low as 5% are reported.

Patient Selection

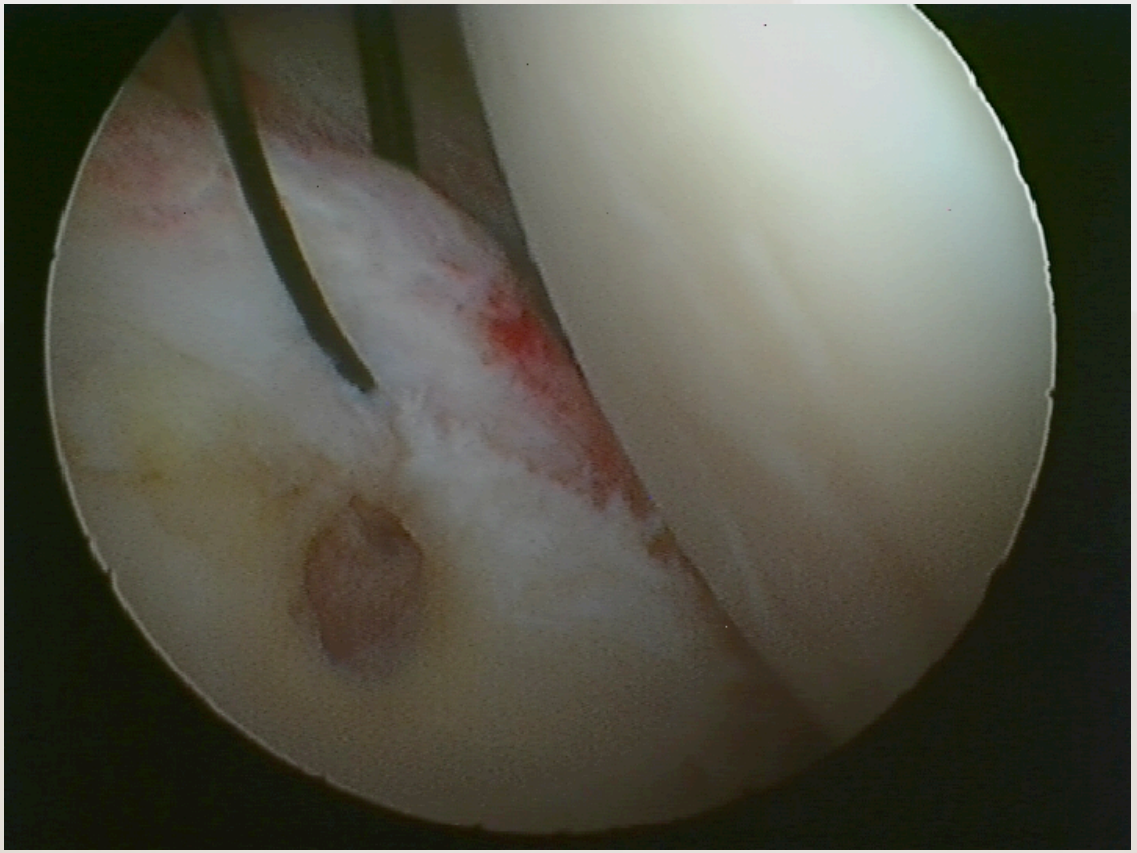
Arthroscopic

Optimal candidates have a discreet Bankart lesion with no capsular laxity or concomitant intra-articular pathology.

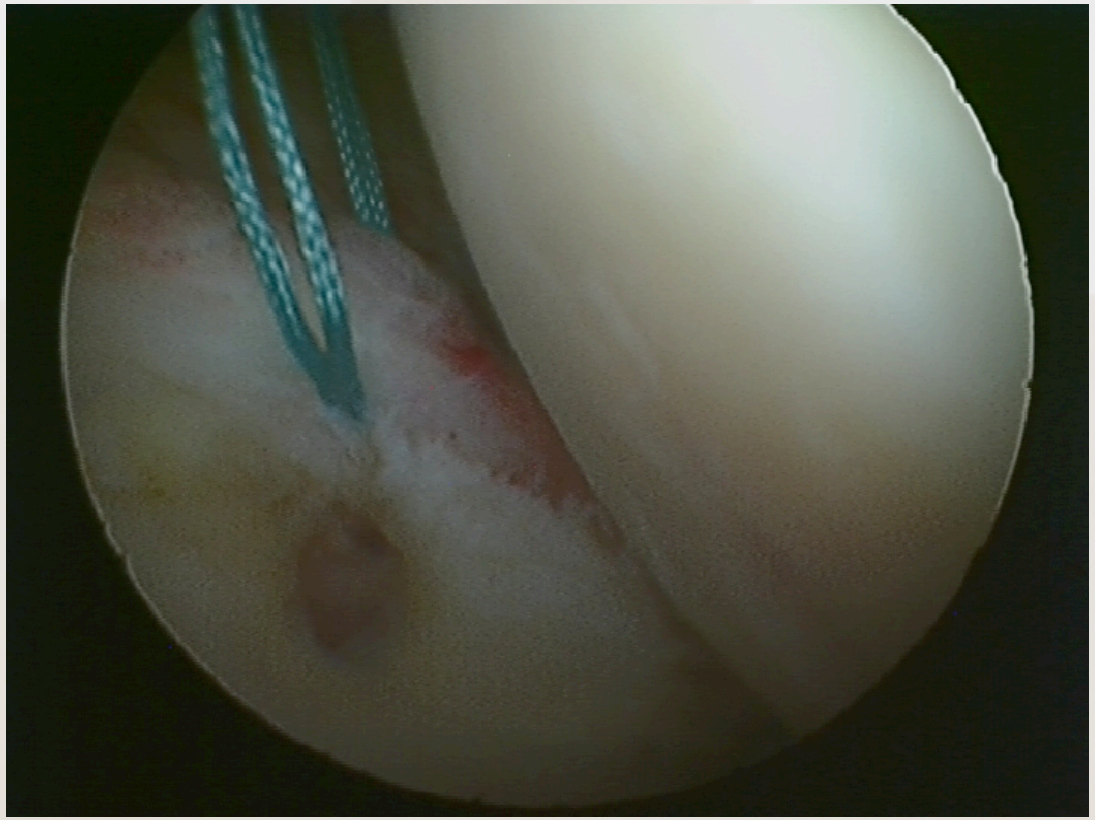
Open

Patients who require open repairs are those with significant capsular problems, capsular laxity, bony Bankart lesion, glenohumeral arthritis, associated rotator cuff tear, or poor tissue quality.

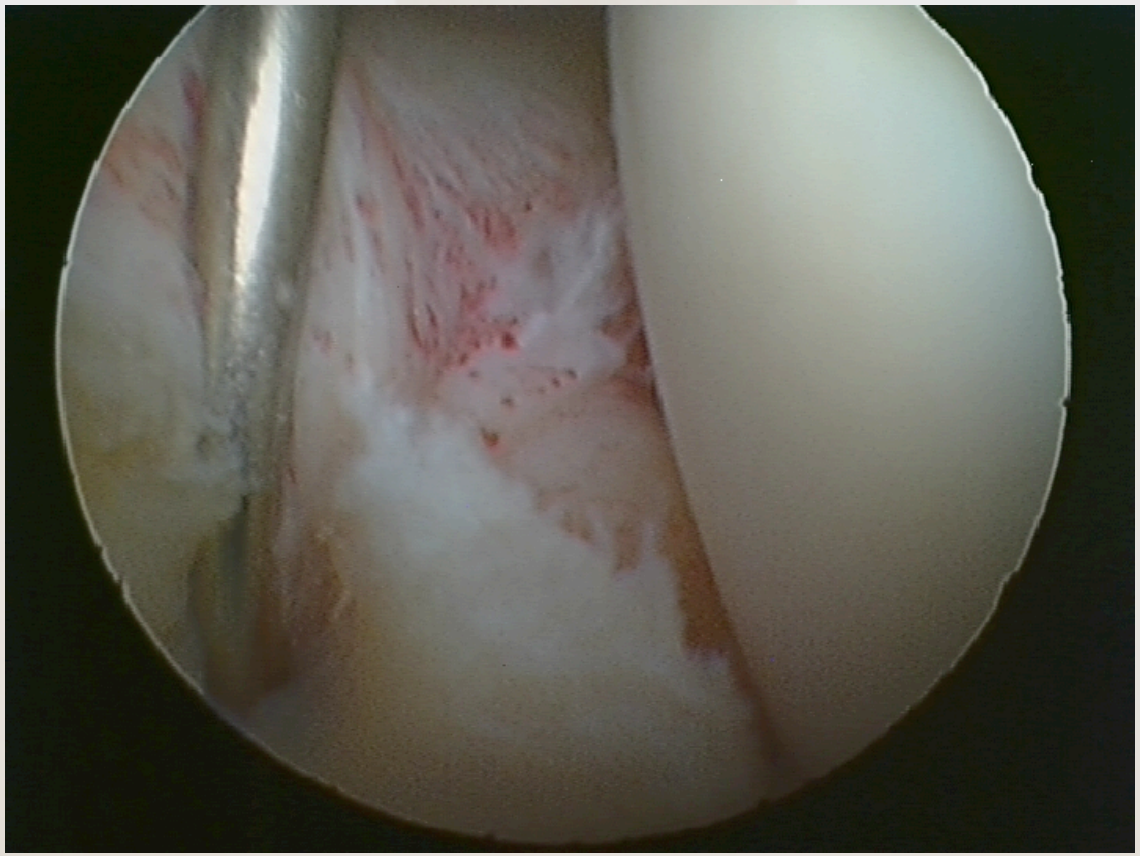
Arthroscopy, Bursoscopy, EUA and Arthroscopic Stabilisation - Right Shoulder

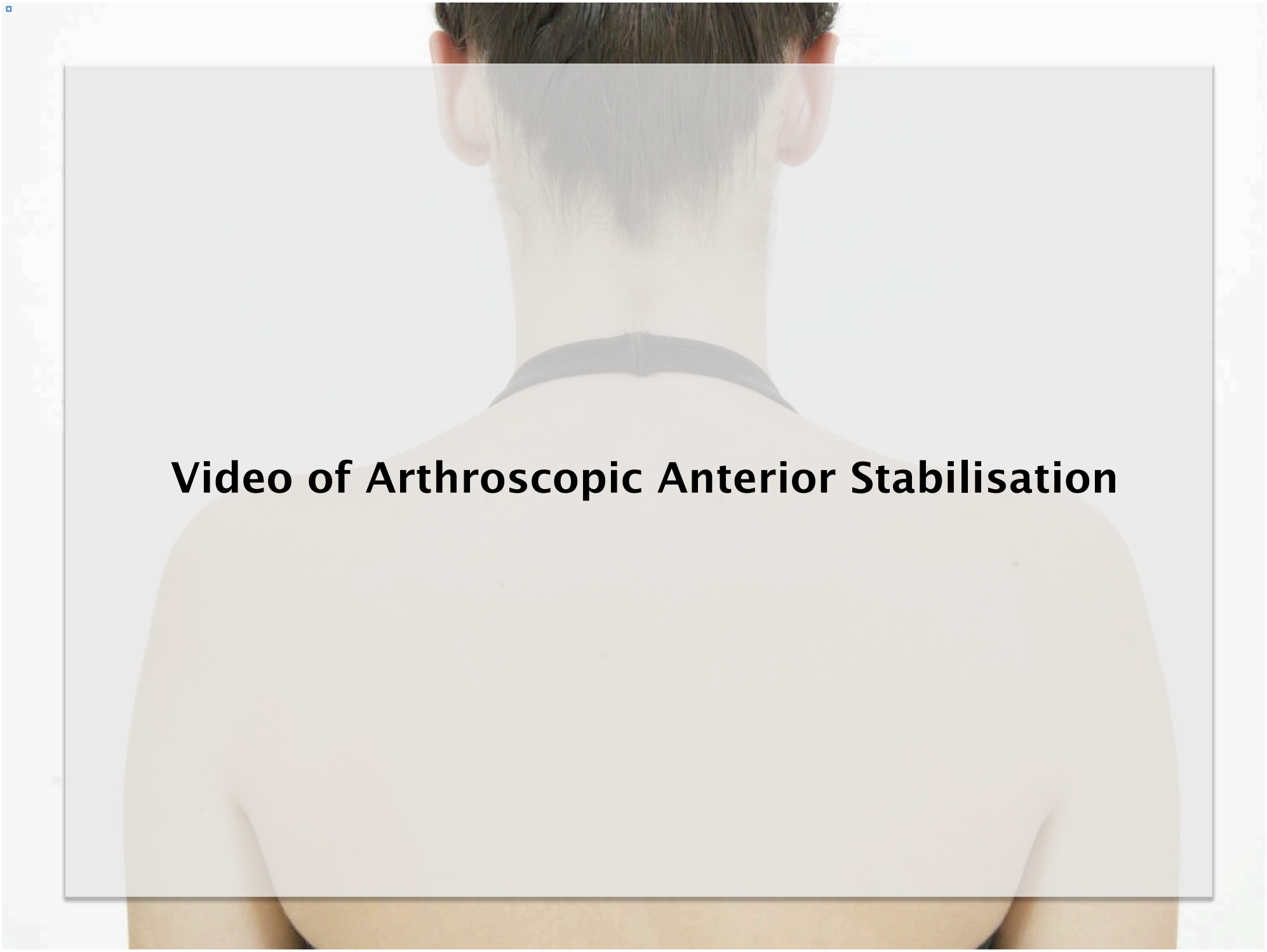


Arthroscopy, Bursoscopy, EUA and Arthroscopic Stabilisation – Right Shoulder



Arthroscopy, Bursoscopy, EUA and Arthroscopic Stabilisation - Right Shoulder





Video of Arthroscopic Anterior Stabilisation

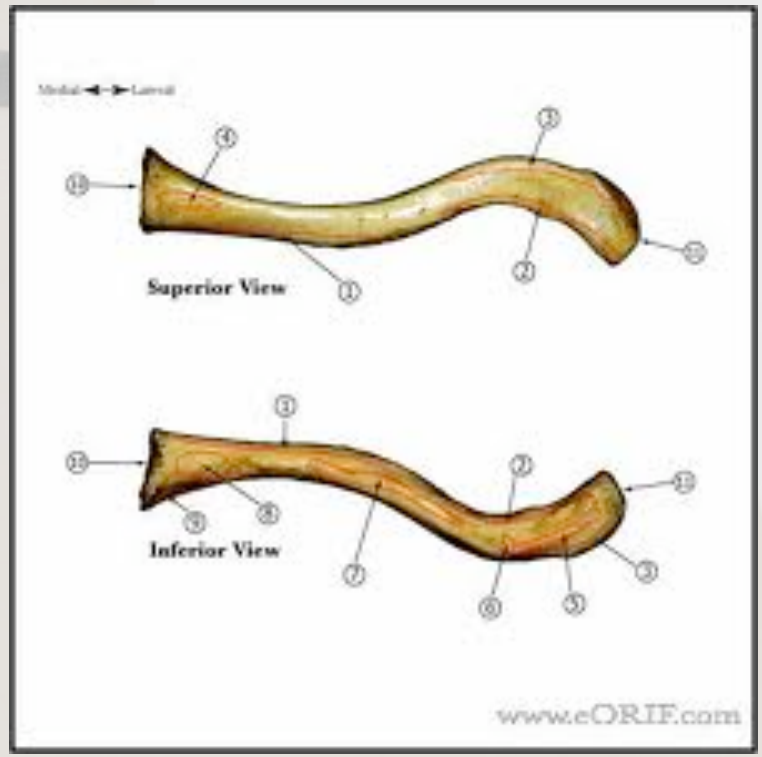
Clavicle Injuries

Clavicle anatomy

- S – shaped bone with varying cross section
- Superficial
- Only bony link of upper limb to axial skeleton
- Strut of shoulder joint
- Muscle attachment

Movement:

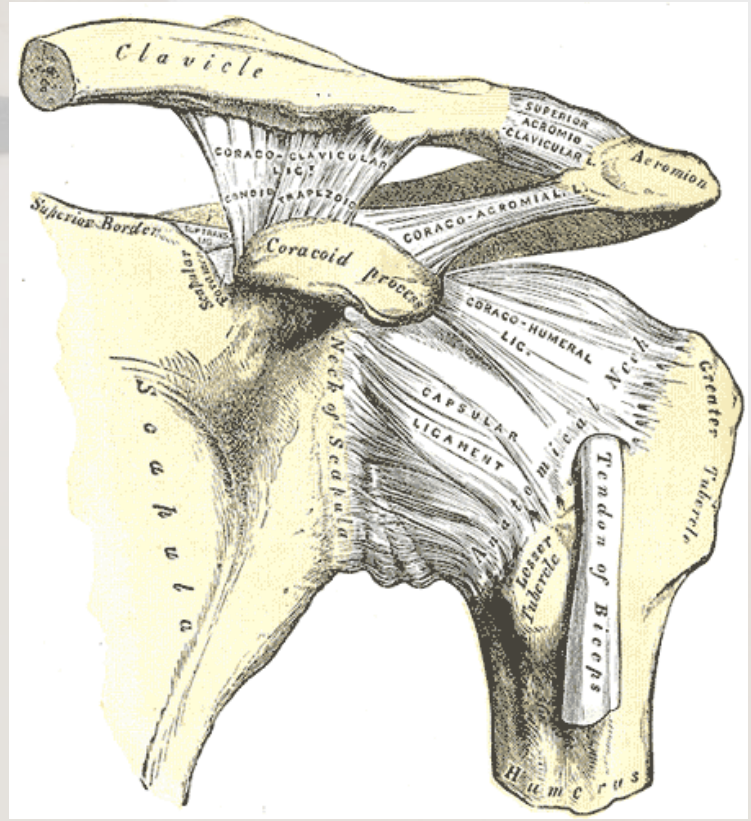
- Superior-inferior
- Anterior-posterior
- Rotational



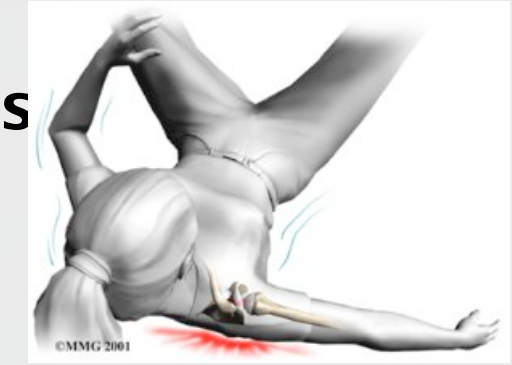
Sports Injuries

- Increasing numbers seen:
  - More people involved in sports
  - Excessive training
  - All year schedules
  - Improper techniques
  - Lack of equipment

Can result in:
  - Time away from sports
  - End of athletic career
  - Life-long disability

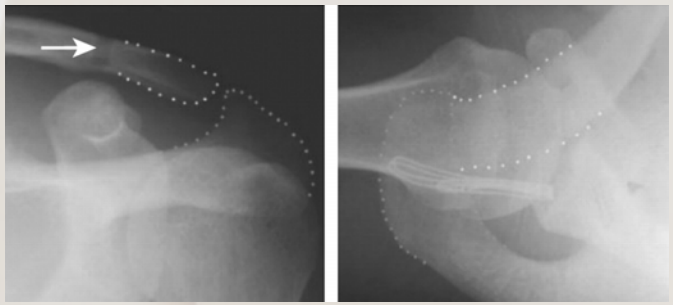


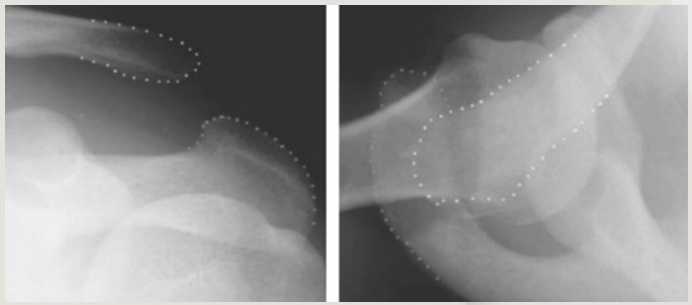
AC joint dislocations



- Diagnosis:
  - Clinical

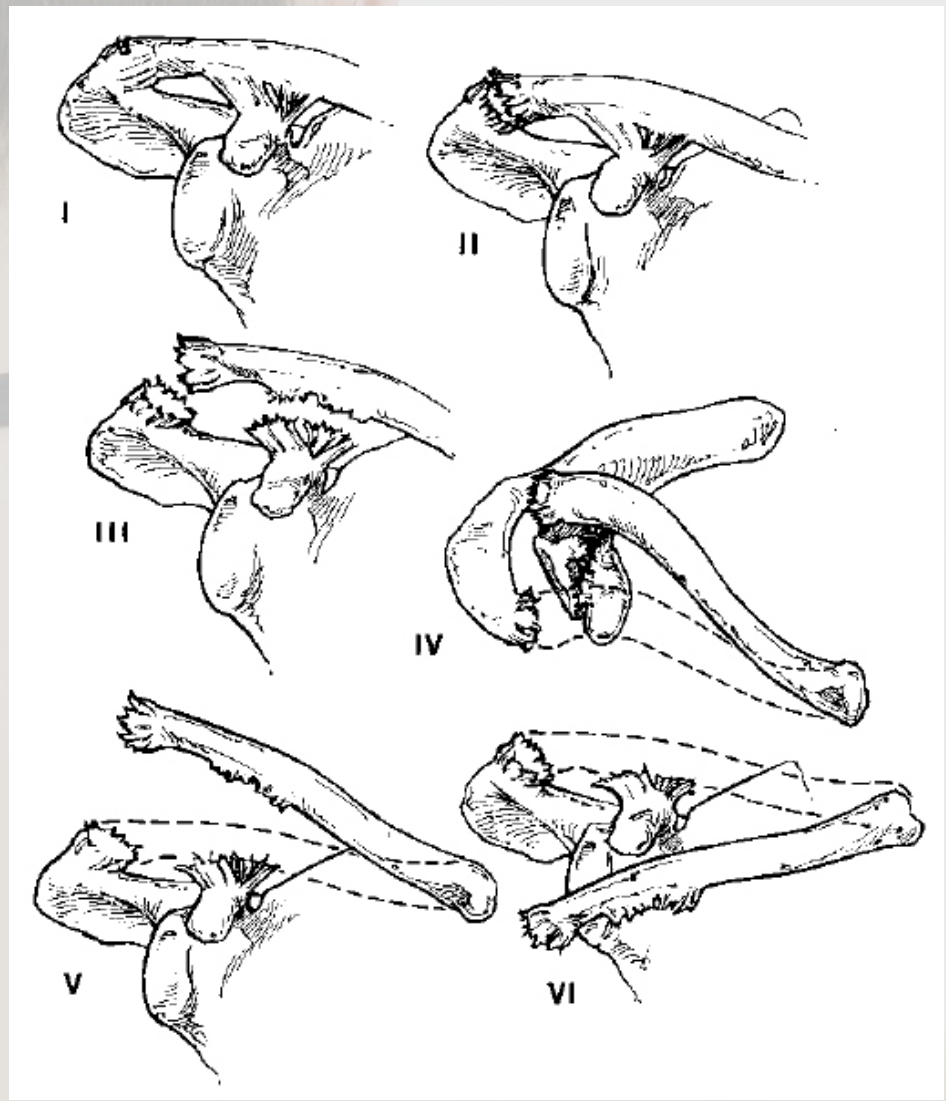
  - Radiological (stress views, axillary views, comparison with normal shoulder)





AC joint dislocations

The Rockwood Classification



AC joint dislocations

Treatment

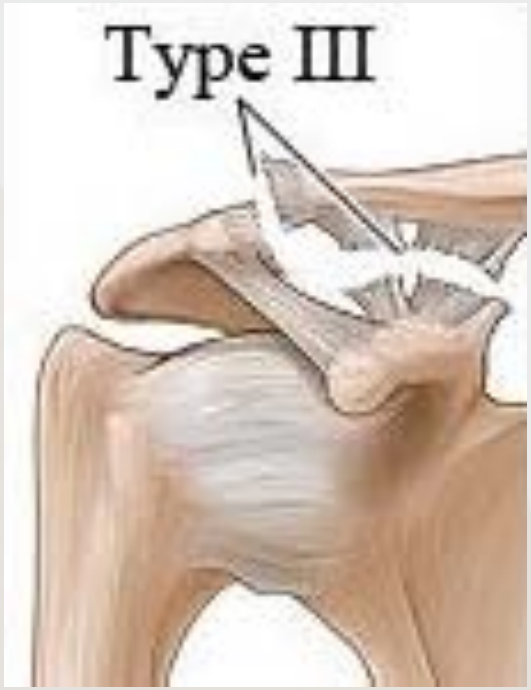
I-II: conservative

27% persistent pain

Injection, surgery

IV-VI: surgical

III: ???



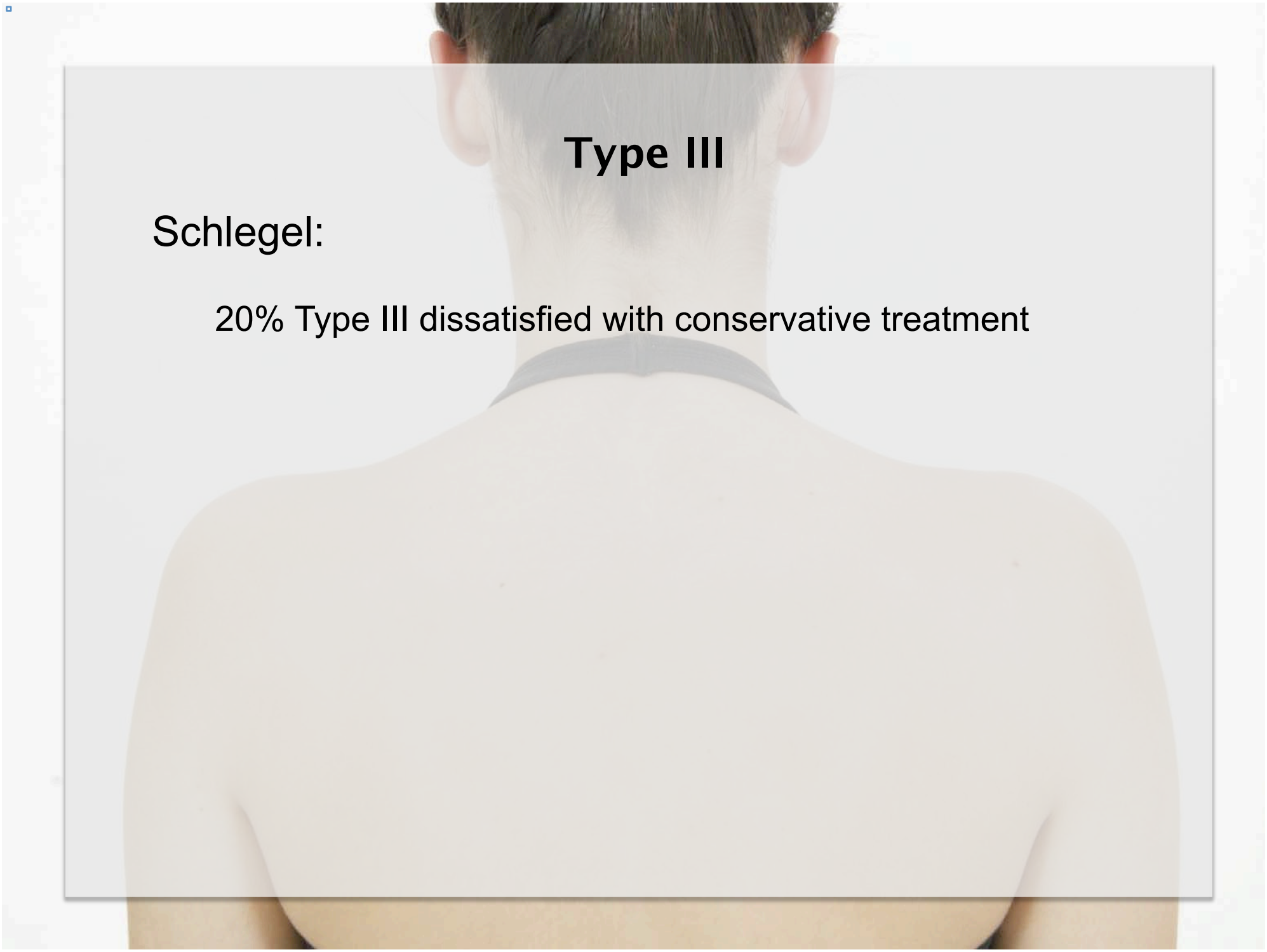
Type III

Meta-analysis:

1172 patients

	Surgery	Conservative
Satisfactory Ouctomes	88%	87%
Complications		
Further Surgery	59%	6%
Infection	6%	1%
Deformity	3%	37%
Pain and Function	Equal	Equal

But surgery included the use of Hook plates and Bosworth screws!



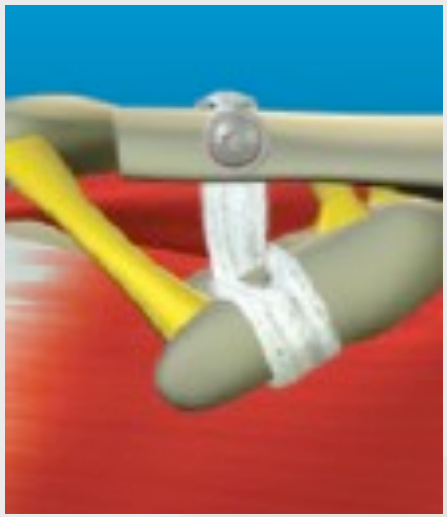
Type III

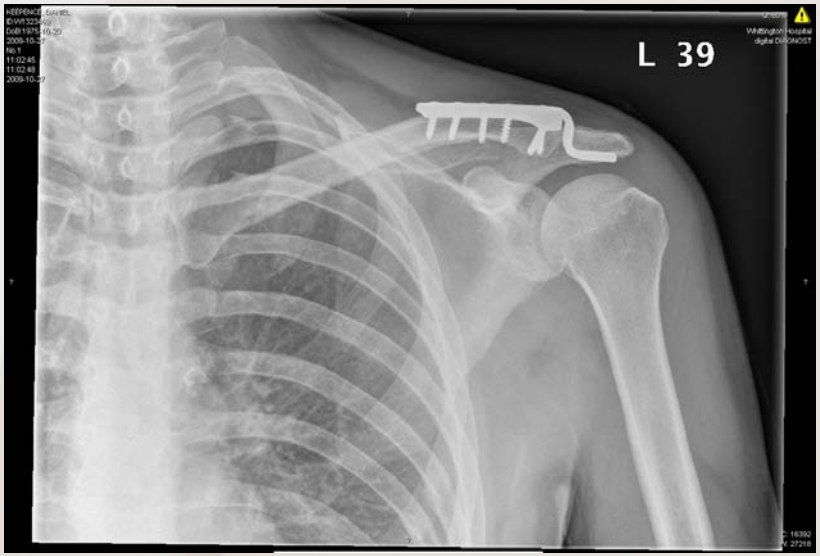
Schlegel:

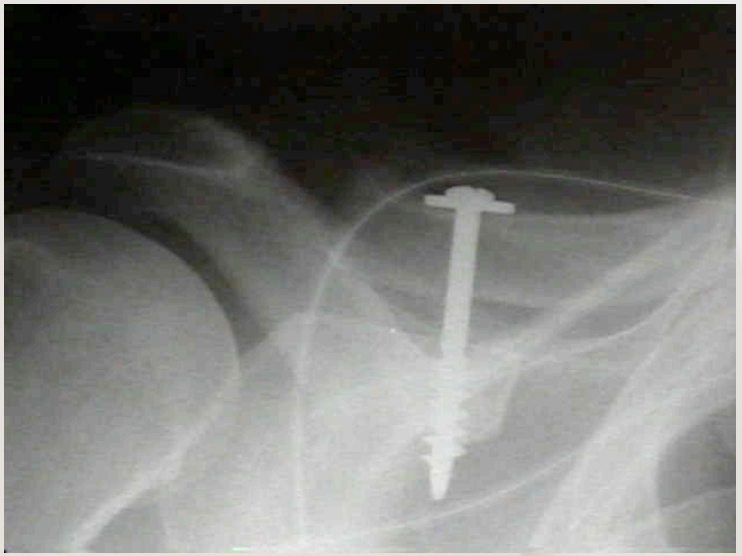
20% Type III dissatisfied with conservative treatment

Type III Treatment

Acute vs Chronic







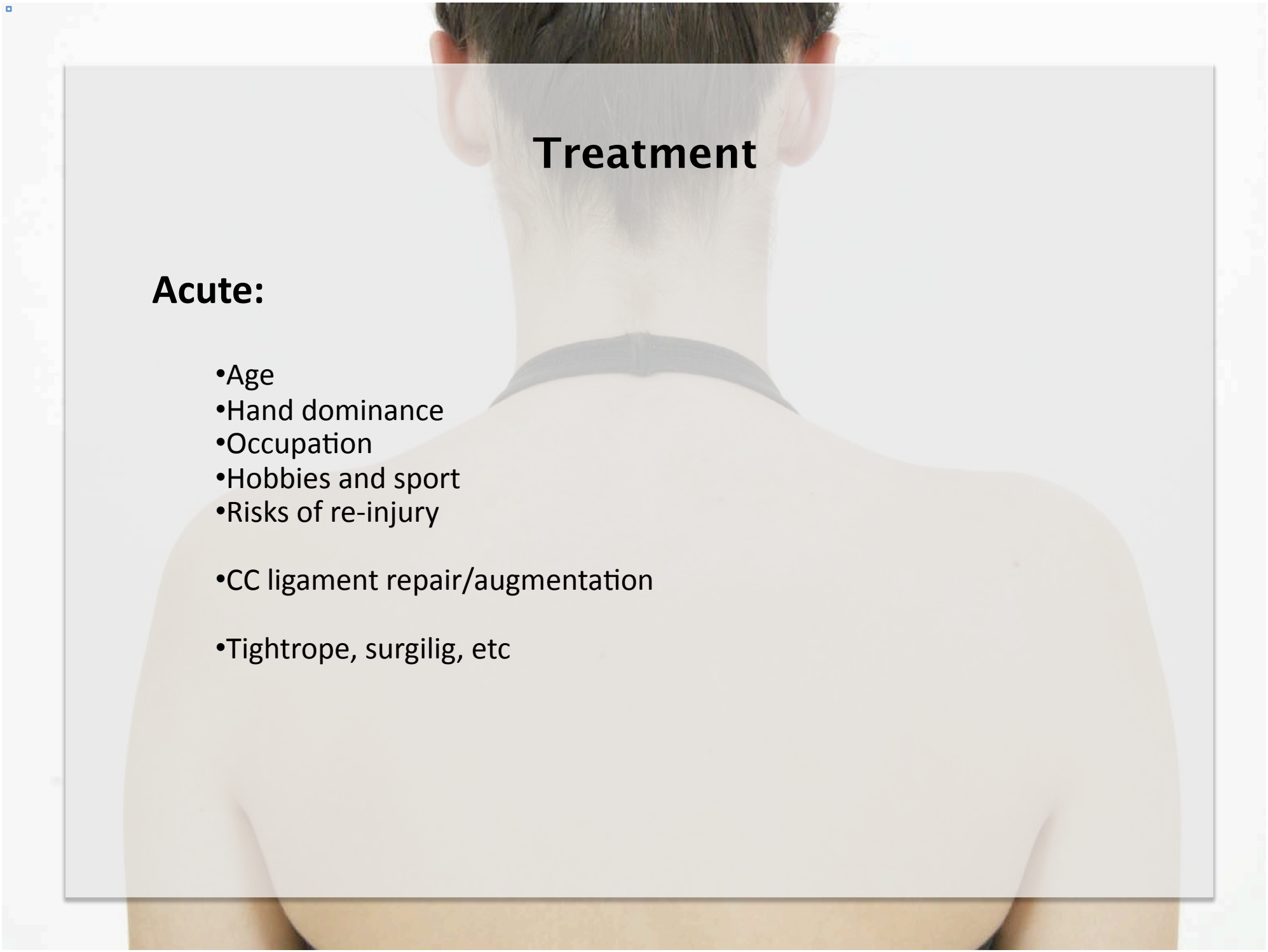
Treatment of Chronic Type III Injuries

- **Autograft**
- CA ligament only represent 20% of ultimate load of CC ligament

- **Allograft**
- Technically easier
- Increased Strength
- Smaller scars

Coraco-clavicular augmentation increases load to failure

Tension band, hook plates, bosworth screw, surgilig, tightrope, PDS cord



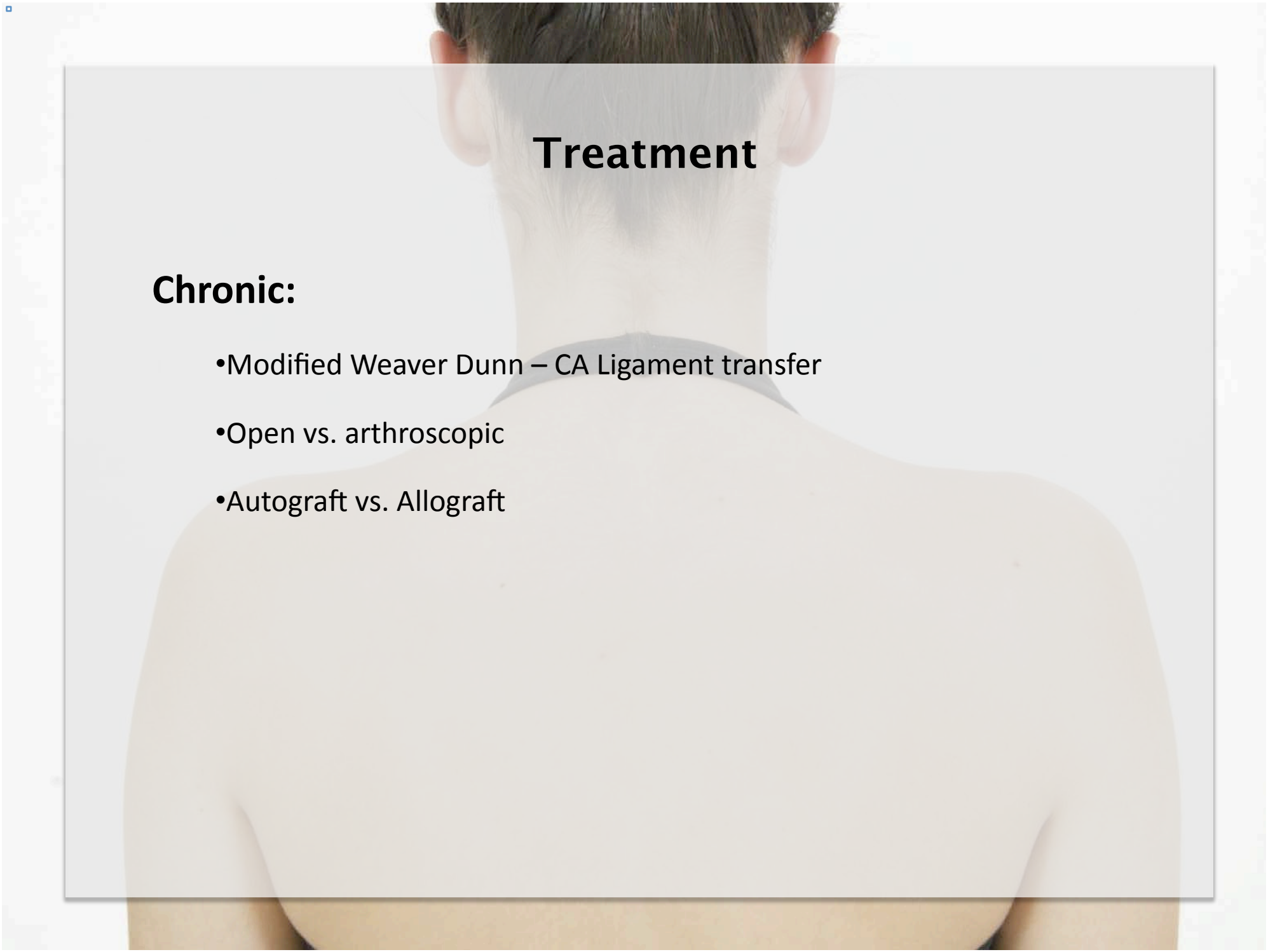
Treatment

Acute:

- Age
- Hand dominance
- Occupation
- Hobbies and sport
- Risks of re-injury

- CC ligament repair/augmentation

- Tightrope, surgilig, etc



Treatment

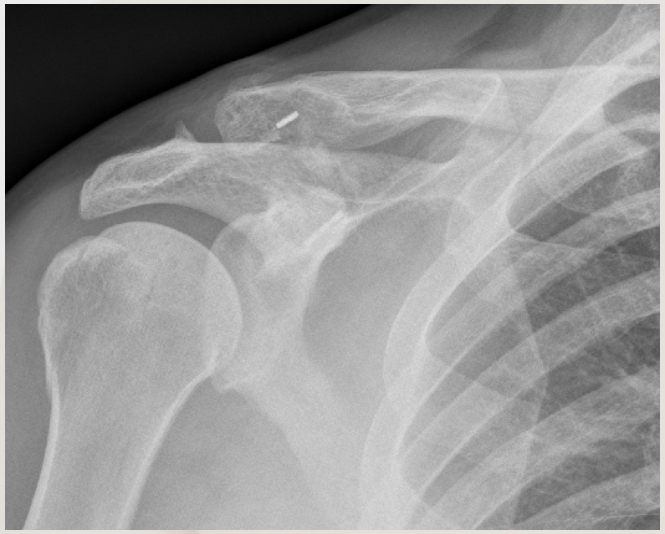
Chronic:

- Modified Weaver Dunn – CA Ligament transfer
- Open vs. arthroscopic
- Autograft vs. Allograft

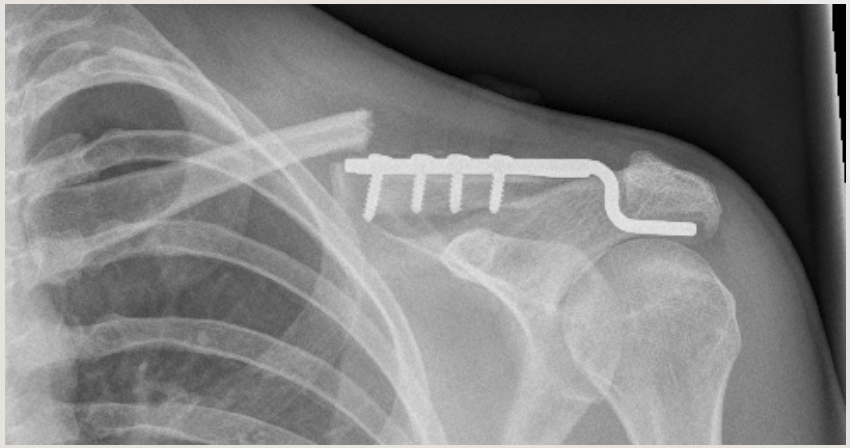
Audit 2010 – Arthrex tightrope offers satisfactory outcome for ACJ stabilisation (Lower complication rates and lower rate of further surgery)

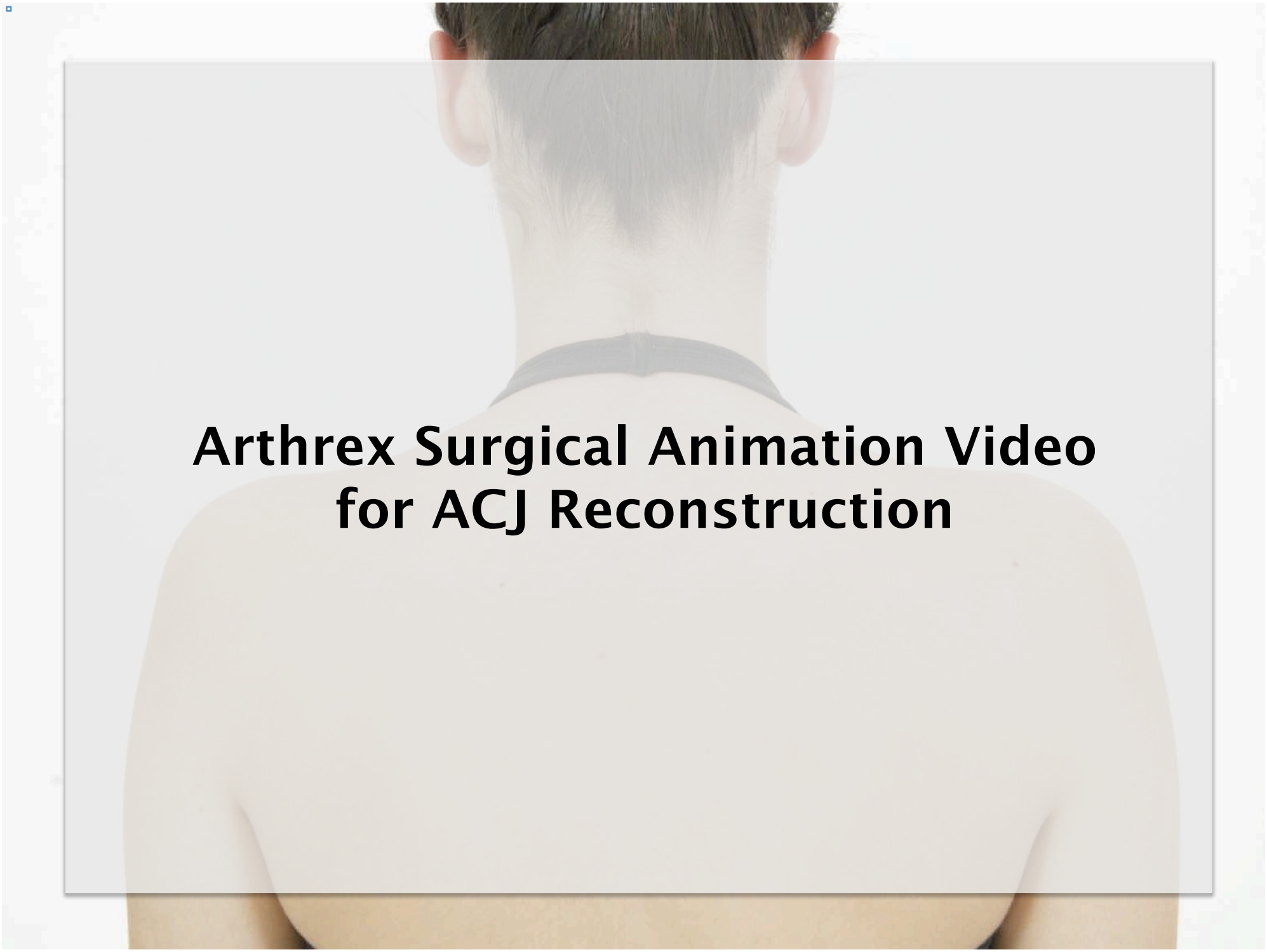
Complications of fixation devices

Tightrope

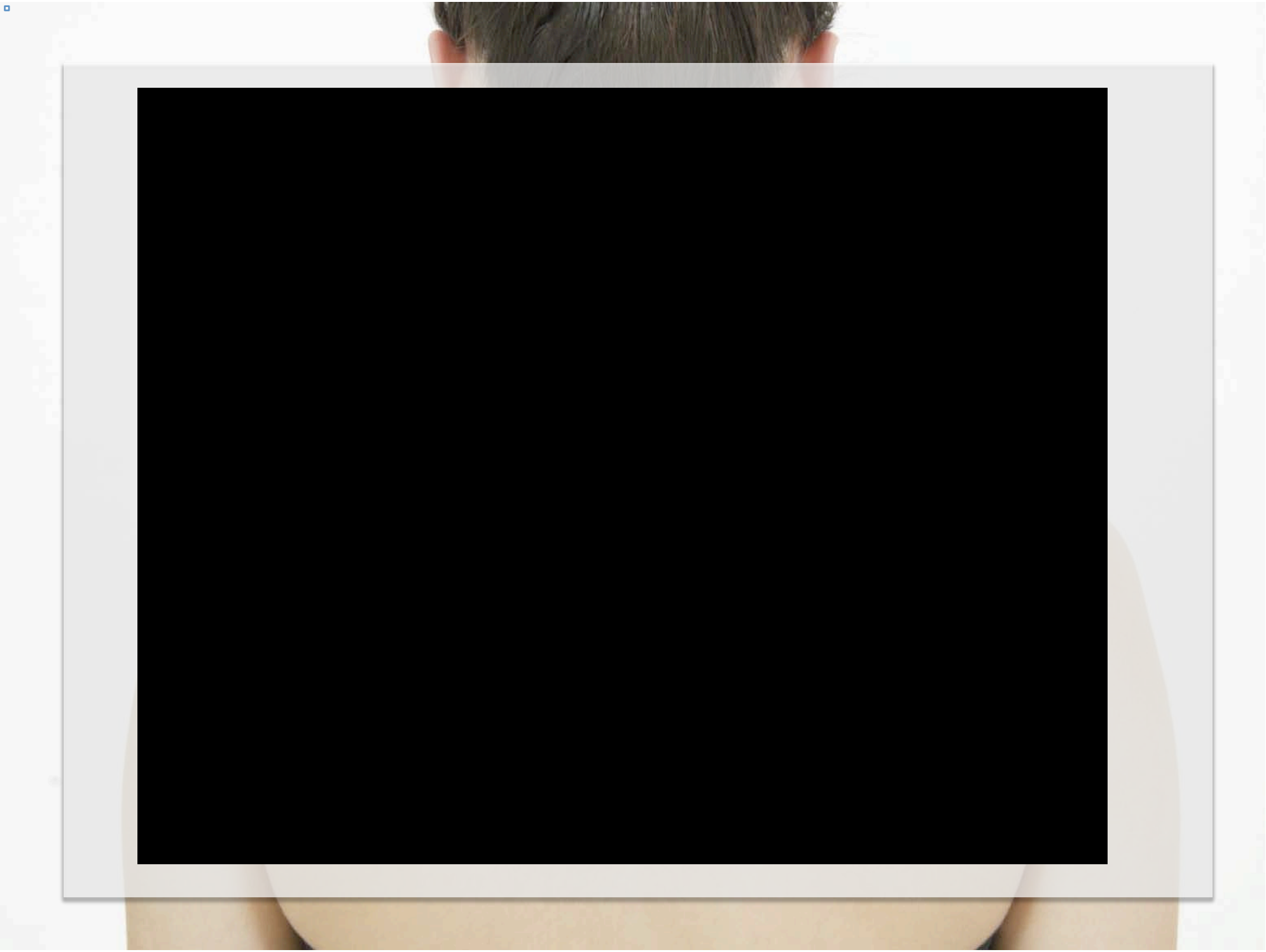


Hook Plates





Arthrex Surgical Animation Video for ACJ Reconstruction



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