

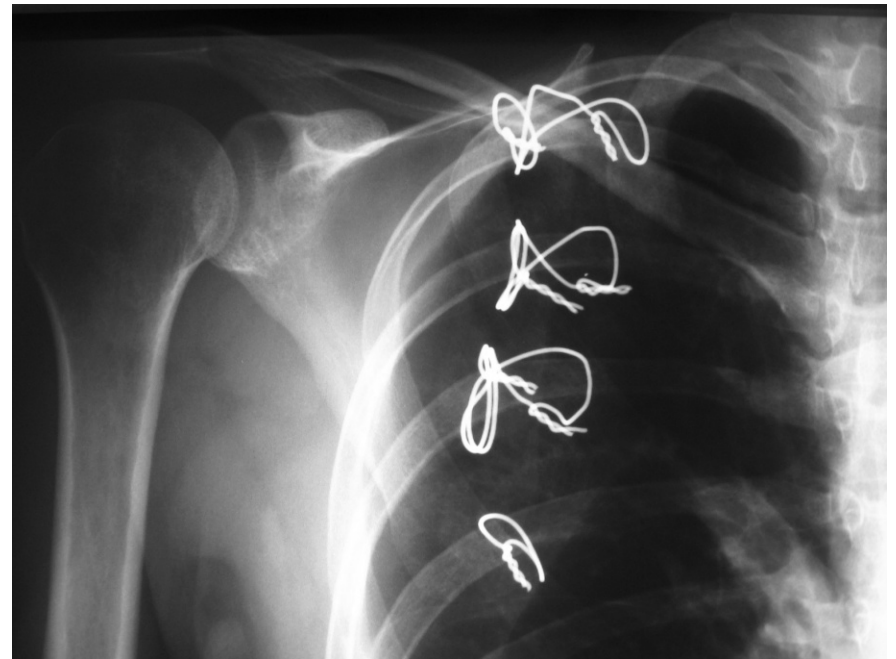
Scapular Fixation Surgery

Leigh Ann Curl, MD

Harborview Sportsmedicine and
Shoulder Surgery

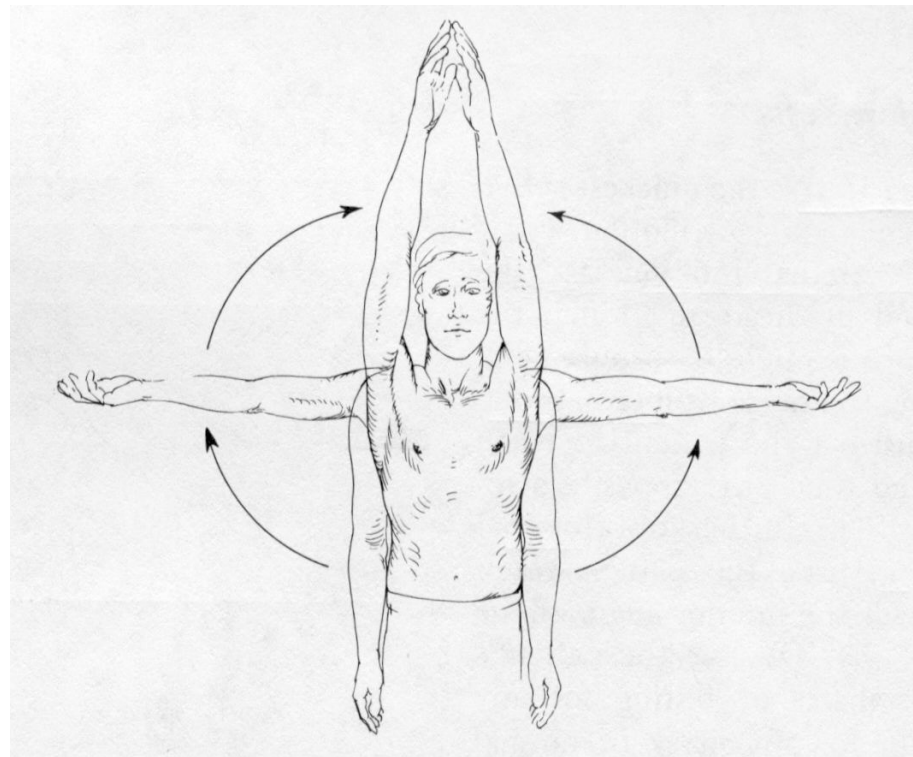


Medstar SportsHealth



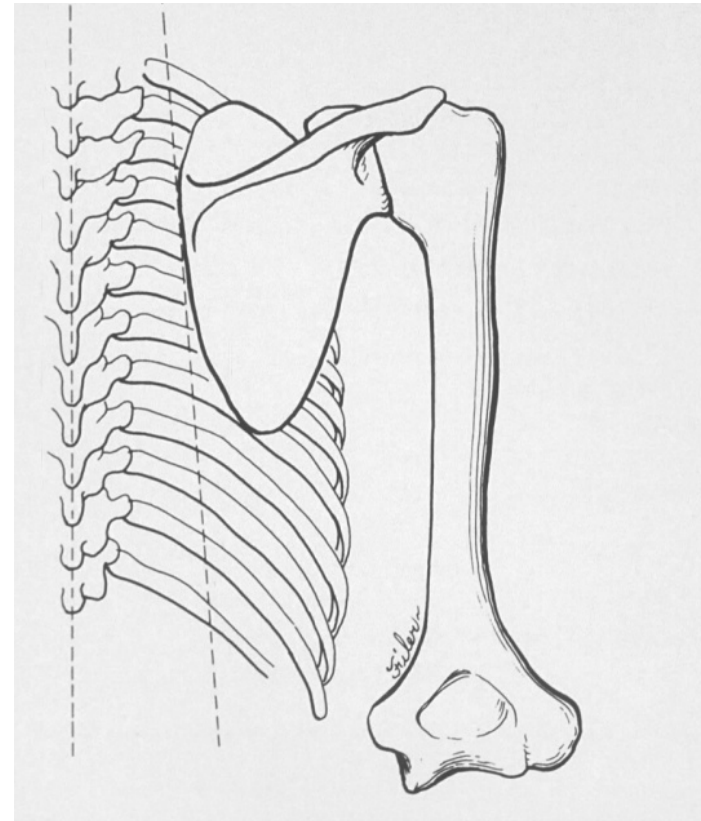
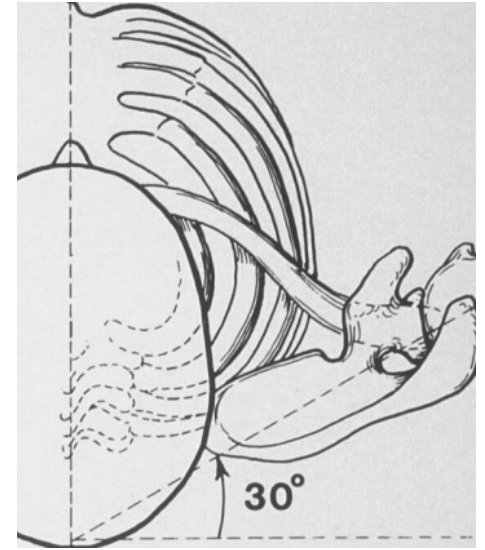
Shoulder Joint

- Greatest range of motion of all the joints in the body



Basic Anatomy

- Scapula (shoulder blade)
- Humerus (upper arm)
- Clavicle (collar bone)
- Ribs
- Muscles



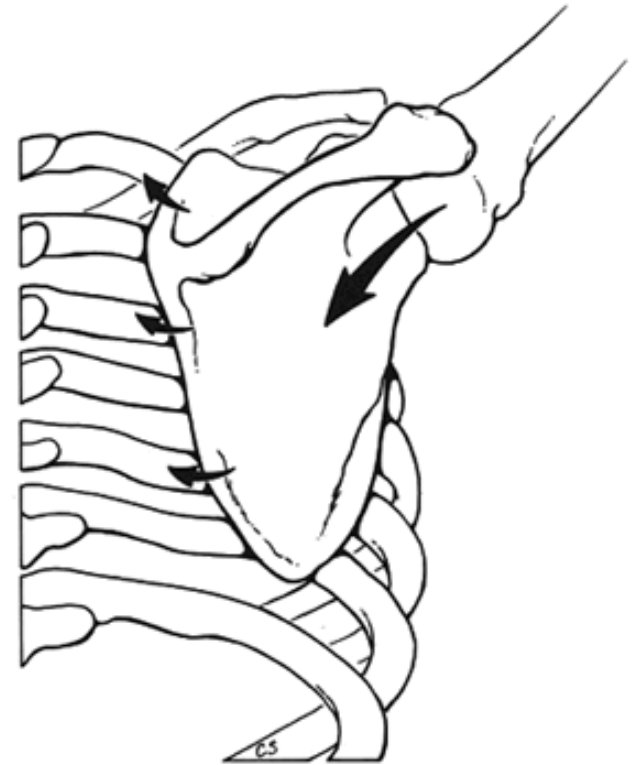
Muscles

- Many different muscles
 - Some primarily act across the ball and socket joint
 - Some primarily act across the rib cage and scapula



Shoulder Motion

- Normal shoulder motion results from the combined motion of the ball and socket joint AND the shoulder blade moving relative to the rib cage

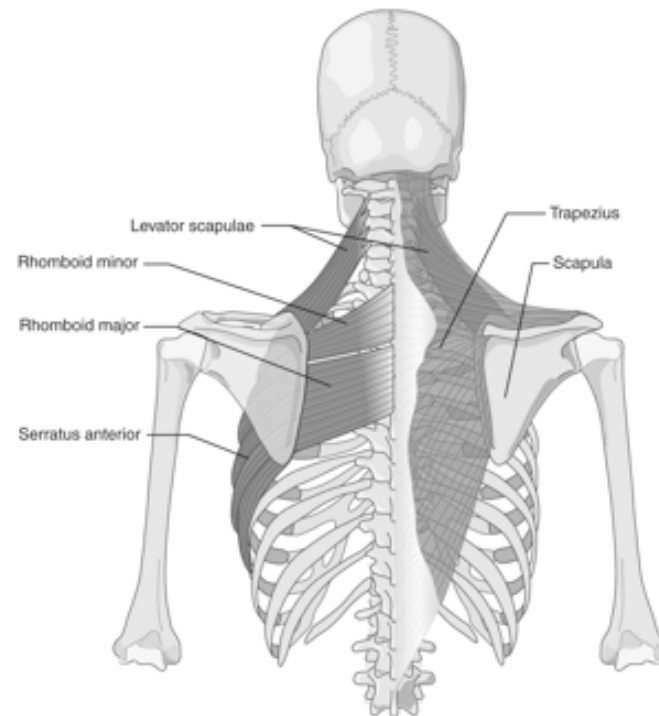


Shoulder Motion



FSHD

- Primarily involves the muscles responsible for control of the scapula
 - Rhomboids
 - Serratus anterior
 - Trapezius

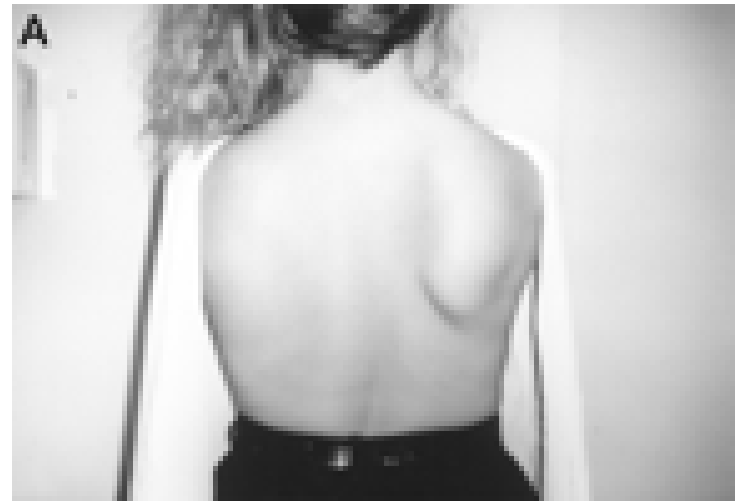


FSHD



- Loss of scapular muscle control
 - difficulty achieving overhead positions
 - Weakness, fatigue
 - Motion commonly less than shoulder height
 - scapular winging
 - Present at rest – discomfort against firm surfaces
 - Becomes more pronounced with attempted motion

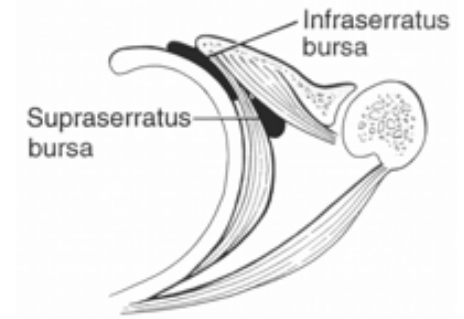
FSHD



FSHD



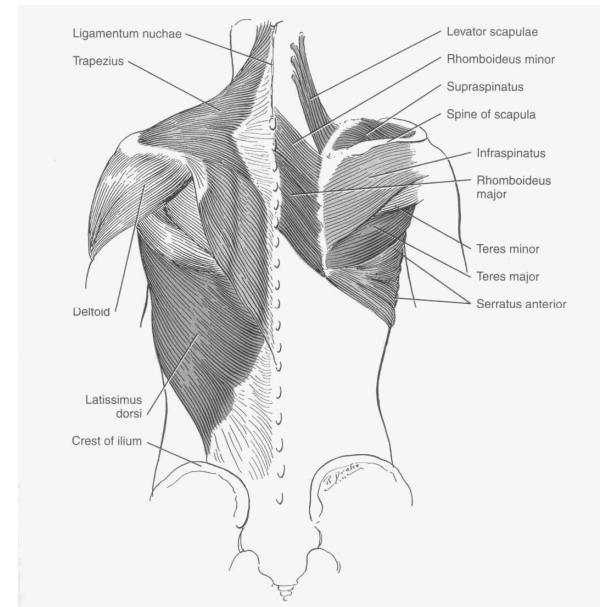
Scapular Fixation



- Scapulothoracic fusion
 - fusion of the scapula to the underlying ribs
 - Fixes the scapula into a stable position
 - Creates a “stable platform” for the intact ball and socket muscles to function
 - Ease of achieving overhead positions
 - Less fatigue
 - Winging impossible

Surgical Candidates

- No significant medical concerns
- Poor shoulder function with desire to be better
- Involvement limited to the scapula muscles
 - normal rotator cuff and deltoid



Surgical Candidates

- Response to manual compression test
- Willingness to undergo the surgery and comply with post-operative restrictions

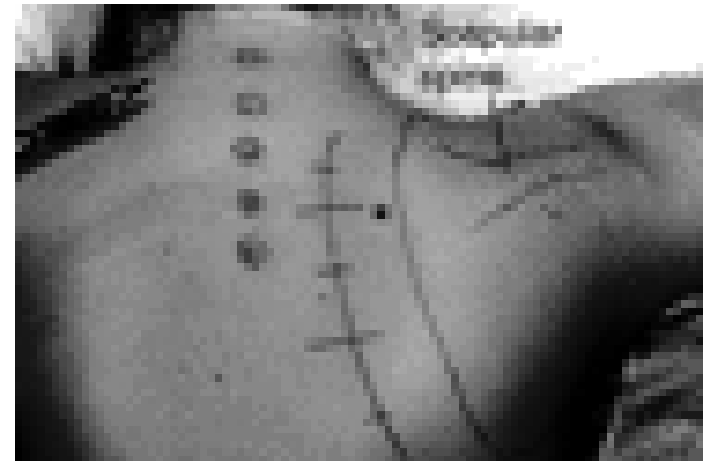
Surgical Procedure

- General anesthesia (“fully asleep”)
- Face down
- Fully monitored



Surgical Procedure

- Incision along medial border of scapula
 - Expose inner margin of the scapula bone along its full length
 - Expose adjacent underlying rib levels
 - 3 to 5 ribs used

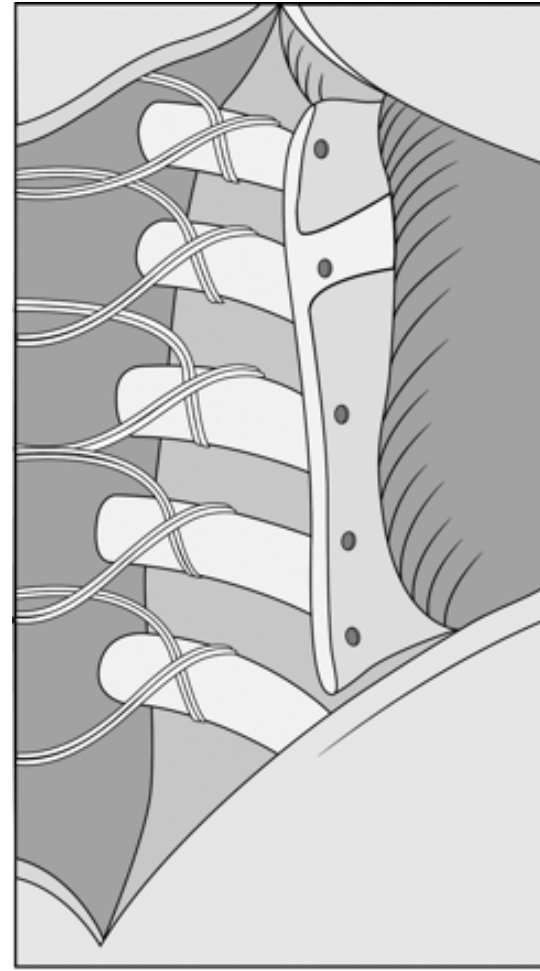


Surgical Procedure

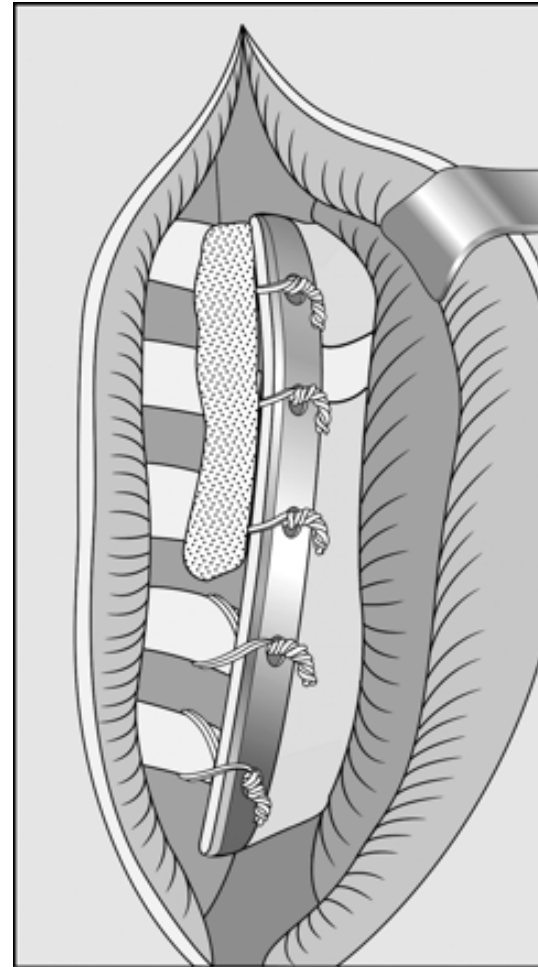
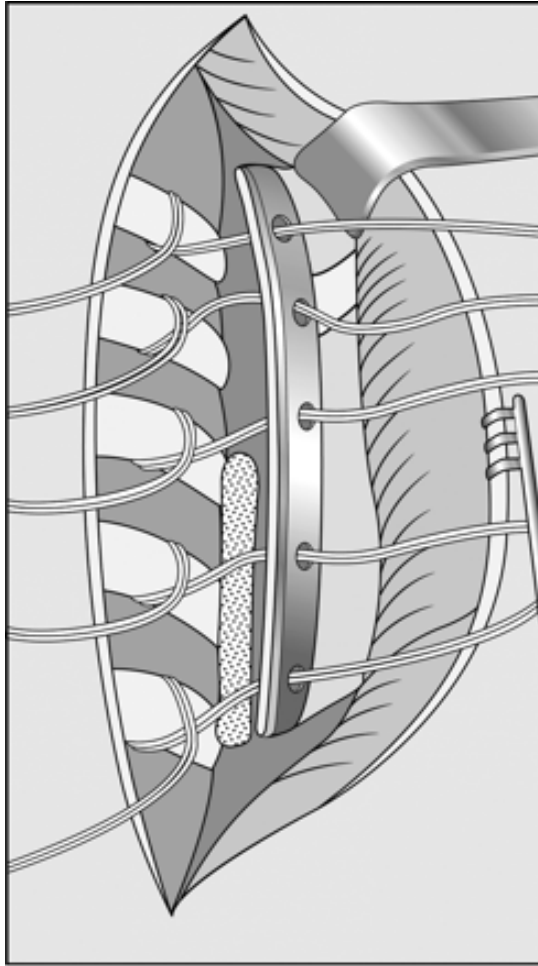
- Wire scapula to the adjacent ribs
 - some surgeons use other techniques
- Bone graft the contact points
 - Hip bone (iliac crest) – probably best
 - Off –the- shelf products
 - +/- implantable bone stimulator to promote fusion (battery powered)



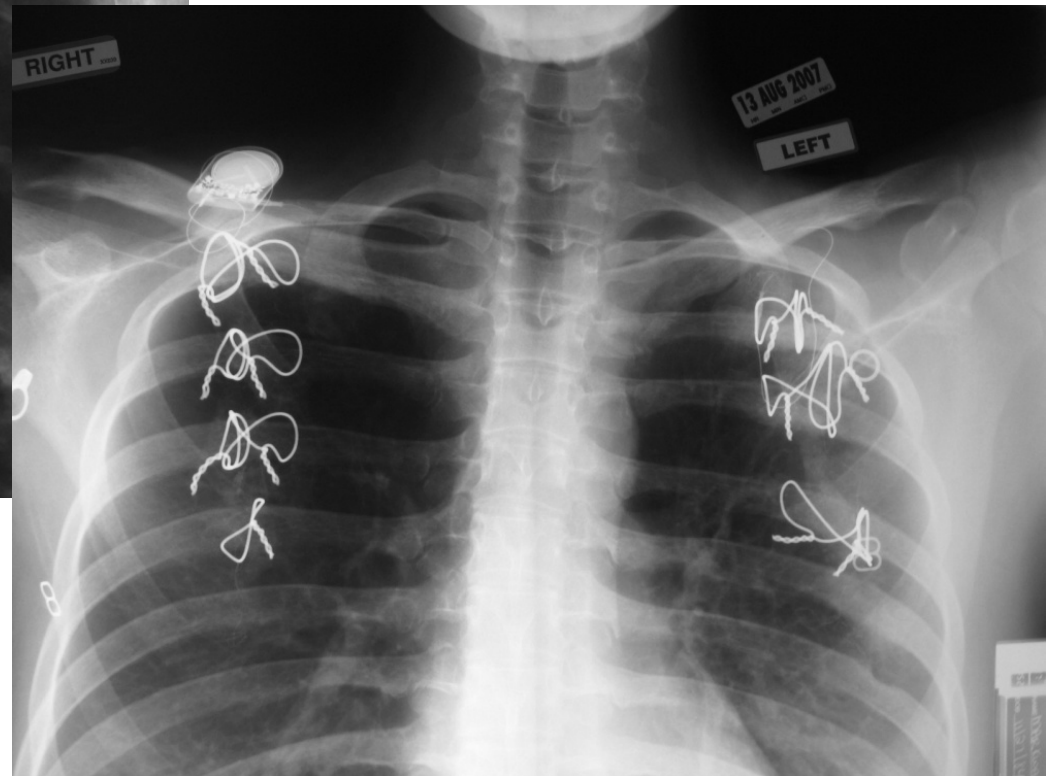
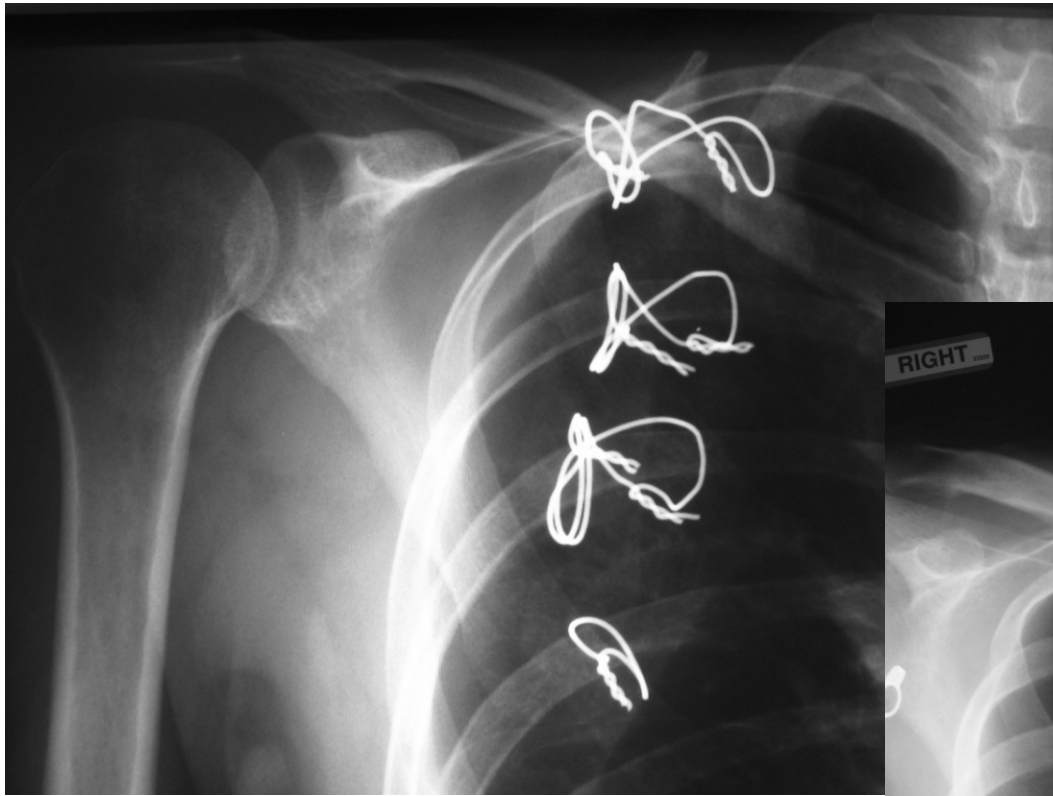
Surgical Procedure



Surgical Procedure



Surgical Procedure



Surgical procedure

- Typically 3 to 4 hours
- 1 to 2 units of blood loss
 - very rare to need a transfusion



Hospital Stay

- 3 to 5 days on average
 - 24 hours IV antibiotics
 - pain management -- significant
- Operated arm protected in a sling at all times

Possible Acute Complications

- Anesthesia
- Infection -- rare
- Neurologic -- rare
- Lung
 - Puncture (pneumothorax)
 - Chest tube
 - Blood (hemothorax)
 - Sense of shortness of breath

Rehab Protocol

- First 6 weeks
 - Sling – NO USE of extremity
 - Elbow, wrist, hand motion to avoid stiffness
 - May do some limited passive motion across shoulder
 - dangling activity
 - restricted pool activities
 - therapist

Rehab Protocol

- Weeks 7 to 12
 - Expect some early bone healing
 - Wean from sling
 - Progress passive motion
 - begin gentle active – assisted motion
 - Motion in water/pool (aquatic therapy)
 - Minimal muscle work
 - Limited to isometrics
 - May feed, dress, light desk-work

Rehab Protocol

- Weeks 12 to 18
 - Expect good bone-bone healing
 - Full active motion
 - May increase day to day functions
 - Limit weight to 5 to 7 pounds
 - Waist to shoulder activities

Rehab Protocol

- Weeks 19 and on
 - Expect solid fusion
 - increase activities to tolerance
 - May do gentle strengthening or resistance activities

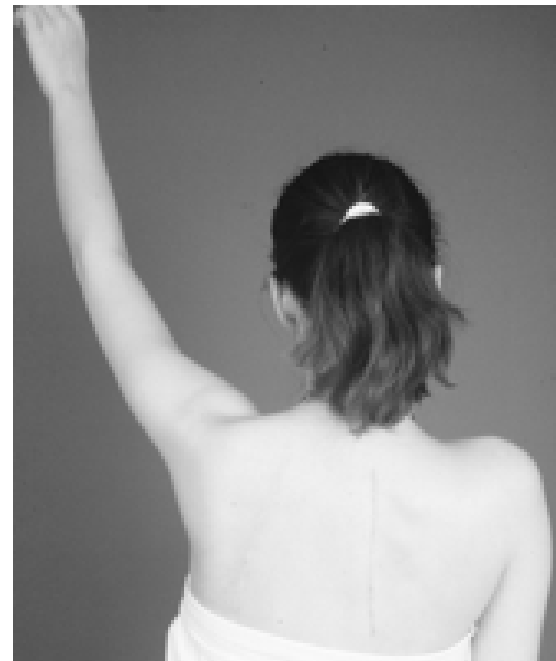


Results

- Improvement in shoulder function by six months, but can continue to improve up to one year from surgery
 - average about 60 to 65 degrees of improvement forward (flexion) and to the side (abduction)
 - Typically achieve approximately 145 degrees of forward elevation and abduction

Results

- Resolution of winging
- Improved shoulder contour & motion



Results

- Failure to heal (“nonunion”)
 - uncommon
 - Smoking
 - Not compliant with post-op restrictions
 - Bilateral procedure (not recommended)
- Stiff shoulder
 - usually responds to therapy
 - prevention is key

Results

- Painful wires
 - Occasionally need to remove wires (< 10%)
- Deterioration of function
 - May lose motion if deltoid or cuff become involved over time, but other advantages remain

THANK YOU

