

HARMELING

PHYSICAL THERAPY

ALL ABOUT SHOULDERS

PREVENTION, RECOGNITION, AND MANAGEMENT

Presented By:

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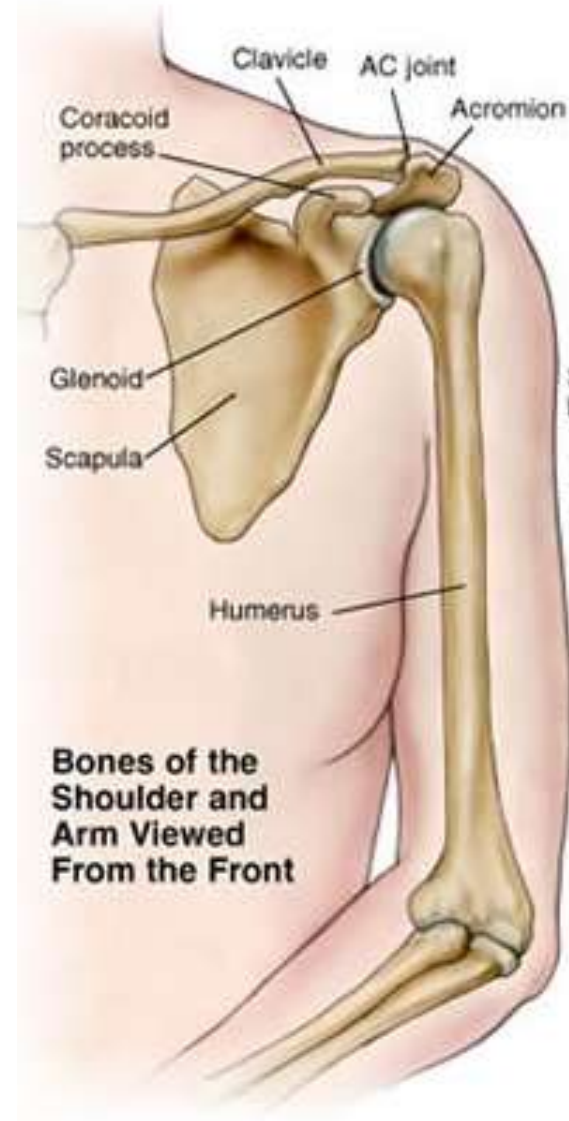
Jim O'Brien, DPT

AUGUST 27, 2009

SHOULDER ANATOMY

SHOULDER COMPLEX

- 3 Joints and 1 Articulation
- *Ball is 3 – 4 x bigger than the socket*
- *This leads to a very unstable joint*
- *Joint stability comes from both active and passive structures*



SHOULDER ANATOMY

3 SHOULDER JOINTS

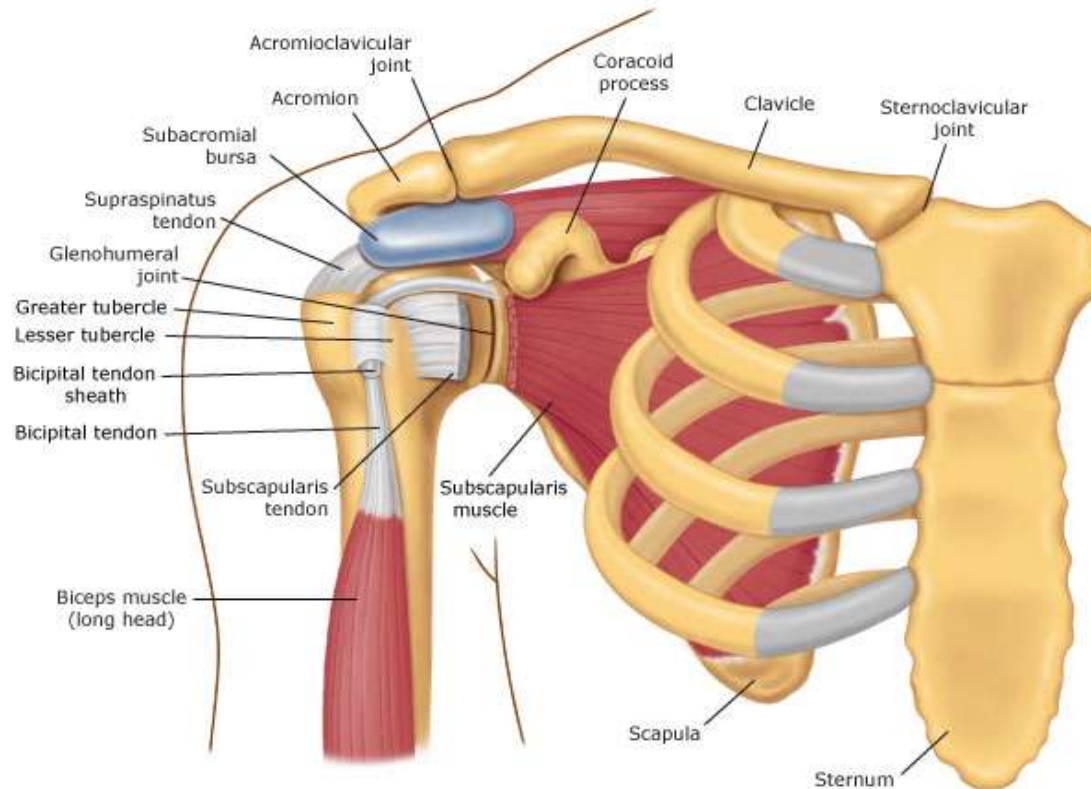
1. *Glenohumeral Joint: Ball and Socket*
2. *Acromioclavicular Joint: AC Joint*
3. *Sternoclavicular Joint: SC Joint*



1 SHOULDER ARTICULATION

4. *Scapulothoracic Articulation:*

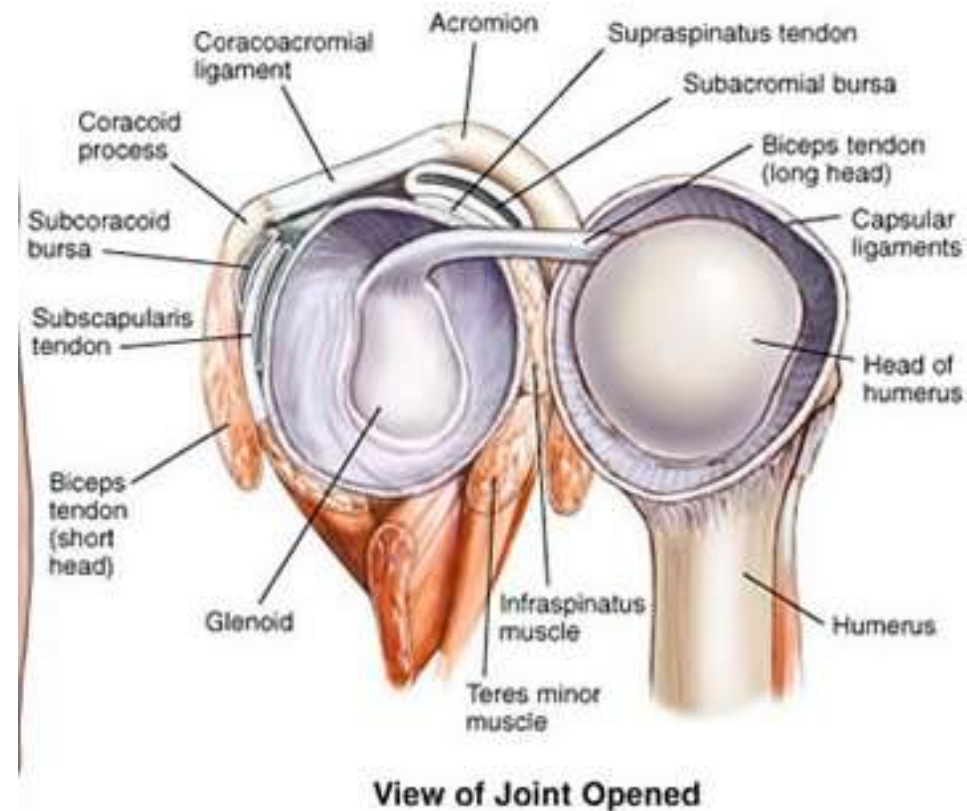
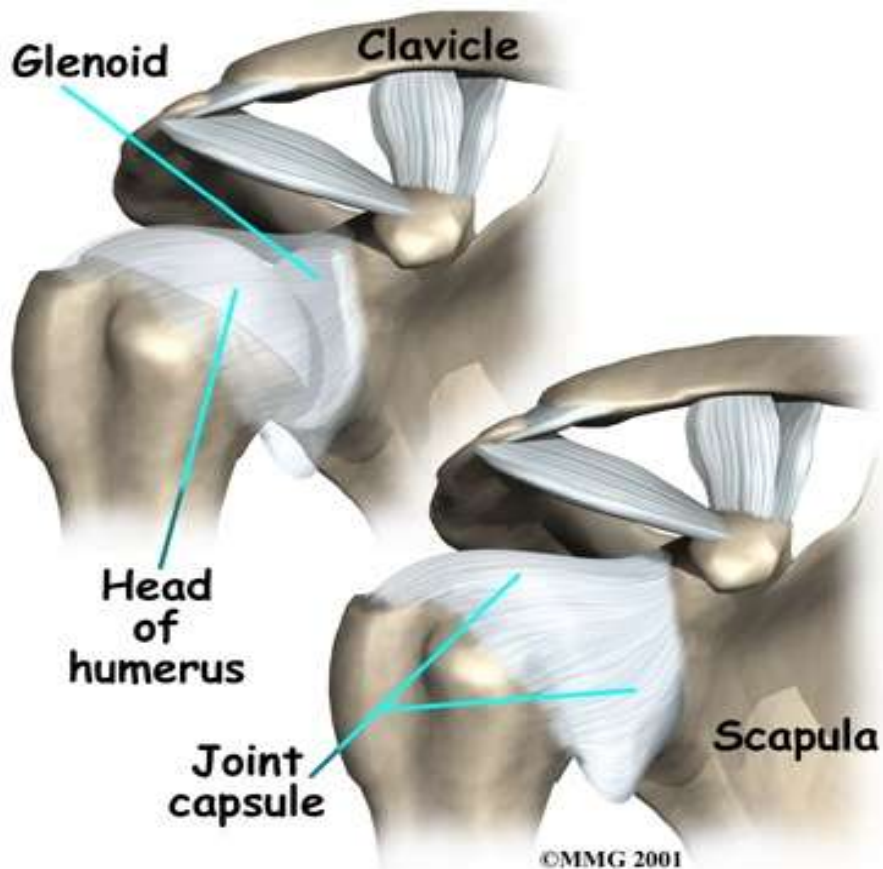
Located between shoulder blade and rib cage



SHOULDER STABILITY

PASSIVE STABILITY: AT REST

- LABRUM: RING OF CARTILAGE DEEPENING SOCKET
- JOINT CAPSULE: SOFT TISSUE / LIGAMENTS THAT REINFORCE STABILITY

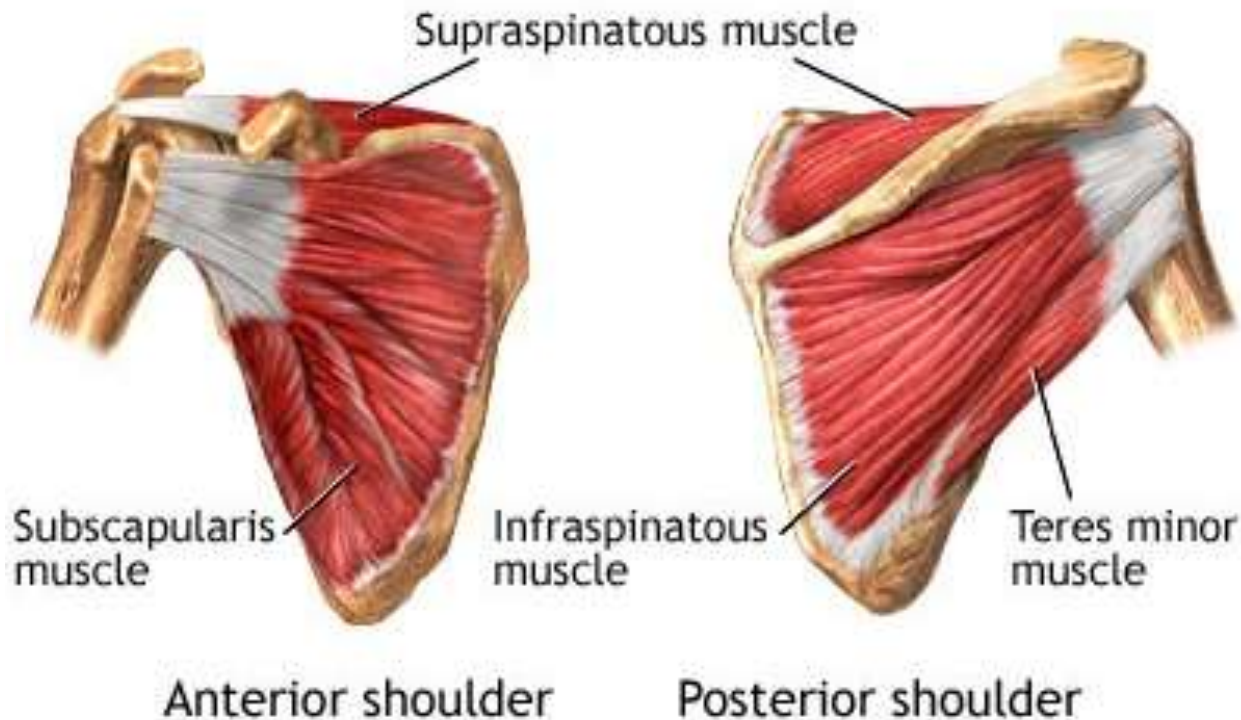


SHOULDER STABILITY

ACTIVE STABILITY: MOVEMENT

- **ROTATOR CUFF:** GROUP OF 4 MUSCLES THAT SURROUND BALL AND SOCKET TO PROMOTE STABILITY AND MAINTAIN BALL CENTERED IN SOCKET DURING MOVEMENT

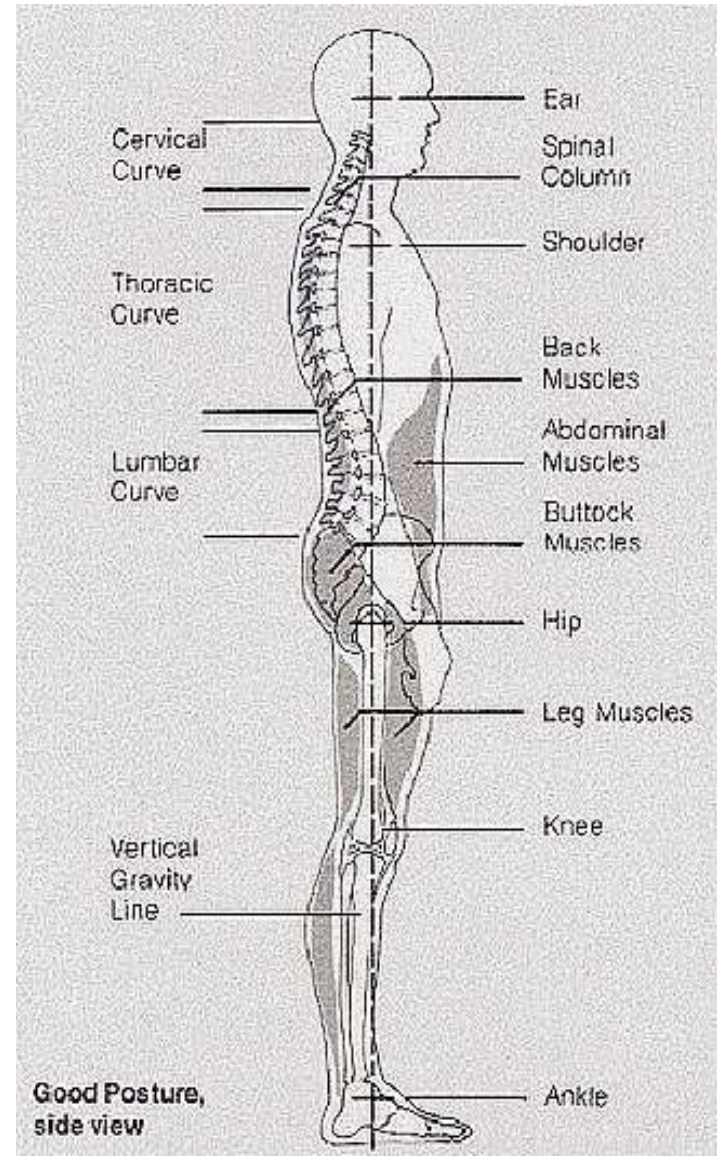
Rotator cuff muscles



POSTURAL IMPACT

PROPER POSTURE HELPS TO:

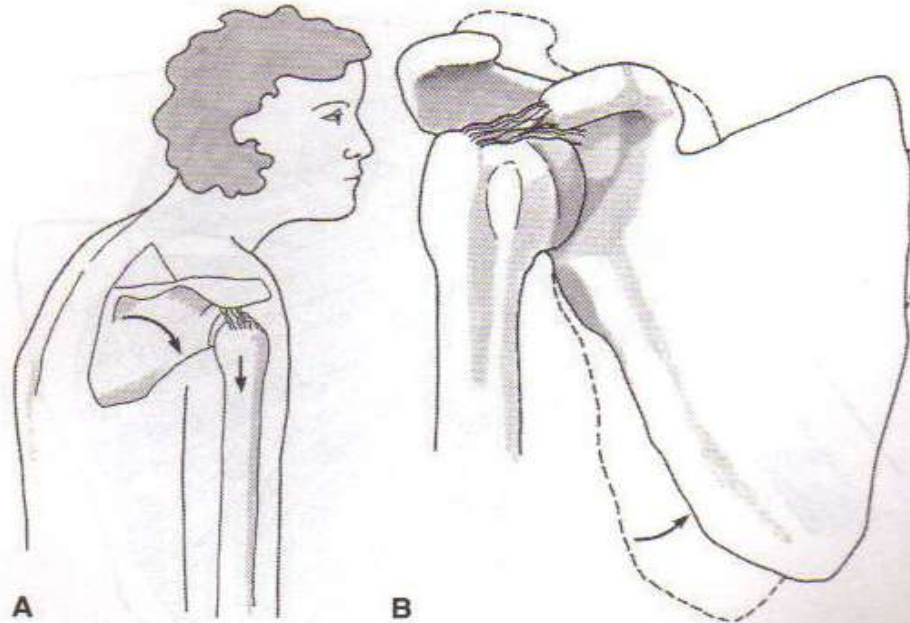
- MAINTAIN PROPER BALL AND SOCKET POSITION
- ALLOW PROPER SPACING
- ALLOW PROPER MUSCLE LENGTH TENSION RELATIONSHIP



POSTURAL IMPACT

TYPICAL KYPHOTIC POSTURE CAUSES:

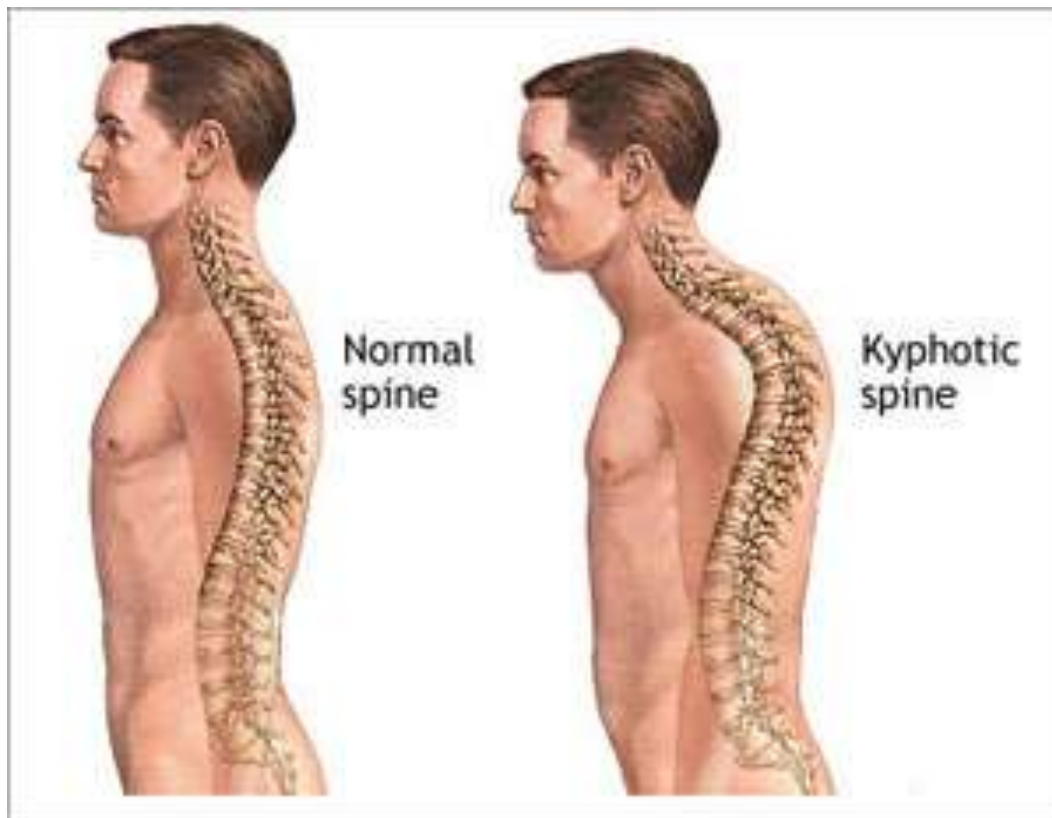
- DOWNWARD ROTATION OF SCAPULA
- DECREASED SUBACROMIAL JOINT SPACE
 - CAN LEAD TO IMPINGEMENT
- SUPERIOR JOINT CAPSULE ON SLACK
- RTC MUSCLES MUST WORK HARDER EVEN AT REST TO PREVENT INFERIOR SUBLUXATION
 - CAN LEAD TO TENDONITIS OR FROZEN SHOULDER



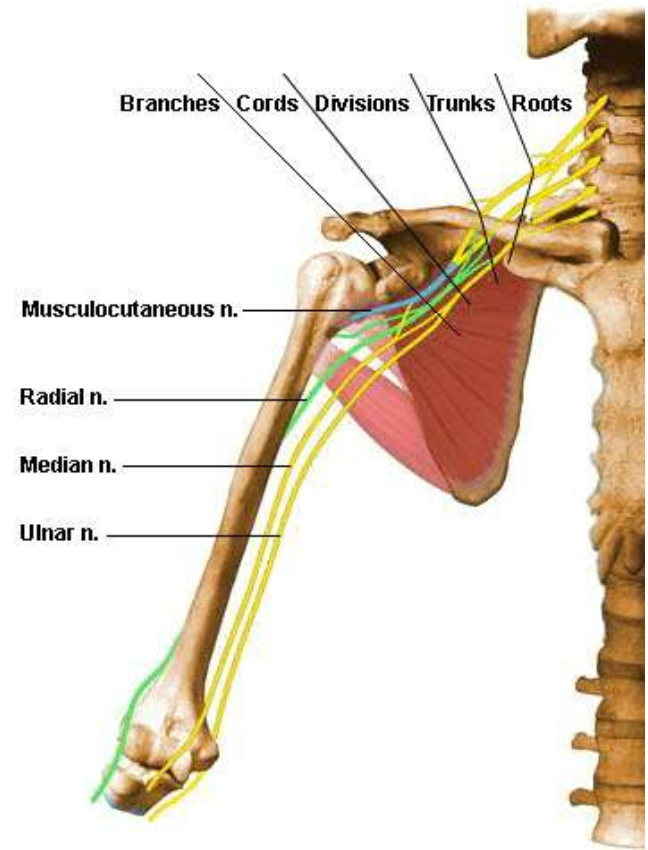
POSTURAL IMPACT

TYPICAL KYPHOTIC POSTURE CAUSES:

- POOR MUSCLE LENGTH TENSION
 - SCAPULA MUSCLES ARE STRETCHED OUT (WEAKNESS)
 - ANTERIOR CHEST MUSCLES ARE SHORTENED (COMPRESSION)

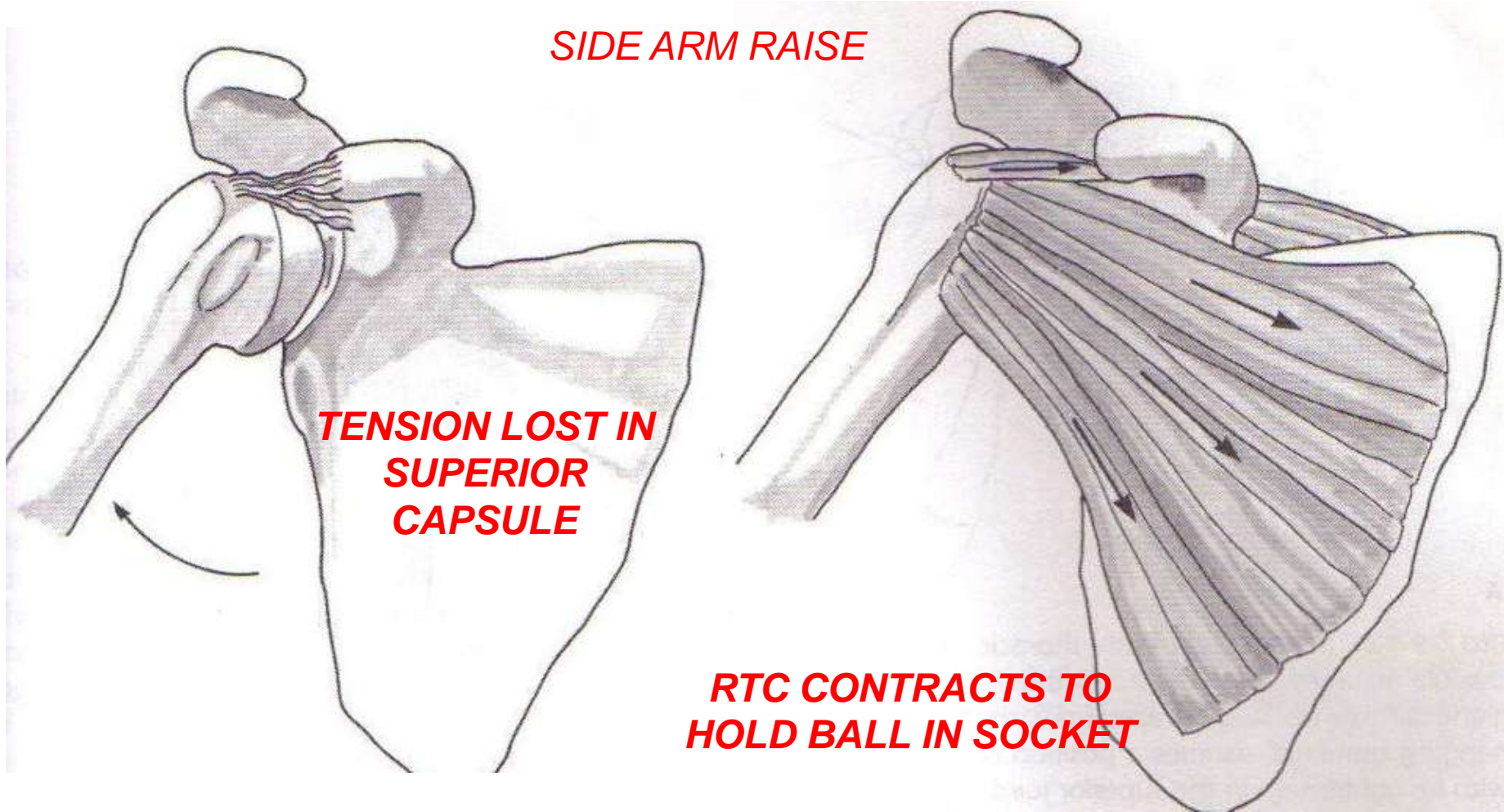


BRACHIAL PLEXUS



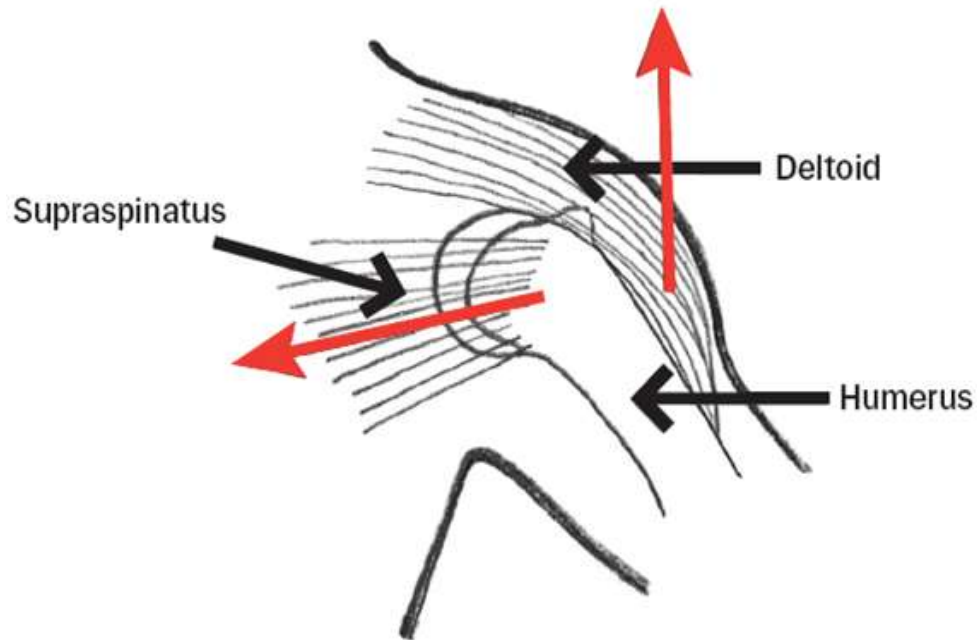
SHOULDER MOVEMENT

- INTERRELATIONSHIP BETWEEN 3 JOINTS / 1 ARTICULATION
 - ALL MOVE TO HELP BALL STAY IN SOCKET AND PROMOTE PROPER LENGTH TENSION RELATIONSHIP

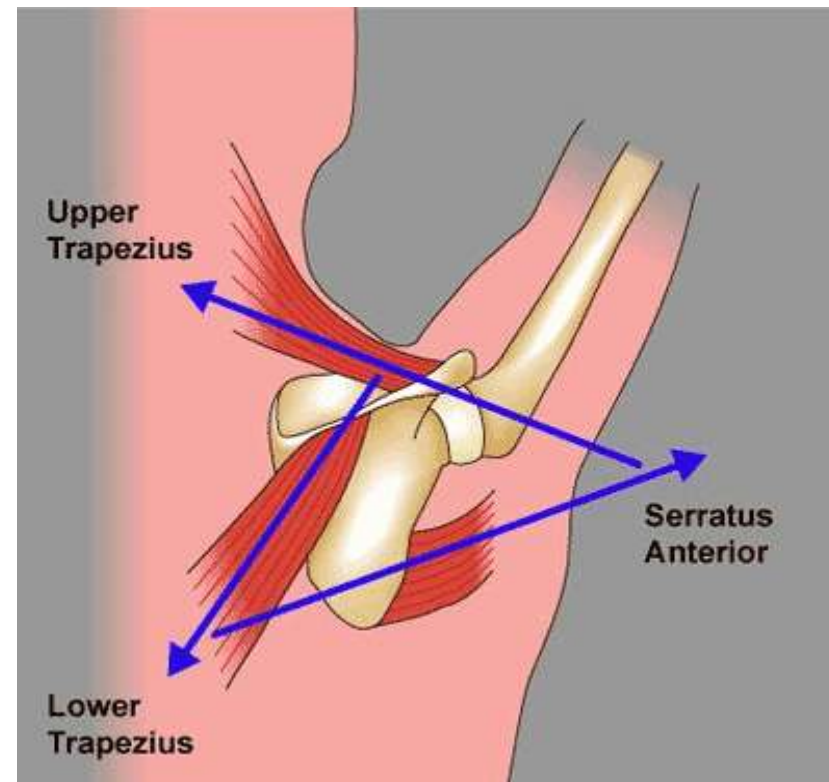


MUSCLE FORCE COUPLES

FORCE COUPLE = 2 EQUAL FORCES ACTING IN OPPOSITE DIRECTIONS TO PRODUCE TORQUE / ROTATION



Red arrows show direction of force of pull of supraspinatus and deltoid muscles



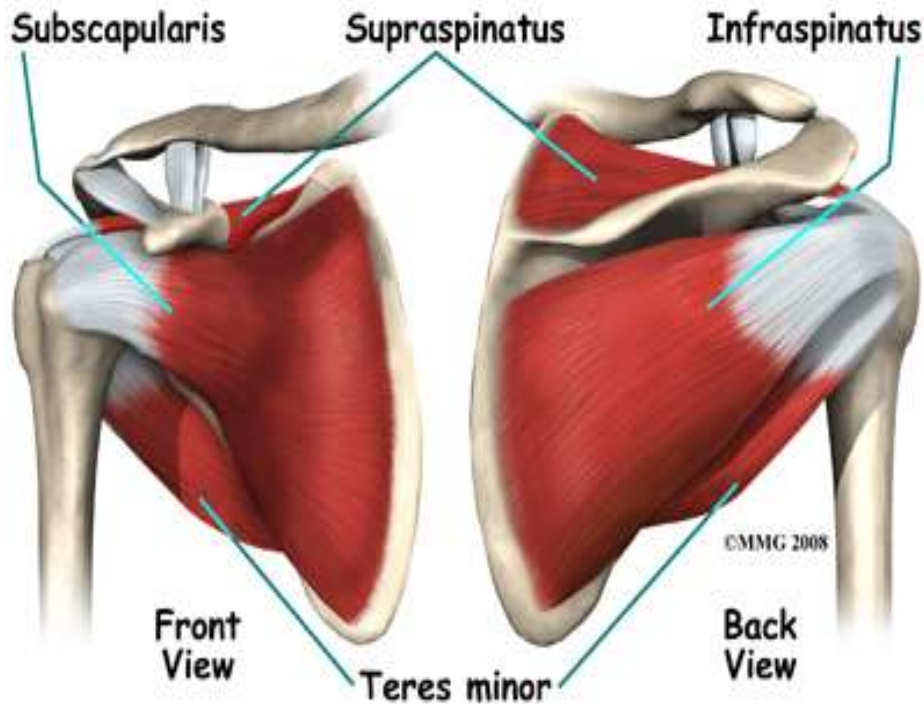
SHOULDER INJURY

TENDONITIS / BURSITIS / IMPINGEMENT

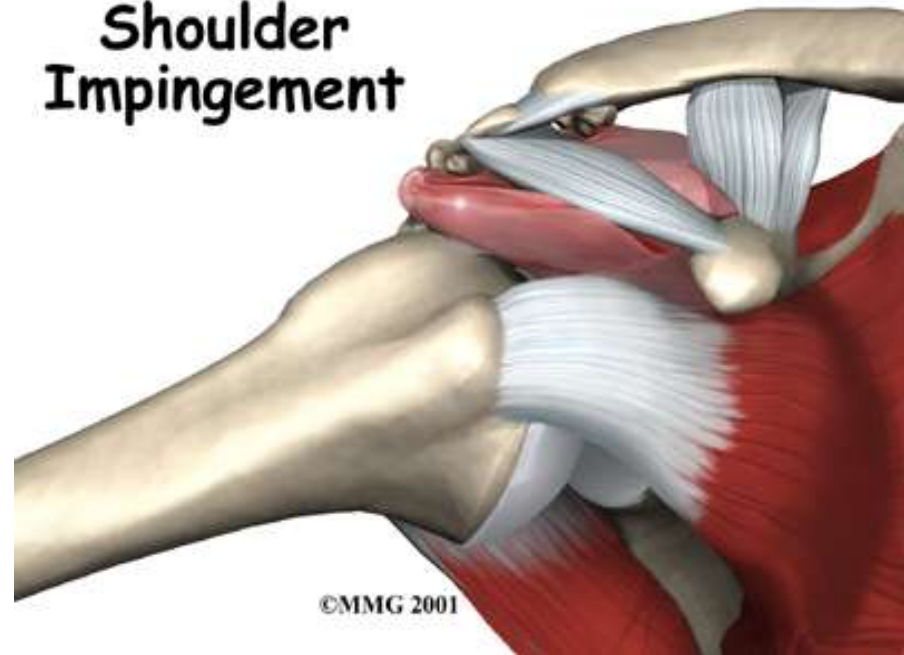
“ITIS” = INFLAMMATION OF....

*Overuse irritation common with repetitive motions, especially overhead
Swimming, throwing, tennis, cleaning, painting, etc*

Muscles of the Rotator Cuff



Shoulder Impingement



SHOULDER INJURY

TENDONITIS / BURSITIS / IMPINGEMENT

CAUSES:

- *OVERUSE*
- *WEAKNESS (RTC AND SCAPULA MUSCLES)*
 - *POOR FORWARD POSTURE*
 - *DEGENERATIVE CHANGES*
 - *TRAUMA*



SHOULDER INJURY

TENDONITIS / BURSITIS / IMPINGEMENT

TREATMENT:

1. *DECREASE PAIN / INFLAMMATION*

(ICE / HEAT, MASSAGE, ULTRASOUND, MEDICATIONS)

2. *RESTORE ROM / CORRECT POSTURE*

3. *CONDITION APPROPRIATE MUSCLES*



SHOULDER INJURY

MUSCLE STRAIN

INJURY TO MUSCLE OR TENDON IN WHICH FIBERS TEAR AS A RESULT OF FORCEFUL OVERSTRETCHING

- CAN RANGE FROM MILD STRAIN....TO PARTIAL TEAR....TO FULL THICKNESS TEAR*
- COMMONLY OCCUR IN ROTATOR CUFF MUSCLES*



SHOULDER INJURY

MUSCLE STRAIN

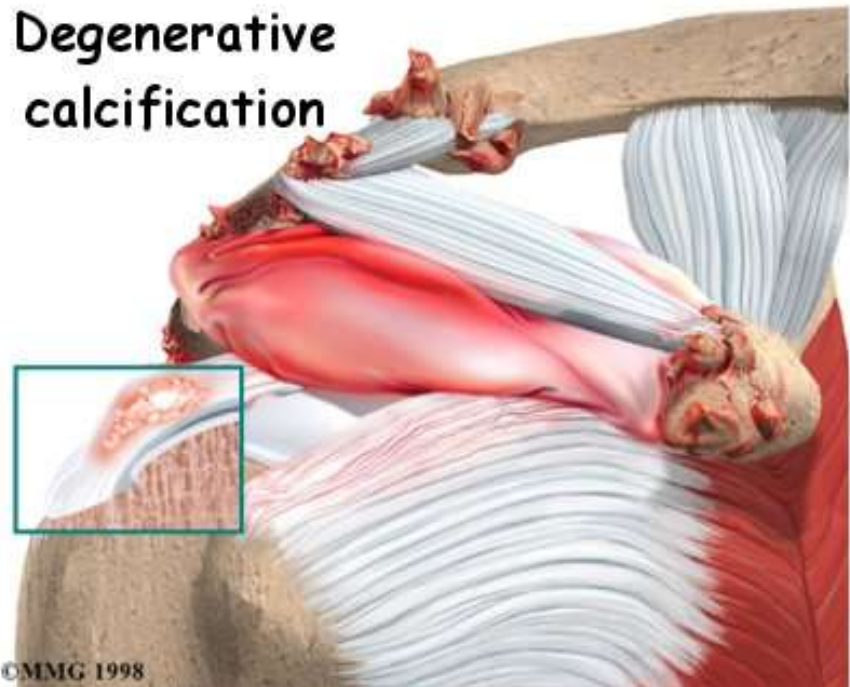
CAUSES:

ACUTE...OVERUSE / FATIGUE / WEAKNESS

CHRONIC...DEGENERATIVE TEARING



**Degenerative
calcification**



SHOULDER INJURY

MUSCLE STRAIN

TREATMENT:

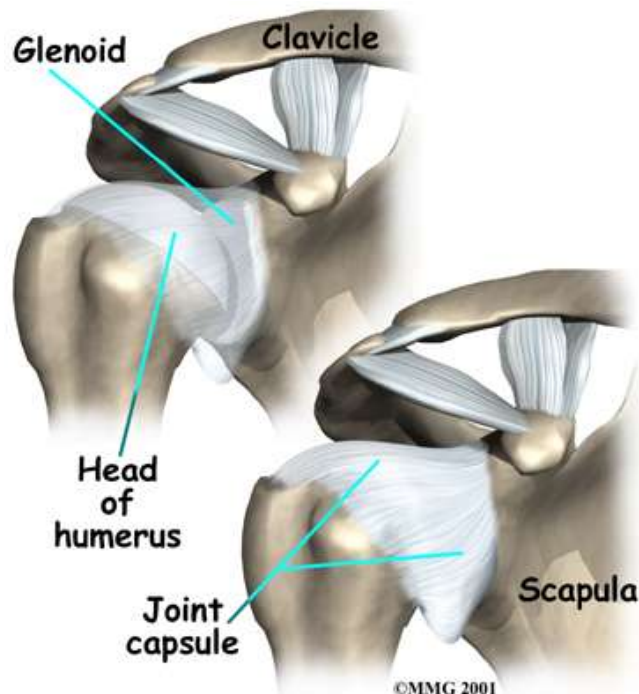
- *DECREASE PAIN / INFLAMMATION AND
ENCOURAGE HEALING*
- *STRENGTHEN WEAK / STRAINED MUSCLE*

SHOULDER INJURY

ADHESIVE CAPSULITIS

AKA "FROZEN SHOULDER"

- *INFLAMMATION / THICKENING OF SHOULDER CAPSULE*
- *RESTRICTS BALL FROM MOVING AND CAUSES SEVERE PAIN*



CAUSES:

- INJURY LEADS TO AVOIDING MOVEMENT
- POOR POSTURE
- IDIOPATHIC = UNKNOWN REASON

SHOULDER INJURY

ADHESIVE CAPSULITIS

AKA "FROZEN SHOULDER"



TREATMENT:

- *DECREASE PAIN / INFLAMMATION*
- *STRETCH OUT TIGHT CAPSULE TO ALLOW ROM*

SHOULDER INJURY

SWIMMERS SHOULDER

*PAINFUL IRRITATION ASSOCIATED WITH CHRONIC
IMPINGEMENT OR HYPERMOBILITY OF BALL AND SOCKET*

CAUSES:

REPETITIVE OVERUSE ESPECIALLY
OVERHEAD MOVEMENTS

TREATMENT:

REST

DECREASE PAIN / INFLAMMATION

STRENGTHEN



SHOULDER INJURY

PITCHERS SHOULDER

OVERUSE TENDONITIS / IMPINGEMENT

CAN ALSO BE INFLAMMATION / THICKENING OF CAPSULE CAUSING STIFFNESS INTO IR

ER USUALLY EXCESSIVE!!!

CAUSES:

OVERUSE

TREATMENT:

REST, DECREASE INFLAMMATION

STRENGTHEN MUSCLES

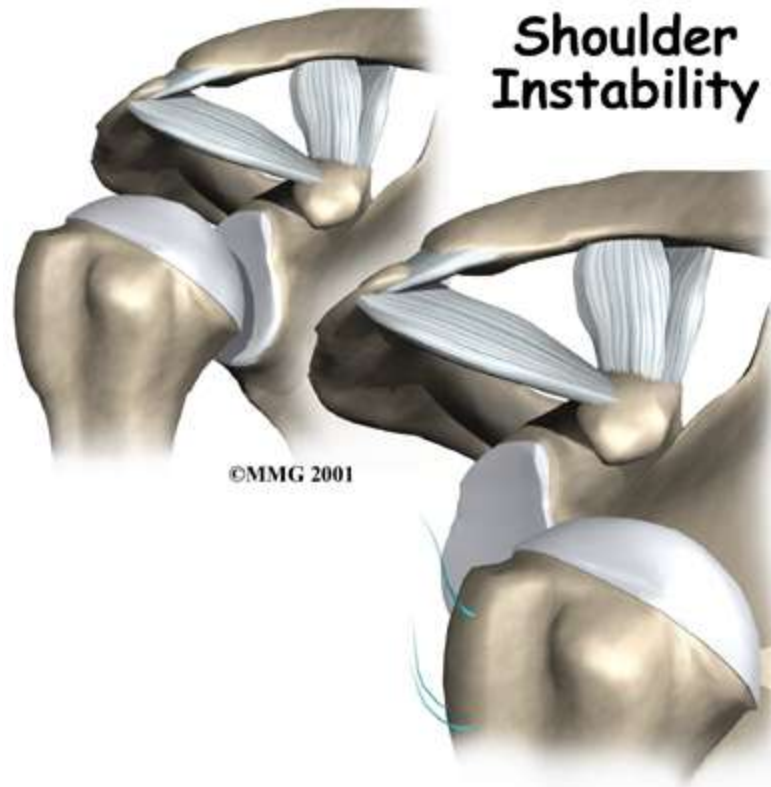
PROPER WARM UP / STRETCHING



SHOULDER INJURY

DISLOCATION / SUBLUXATION / INSTABILITY

- TOTAL VS. PARTIAL SEPARATION
- INSTABILITY = CHRONIC LOOSENESS OF BALL AND SOCKET



SHOULDER INJURY

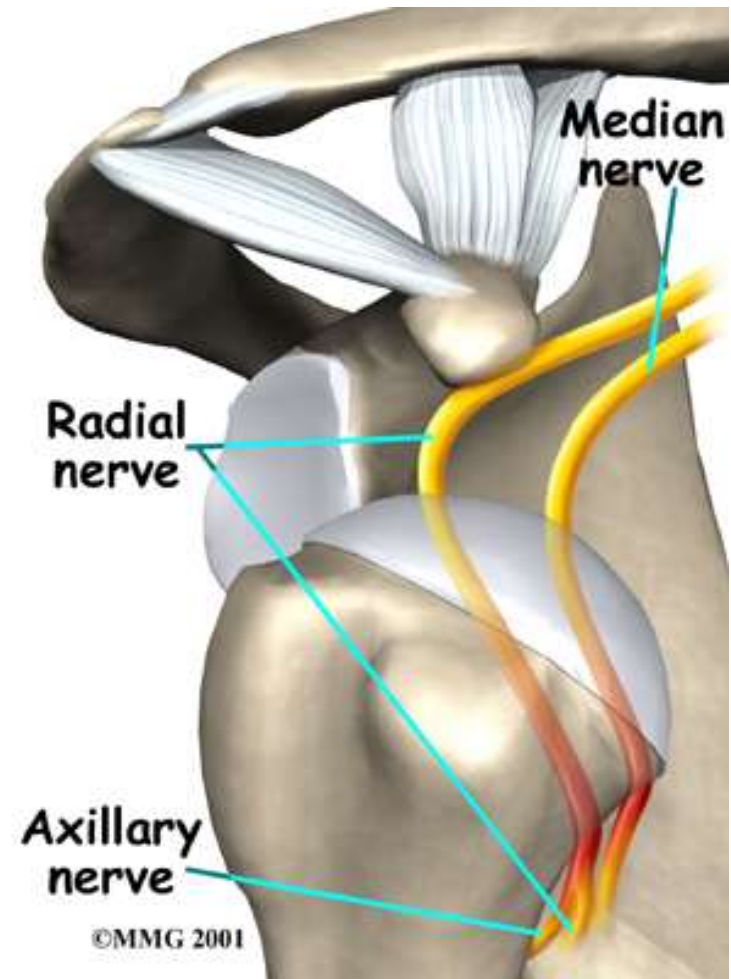
DISLOCATION / SUBLUXATION / INSTABILITY

CAUSES:

- TRAUMA
- REPETITIVE EXCESSIVE MOTION
- INHERITED LAX CAPSULE
- WEAKNESS (RTC)

TREATMENT:

- DISLOCATION = MD TO REDUCE
- REST / DECREASE PAIN AND INFLAMMATION
- STRENGTHEN TO TIGHTEN UP SHOULDER
- SURGERY



SHOULDER CONDITIONING

WARM UP ACTIVITIES

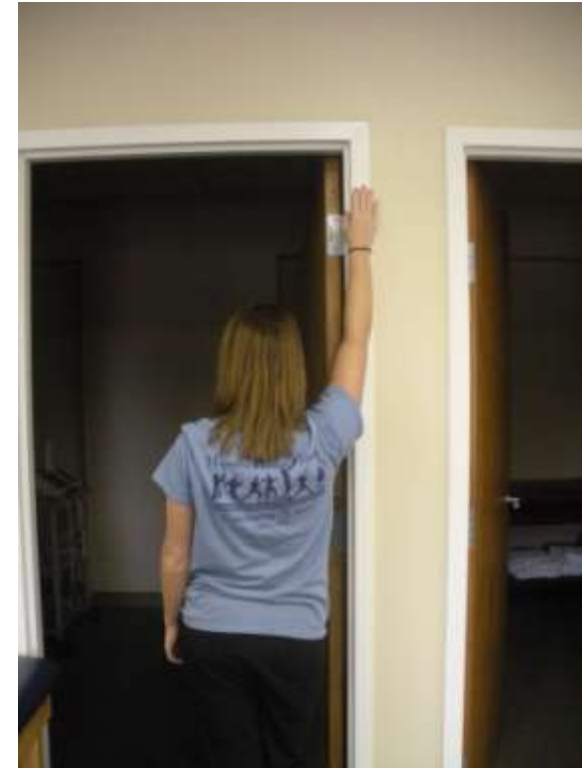
PENDULUMS



SIDE WALL CLIMB



FRONT WALL CLIMB



SHOULDER CONDITIONING

WARM UP ACTIVITIES

ACROSS BODY STRETCH



SLEEPER STRETCH



SHOULDER CONDITIONING

STRENGTH ACTIVITIES

LIGHT WEIGHT FRONT / SIDE ARM RAISES



SHOULDER CONDITIONING

STRENGTH ACTIVITIES

THERABAND SCAPULA STRENGTHENING



SHOULDER CONDITIONING

STRENGTH ACTIVITIES

THERABAND INTERNAL AND EXTERNAL ROTATION



SHOULDER CONDITIONING

ADVANCED STRENGTH ACTIVITIES



SIDELYING EXTERNAL ROTATION

*FUNCTIONAL 90 DEGREE INTERNAL
AND EXTERNAL ROTATION*



SHOULDER CONDITIONING

ADVANCED SCAPULA STABILIZATION

