




SHOULDER PAIN FOLLOWING SPINAL CORD INJURY

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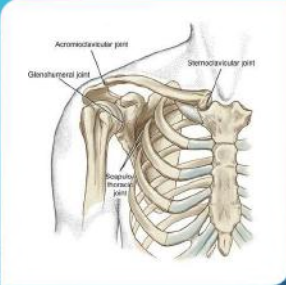
"Shoulder joint pain is one of the most frequent secondary complaints of people following spinal cord injury, with a prevalence reported to range from 36% to 71%"

INCREASED DEMANDS ON UPPER BODY

- Transfers
- Wheelchair propulsion
- Pressure relief
- Use of gait aids
- Activities of daily living
- Reaching above head
- Vocation & Recreation

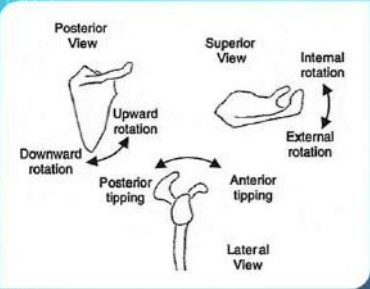


THE SHOULDER COMPLEX

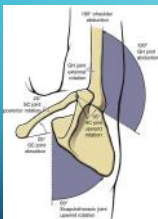


- 3 bones, 4 joints
 - Sternoclavicular joint
 - Acromioclavicular
 - Glenohumeral joint
 - Scapulothoracic joint
- Greatest range of motion of any region in the body
- Sacrifice stability for mobility
- Neuromuscular control essential

MOVEMENTS OF THE SCAPULA

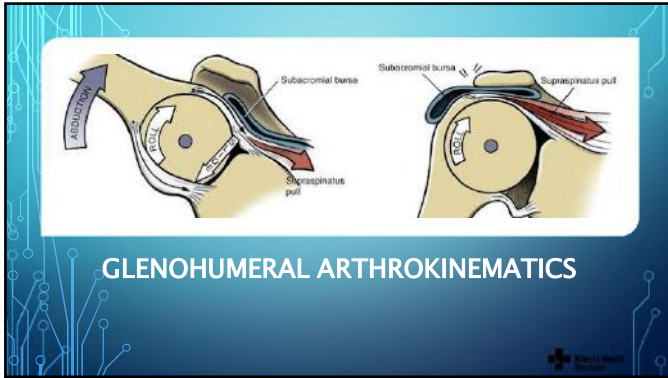


GLENOHUMERAL OSTEOKINEMATICS



SCAPULOHUMERAL RHYTHM

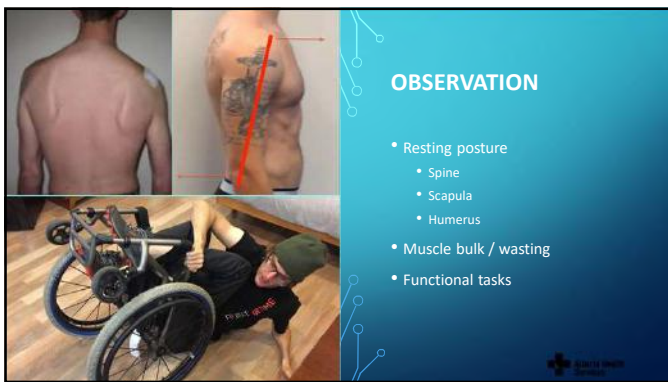
- Flexion
- Extension
- Abduction
- Adduction
- Internal (medial) rotation
- External (lateral) rotation
- Horizontal abduction
- Horizontal adduction
- Circumduction



GLENOHUMERAL ARTHROKINEMATICS

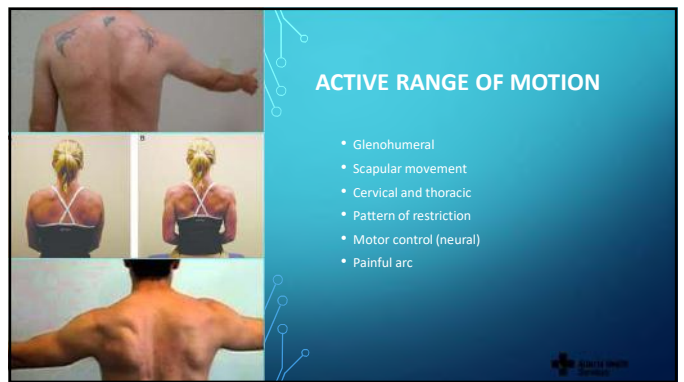


SHOULDER ASSESSMENT



OBSERVATION

- Resting posture
 - Spine
 - Scapula
 - Humerus
- Muscle bulk / wasting
- Functional tasks



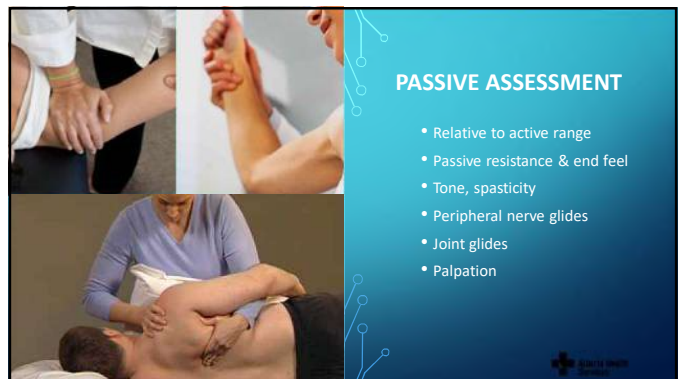
ACTIVE RANGE OF MOTION

- Glenohumeral
- Scapular movement
- Cervical and thoracic
- Pattern of restriction
- Motor control (neural)
- Painful arc



STRENGTH

- Isometric and through range
- Expectation varies based on injury
- Specific muscle testing
- Sustained / fatigable
- Pain



PASSIVE ASSESSMENT


- Relative to active range
- Passive resistance & end feel
- Tone, spasticity
- Peripheral nerve glides
- Joint glides
- Palpation

DIAGNOSIS

- Impingement syndrome (subacromial)
- Bursitis
- Osteoarthritis (acromioclavicular)
- Recurrent subluxations or dislocations
- Chronic rotator cuff tears
- Tendinopathy (bicipital)
- Myofascial pain syndrome
- Capsulitis



SHOULDER TREATMENT



MANUAL THERAPY

- Joint mobilizations
- Deep tendon frictions
- Stretching (muscle, neural tissue, joints, fascia)
- Active soft tissue release / massage
- Instrument assisted soft tissue mobilization
- Intramuscular stimulation (IMS dry needling)



THERAPEUTIC EXERCISE

- Tissues change with movement and positioning
- Need flexibility in all tissues
- Scapular stability key, but stability THROUGH MOVEMENT
- Open versus closed chain
- Keep it specific but functional

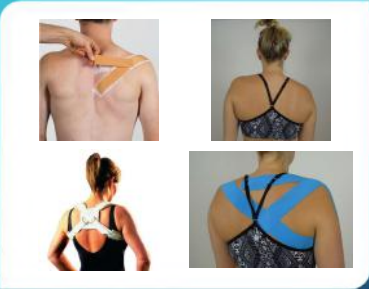
THERAPEUTIC EXERCISE EXAMPLES

- Thoracic extension or rotation
- Scapular stability and control
- Neural flossing
- Decreasing activation of upper traps
- Posterior capsule stretching
- Subscapularis release
- Rotator cuff strength
- Transfer training - weight bearing

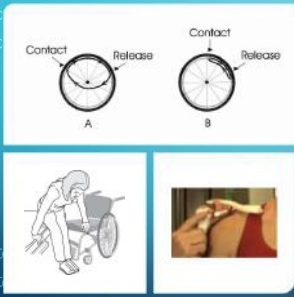


TAPING / BRACING

- Subluxation
- Scapular retraction
- Kinesiotaping
- Proprioceptive feedback



EDUCATION



- Understanding the shoulder
- Prevention
- Technique
- Adaptive aids
- Injury management
- Fitness

MEDICAL MANAGEMENT



- Pain management
- Spasticity
- Injections
- Surgery

TAKE HOME MESSAGES

1. Consider the whole shoulder complex
2. Assess for faulty movement patterns
3. Keep your treatment specific and functional
4. Keep moving!

Questions???

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