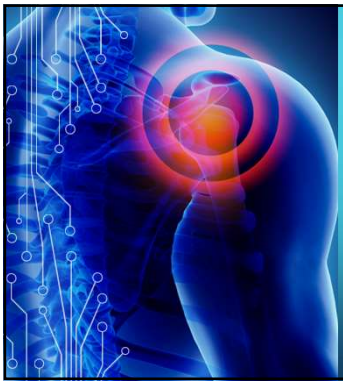
SHOULDER PAIN FOLLOWING SPINAL CORD INJURY

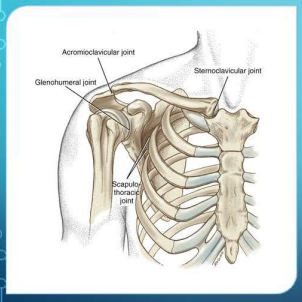
Mary McEwen PT, MScPT, BScKin



"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%"

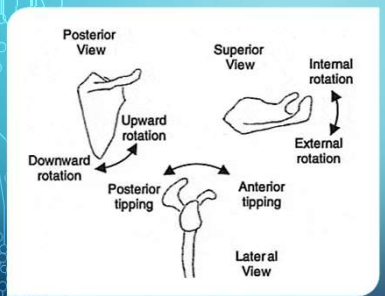
INCREASED DEMANDS ON UPPER BODY

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



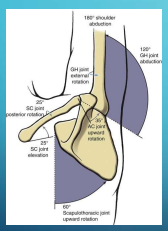
THE SHOULDER COMPLEX

- 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



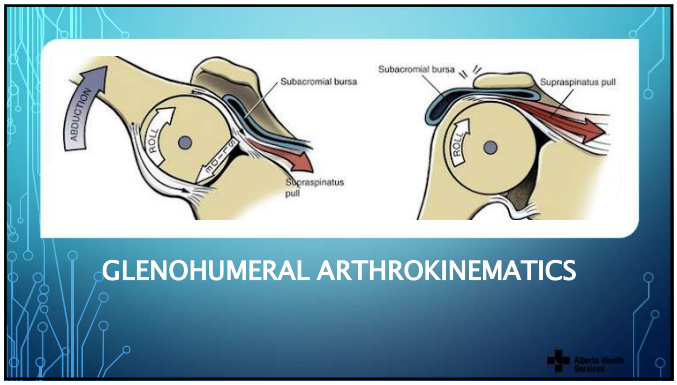
MOVEMENTS OF THE SCAPULA

GLENOHUMERAL OSTEOKINEMATICS

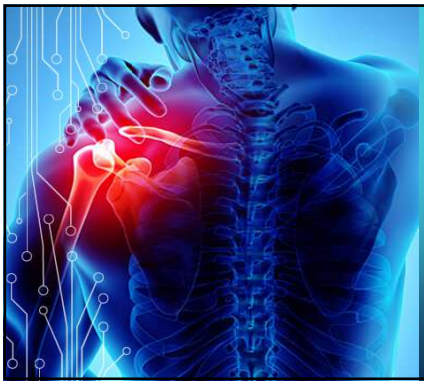


SCAPULOHUMERAL RHYTHM

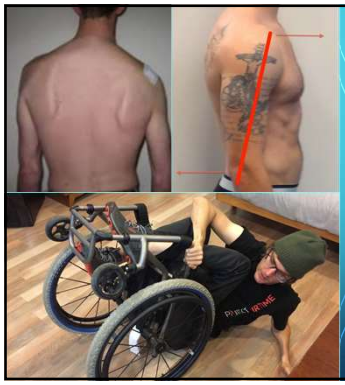
- Flexion
- Extension
- Abduction
- Adduction
- Internal (medial) rotation
- External (lateral) rotation
- Horizontal abduction
- Horizontal adduction
- Circumduction



GLENOHUMERAL ARTHROKINEMATICS



SHOULDER ASSESSMENT

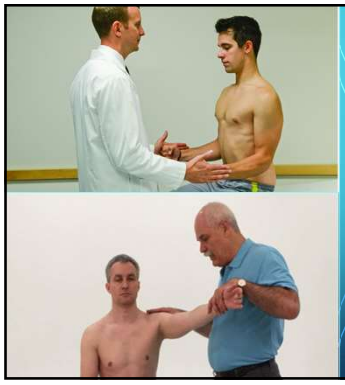


OBSERVATION

- 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

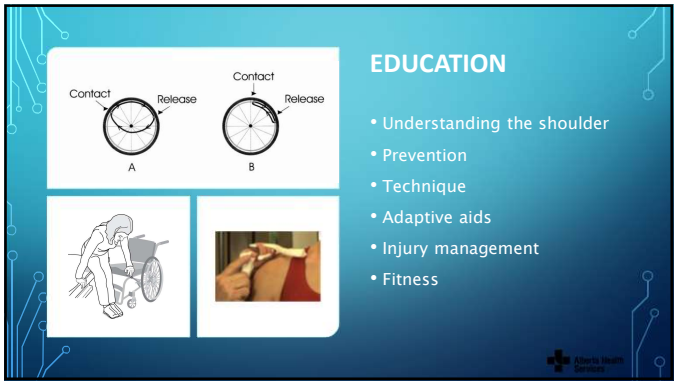
Keep it specific but functional

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???

mary.mcewen@albertahealthservices.ca

REFERENCES

1. Ian H. Sie, Robert L. Waters, Rodney H. Adkins, Harris Gellman, Upper extremity pain in the postrehabilitation spinal cord injured patient, *Archives of Physical Medicine and Rehabilitation*, Volume 73, Issue 1, pages 44 – 48.
2. Jennifer Silvestri, Effects of chronic shoulder pain on quality of life and occupational engagement in the population with chronic spinal cord injury: preparing for the best outcomes with occupational therapy, *Disability and Rehabilitation*, Volume 39, Issue 1, 2017, pages 82-90, DOI: 10.3109/09638288.2016.1140838
3. Kibler, W. B., Ludewig, P. M., McClure, P. W., Michener, L. A., Bak, K., & Sciascia, A. D. (2013). Clinical implications of scapular dyskinesis in shoulder injury: the 2013 consensusstatement from the 'scapular summit'. *Br J Sports Med*. Published Online First: [April 18th 2013] doi:10.1136/bjsports-2013-092425
4. Paralyzed Veterans of America Consortium for Spinal Cord Medicine (2005). Preservation of upper limb function following spinal cord injury: a clinical practice guideline for health-care professionals. *The journal of spinal cord medicine*, *28*(5), 434–470. doi:10.1080/10790268.2005.11753844
5. Santosh Lal, Premature Degenerative Shoulder Changes in Spinal Cord Injury Patients, *Spinal Cord*, Volume 36, no. 3, March 1998, page 186. *EBSCOhost*, doi:10.1038/sj.sc.3100608.
6. Sara J. Mulroy, Patricia Hatchett, Valerie J. Eberly, Lisa Lighthall Haubert, Sandy Conners, Philip S. Requejo, Shoulder Strength and Physical Activity Predictors of Shoulder Pain in People With Paraplegia From Spinal Injury: Prospective Cohort Study, *Physical Therapy*, Volume 95, Issue 7, 1 July 2015, pages 1027–1038, https://doi.org/10.2522/ptj.20130606

IMAGE SOURCES