
Spinal Cord Injuries

Shoulder Management and Considerations

The shoulder girdle is not designed to wheel.
The shoulder needs to be trained to wheel
effectively.

By: Sybille Bergin

Disclaimer

This presentation is for informational purposes only and does not constitute personal advice. It is not a substitute for professional diagnosis or treatment.

Consult a qualified healthcare professional for personalized guidance.

The presenter is not liable for any consequences resulting from the use of this information. Use all information at your own discretion and risk, modify suggestions to suit your personal needs and abilities, and verify information with your healthcare professional.

Shoulder Girdle Anatomy:

Bones to Consider:

- Humerus (upper arm)
- Scapula (shoulder blade)
- Clavicle (collar bone)
- The Ribcage

The shoulder joint is like a golf ball on a T.

The hip joint is like a ball in a bowl .

In addition:

- The weight of the arm pulls on the shoulder joint
- The hip is compressed by the leg



Shoulder Mechanics: What Keeps My Shoulder Safe?

Shoulder mechanics are highly dependent on :

- Position of the shoulder girdle
 - Mobility of the shoulder blade
 - Muscle balance: strength and length
 - Integrity of ligaments/bone structures
 - Trunk alignment and ability to coactivate trunk stabilizers
 - Lumbar mobility and length of hip flexors
-

MAIN Impairments of the Shoulder System:

- Weakness of scapular adductors and depressors
 - Shortness of anterior shoulder muscles like: biceps and pecs
 - Thoracic kyphosis and head forward position
 - Changes in mobility of the shoulder blade
 - Strength imbalance: some muscles are weaker than others
 - Rotator cuff injuries or other pre existing conditions
 - History of shoulder dislocation with ligament laxity
 - Fixed or postural trunk distortions into flexion, rotation or sidebending
 - Poor seating
 - Poor mobility of the lumbar spine either due to fusion or lack of mobility
 - Shortened hip flexors due to lengthy sitting time
-

Pre-Existing and Additional Conditions to Consider:

- Recurrent shoulder tendonitis
 - Previous shoulder dislocations
 - Fracture of the humerus/ clavicle and/or scapula
 - Fusion of the spine, especially at the cervical and lumbar level
 - Weight gain and changes in postural patterns
-

Wheeling Techniques Require:

- Lots of range and power into shoulder extension
- Lots of stamina of elbow extensors
- Sufficient stamina of shoulder and elbow flexors
- Isometric power of the scapular adductors
- An understanding how to reduce the excessive use of traps (elevators)

Wheeling techniques will not be discussed here and depend on the level of SCI and the seating arrangements.

Changes in wheeling terrain and surfaces will modify the technique you might use.

Changes in wheeling terrain will increase muscle recruitment for some mm groups and decrease for others.



Semi Circular
Propulsion (SC)



Arc
Propulsion



Single Loop Over
Propulsion (SLOP)



Double Loop Over
Propulsion (DLOP)

Is The Diaphragm Connected To My Shoulder?

The diaphragm is like a dome on the bottom of the ribcage.

Consider it like a trampoline on the bottom of your ribs.

It helps stabilize the ribcage giving more stabilizing power to your shoulder pulls.

The diaphragm participates best when the ribcage is upright.

Breathe in when you arms move back at the wheel

Breath out when you push forward

Try it! Short breaths are sufficient!

Pain Prevention Strategies:

- 1) Lengthen hip flexors
 - 2) Mobilize the lumbar spine as able
 - 3) Maintain or improve mobility of the shoulder joint
 - 4) Strengthen scapular adductors (Rhomboides) and depressors
 - 5) Strengthen shoulder extensors
 - 6) Strengthen thoracic extensors
 - 7) Improve stamina of shoulder and elbow flexors
-

Lengthen Hip Flexors



Mobilize the Lumbar Spine As Able



Strengthen Scapular Adductors



Strengthen Scapular Depressors



Maintain or Improve Mobility of the Shoulder Joint



Strengthen Shoulder Extensors



Strengthen Thoracic Extensors



Improve Stamina of Shoulder and Elbow Flexors



About Me



- Owner and operator of Bergin Motion
- Started in Argentina at the University of Buenos Aires
- Spent six years in Switzerland working at a rehab center
- Came to Canada in 1986
- Developed the skills to navigate complex orthopedic injuries and neuromuscular conditions through many courses: Bad Ragaz Aquatic Therapy, PNF and Bobath courses and finally, the 'Neurodevelopmental Therapy' certification course completed in Canada.