

Shoulder Preservation after SCI: Ambulation

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Fact Sheet

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Ambulation

Ambulation following SCI also introduces a potential for high demands on the upper limbs. Previous investigations have demonstrated that lower limb strength is inversely related to upper extremity (UE) demands during ambulation following SCI.¹

Movement Optimization

- Avoid extreme positions of shoulder during sit-to stand transfer when possible, for instance by pushing up from chair with at least one arm when possible or avoiding sitting on low surfaces.
- Any extremes of wrist motion near the limits of the joint motion should be avoided.²
- Avoid scapular elevation during standing and walking. (Figure 1) Strengthening the scapular depressors can help to achieve this goal and minimize the risk of injury.
- During healing from an UE injury, return to UE weightbearing during ambulation should be progressed gradually in order to avoid a flare-up of pain and injury.²



Figure 1: Left: Walker is set too high, causing scapular elevation and excessive UE demands. Right: Walker is set at correct height allowing optimal scapular and UE alignment.

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Adaptive Equipment

Assistive Device: Consider upper limb loads in decision-making related to assistive devices.

- Walker use significantly reduces vertical shoulder joint forces compared with those experienced during crutch ambulation.³
- In people with wrist pain, consider use of a walker or crutches with platform attachments or crutches/canes with an ergonomic grip in order to avoid position of extreme wrist extension.
- Ensure that assistive devices are set to the proper height to avoid excessive UE demands (Figure 1)
- During repetitive locomotor training activities in the context of shoulder pain or other signs of shoulder overuse, consider using devices that provide body weight support (e.g., overhead harness or assistive device with pelvic support) in order to minimize UE load.

Orthotic devices:

- Proper lower extremity orthotics can help decrease reliance on upper extremities for stability and forward propulsion during ambulation.

References:

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