

# Shoulder Health after SCI: PT Intervention

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## Fact Sheet

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This shoulder health after SCI fact sheet will focus on evidence-based physical therapy intervention; however, the conservative therapies reviewed here are important for shoulder health in general and will help slow the aging process of the entire shoulder. Careful attention to the shoulder health of patients with SCI can lead to preservation of shoulder function and independence.

## *What conservative treatment options exist for SCI patients with shoulder pain and injury?*

Once it has been determined that mechanical subacromial impingement is a major contributor to shoulder pain/dysfunction, the first line of defense is often physical therapy (Figure). In addition to the necessary environmental, equipment, and functional movement optimization that are part of a successful physical therapy program, therapeutic exercise has been proven to be effective for this clinical problem.<sup>1-3</sup> Studies in the able-bodied and SCI population have found exercise to reduce pain and increase function to a clinically significant degree even in populations with longstanding chronic pain.<sup>2,4-10</sup> Well-documented, evidence-based exercise programs, including photographs and videos, are emerging, allowing for immediate translational use in the clinic.<sup>2,8,11-12</sup>

### Conservative Treatment

#### Relative Rest

- First line of defense against over-use injuries
- PT/OT can help find realistic way to limit inconvenience on daily tasks

#### Modifications to equipment, environment, or movement

- Optimize ADLs to remove pain triggers
- Patient may be resistant due to perception of unwanted restrictions
- Evidence-based options, creativity, & education will maximize adherence

#### Therapeutic exercise

- Reduces pain and increases function
- Requires strategies for sustainable adherence
- Time-frame of months for change; requires patience

## *Exercise interventions for mechanical subacromial impingement in the shoulder should include:*

- Strengthening of the scapular stabilizers and rotator cuff with emphasis on:
  - Glenohumeral external rotators and scapular depressors and retractors
  - Balancing synergistic muscles that limit humeral head superior and anterior translation

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- Stretching of tight soft tissue structures with special consideration of:
  - Anterior chest musculature
  - Posterior capsule/structures, with finding of glenohumeral internal rotation deficit
- Advance the difficulty of exercises as needed, followed by an easy-to-sustain maintenance program. A PT program that progresses for approximately 12 weeks before beginning a maintenance program is effective.<sup>13</sup>
- Dosing to increase strength, muscular endurance, and agonist/antagonist balance
- Modifications, if needed, to maintain neutral cervical and thoracic posture throughout exercise regime:
  - Supine position
  - Reduce range of motion allowed during active exercise
  - Begin with isometrics
  - Initial reduction of resistance or number of repetitions
- Methods to assure proper technique, including centering maneuver of the humeral head in the glenoid, and avoiding substitution (scapular elevation common), and progressing program when appropriate
- Time requirements, equipment and resources that encourage adherence, naturally fit into daily routine, and are sustainable throughout the length of the program
- Consider including eccentric loading exercises in addition to concentric loading in order to effectively load an injured tendon to treat tendinopathies.<sup>14</sup> It is theorized that eccentric loading causes healing through regeneration of the tendon. Limited studies have utilized eccentric exercise to treat rotator cuff tendinopathies, and clinicians should be on the look-out for new evidence.

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