Due to the high degree of available range of motion of the Glenohumeral joint, it is highly susceptible to instability and injury. 98% of all traumatic shoulder dislocations are anterior. Rotator cuff injuries and peripheral nerve injuries are commonly associated with traumatic anterior shoulder dislocations. Very little literature on pre-operative PT.

### Background
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### Purpose
To investigate the effectiveness of pre-operative physical therapy (PT) management including passive range of motion, joint mobilization and exercises for a patient with both a torn rotator cuff and suspected neuropraxic peripheral nerve injury.

### Systems Review
- Cardiopulmonary system: Not impaired
- Integumentary system: Not impaired
- Musculoskeletal system: Gross strength deficits and limited gross range of motion of left UE, and slight subluxation of left glenohumeral joint
- Neuromuscular system: Impaired motor control of left hand and sensation of left distal UE

### Patient Education:
- The Patient was educated on strengthening and stretching exercises to do at home, number of repetitions sets per day, and proper form/technique for these exercises.
- He was also educated on what to expect with rotator cuff surgery and the prognoses of that surgery.

### Procedural Interventions:

#### Therapy Session schedule
- 10 minute warm-up – bicycle ergometer/patient preferences
- To increase overall blood flow and warm up tissues
- GH mobilization (grade 1-2)
  - posterior/inferior short arm traction
  - Scapular mobilization
  - depression/elevation/retrotraction/protraction
- PROM of GH joint (within limits of pain)
- AROM Exercises
  - Finger
    - abduction/adduction/flexion/extension/flexion
  - Wrist
    - flexion/extension/pronation/supination
  - Scapular clock
    - depression/elevation/retrotraction/extension
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#### Interventions
- Stretching exercises
  - Finger
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  - Wrist
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### Examinations

#### Initial Evaluation
<table>
<thead>
<tr>
<th>Test and measures</th>
<th>Normal limits</th>
<th>Scored (functional)</th>
<th>Scored (ally)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shoulder abduction</td>
<td>70 degrees</td>
<td>110*</td>
<td>110*</td>
</tr>
<tr>
<td>Shoulder flexion</td>
<td>180 degrees</td>
<td>170*</td>
<td>170*</td>
</tr>
<tr>
<td>Shoulder extension</td>
<td>45 degrees</td>
<td>20*</td>
<td>20*</td>
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<tr>
<td>Shoulder internal rotation</td>
<td>30 degrees</td>
<td>30*</td>
<td>30*</td>
</tr>
<tr>
<td>Shoulder external rotation</td>
<td>45 degrees</td>
<td>30*</td>
<td>30*</td>
</tr>
<tr>
<td>Shoulder flexion/extension</td>
<td>0-90 degrees</td>
<td>90*</td>
<td>90*</td>
</tr>
<tr>
<td>Elbow flexion/extension</td>
<td>0-180 degrees</td>
<td>180*</td>
<td>180*</td>
</tr>
<tr>
<td>Wrist flexion/extension</td>
<td>0-80 degrees</td>
<td>80*</td>
<td>80*</td>
</tr>
<tr>
<td>Hand grip strength</td>
<td>N/A</td>
<td>40%</td>
<td>40%</td>
</tr>
</tbody>
</table>

### Discussion
- The patient was only seen for a short period of time.
  - Five sessions including initial examination and re-examination.
  - The patient was unable to return for post-op rehab so we were unable to determine the effectiveness of the manual therapy on post-op results.
  - Despite the short time frame the patient did report less pain and improved sensation and motor control of his distal upper extremity.
  - Decreased pain and improved patient satisfaction has also been found in research on pre-operative PT for total hip and knee replacements.
  - More research needs to be done on pre-operative PT management.

### Outcomes
- Patient also reported improved sensation and motor control of left distal UE.

### References
2. Cawley S, Sutcliffe J, Murrell GA. Shoulder instability: management and rehabilitation.
3. Popeyes' bicep curling