The Physical Therapy Management of a Patient with Adverse Mechanical Tension Including the Use of Neural Gliders and Tensioners: a Case Report

B Manley, BA
University of New England, Portland, Maine

Background
- Adverse mechanical tension on one's nervous system can impair a nerve's ability to mobilize in relation to its interfacing tissues and lead to sensations of pain, paresthesia and numbness.
- Common physical therapy intervention includes sliding and tensioning of the irritated nerve and managing the tissues surrounding it.

Purpose
- The purposes of this case report were to (1) provide overview of adverse mechanical tension and (2) to report a case describing specific physical therapy management approaches and outcomes during outpatient rehabilitation for a patient with adverse mechanical tension.

Patient History
- 52 year old school teacher and mother of two diagnosed with "thoracic sprain."
- History of repetitive upper extremity use.
- Presented with cervicobrachial pain and paresthesia after "packing boxes at work."
- Work restrictions: no pushing or pulling greater than 3 pounds with her left arm.
- The patient had a good health status and an unremarkable medical history.

Examination
- The examination process revealed impairments of pain, range of motion and strength.

<table>
<thead>
<tr>
<th>Test &amp; Measure</th>
<th>Initial Eval</th>
<th>Discharge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain</td>
<td>5/10</td>
<td>0/10</td>
</tr>
<tr>
<td>NRS</td>
<td>5/5 (+)</td>
<td>5/5 (+)</td>
</tr>
<tr>
<td>Manual Muscle Strength</td>
<td>5/5 (+)</td>
<td>5/5 (+)</td>
</tr>
<tr>
<td>Hand Held Dynamometry</td>
<td>5/5 (+)</td>
<td>5/5 (+)</td>
</tr>
</tbody>
</table>

Intervention
- Manual Therapy
  - Nerve Gliding and Tensioning
  - Shoulder external rotation
  - Elbow extension + pronation
  - Wrist, finger & thumb extension

- Suboccipital Muscle Inhibition
- Upper Trapezius AROM
- Active Foam Roll Stretch
- Range of Motion
- Strength Training
- Retraction
- Extension
- External Rotation
- Adduction

Discussion
- This case report described the physical therapy management of a patient with adverse mechanical tension.
- The patient experienced a near to full recovery as demonstrated through QuickDASH scores and negative impingement tests and was able to return to work pain-free, without restrictions.
- Some negative outcomes included a positive ULNTT for the median nerve and sensitive DTRs.
- Nerve gliding and tensioning, along with education, stretching and strengthening, may have hastened recovery.
- More evidence is needed to help determine and standardize optimal neural gliding and tensioning dosages and effective adjunct interventions for patients who present with adverse mechanical tension.

Outcomes
- Following a 5 week treatment course of suboccipital release, nerve mobilizations, postural education, stretching, and strengthening the patient demonstrated negative shoulder impingement tests, Tinel’s sign and:
- Decrease in pain from 5/10 to 0/10
- Decrease in QuickDASH by over 50%

Acknowledgements
The author acknowledges G. Noel Squires, PT, DPT, OCS for assistance with case report conceptualization and Christie Brown, DPT for clinical supervision.