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

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Background

- Adverse mechanical tension on one’s nervous system can impair a nerves 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.

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<tr>
<th>Test &amp; Measures</th>
<th>Side</th>
<th>质感</th>
<th>Range of Motion</th>
<th>Sensations</th>
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<tbody>
<tr>
<td>Active Extension</td>
<td>Left</td>
<td>0/5</td>
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<tr>
<td>Active Adduction</td>
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<td>Postural assessment</td>
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<td>Shoulder</td>
<td>Passive</td>
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<td>Elbow</td>
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<td>Wrist</td>
<td>Passive</td>
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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**

- **Upper Cervical Spine**
  - Extension
  - External Rotation

- **Function Training**
  - Refraction
  - Adduction

- **Range of Motion**
  - Increased pain at 5/10 to 0/10

Outcome Measure

- Decrease in pain from 5/10 to 0/10

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.

Acknowledgements

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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%