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**Protocol R7**  
**Non-Operative Rehabilitation Program for**  
**Thoracic Outlet Syndrome**

**FOCUS:** Good posture habits, neck and shoulder strength.

**GOALS:**

- Increase range of motion of the neck and shoulder.
- Decrease pain and paresthesias.
- Strengthen shoulder musculature.
- Promote better posture habits.

**POSTURE:**

- Maintain good posture at all times, while sitting, standing or walking.
- Avoid slouching with shoulders rounded and head forward.
- Shoulders should be back (retracted) but relaxed.
- Head should be centered over shoulders.
- When standing, weight should be distributed evenly on both feet.
- When sleeping, patient may be supine with head and arms supported by pillows.
- May sleep on unaffected side with affected arm supported by pillow.
- Avoid sleeping on abdomen, on affected side or with arms overhead.

**WORK PLACE ERGONOMICS:**

- When sitting at computer station, patient should be in ergonomically correct position.
- Computer screen should be slightly below eye level.
- Chair should be adjusted to proper height relative to work surface.
- Chair armrests adjusted to support forearms.
- Back should be supported by chair back and feet should be flat on floor.
- Avoid carrying heavy objects, briefcases on the affected side.
- Long car rides should be discouraged.

**ANCILLARY MEASURES:**

- Heat may be applied to neck and shoulder muscles prior to exercise
- Ice may be applied after exercises as long as muscle spasm does not occur.

**NECK EXERCISES (sitting):**

- **Neck Side Bending** (to stretch scalene muscles). Bring right ear toward right shoulder without shrugging and hold for 5 seconds. Then bring left ear toward left shoulder and hold for 5 seconds. Repeat exercise five times.
- **Neck Rotation** (to stretch cervical muscles). Rotate head and neck to look over right shoulder for 5 seconds. Then rotate to left side and hold for 5 seconds. Repeat 5 times.
- **Neck Flexion** (to stretch trapezius). Bend neck forward touching chin to chest for 5 seconds. Return head and neck to neutral position. Repeat five times.

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(continued)

- **Chin Tucks** (to stretch and strengthen cervical muscles). Make a double chin, holding for 5 seconds, then relaxing for 5 seconds. Repeat five times.
- **Neck Half-Circles** (to improve cervical range of motion). Roll head and neck slowly to one side (as for neck side bending), then touch chin to chest, then roll head and neck to the other side. Repeat five times in each direction.

**SHOULDER EXERCISES** (standing):

- **Pendulum Exercises** (to improve shoulder range of motion). Bend slightly at the waist allowing arm to hang downward. Gently swing arm side to side from the shoulder like a clock pendulum. Repeat with other arm.
- **Shoulder Shrugs** (to improve scapular retraction, strengthen trapezius). Elevate shoulders to ears, hold for 5 seconds, then slowly lower shoulders. Repeat 5 times.
- **Shoulder Circles**. Roll shoulders forward five times, then backward five times.
- **Elbow Pinches** (to stretch pectoral muscles, strengthen rhomboids). Start with hands on waist, bring elbows behind back attempting to touch elbows together. Hold for 5 seconds, relax, then repeat 5 times.
- **Corner Stretch** (to stretch pectoral muscles, strengthen rhomboids). Stand facing corner with one hand on each wall. Lean forward toward the corner, supporting upper body weight with arms as doing a wall push-up. Hold for 5 seconds. Repeat 5 times.
- **Arm Swings** (to improve shoulder range of motion). Swing arms forward crossing at shoulder level. Then swing arms backward, attempting make to shoulder blades touch. Repeat 5 times.