



Thoracic Outlet Syndrome Conservative Management:

Guidelines for Physical Therapists Caring for TOS patients

Please give this handout to your physical therapist. It is important that your physical therapist has experience with thoracic outlet syndrome. If you would like to discuss treatment with an experienced therapist at Michigan Medicine contact Michigan Medicine Physical Therapy at 734-936-7070.

For the therapist

The following is intended to serve as recommendations for treatment based upon our combined clinical experience of working with TOS patients. Due to the level of variation among patients with TOS, this is not a strict protocol, and is not meant to replace sound clinical judgment. The goal of this program for each client is to assess the movement and the alignment faults which may be contributing to excessive stress on the brachial plexus.

If you have limited experience with thoracic outlet syndrome and would like to discuss treatment with the PT or OT who saw the patient at Michigan Medicine, please contact us at 734-936-7070.

Physical Therapy Pre-Operative Conservative Management

Usually a 6-8-week trial of physical therapy with emphasis on strengthening, shoulder range of motion, and pain relief techniques. Therapy should avoid exacerbation of symptoms.

Initial Assessment

- Posture/Alignment: Assess scapular faults including depression and or a combination of scapular internal rotation and anterior tilt, some will present with sway back posture.
- Muscle Length: Assess length of the pectoralis minor and major, scalenes, latissimus dorsi, and levator scapulae.
- Mechanical Faults: Assess scapular mechanics of shoulder flexion/abduction. Monitor for excessive scapular protraction, winging, and insufficient upward rotation or elevation in the second half of motion.

Initial Treatment

- Start with postural correction education; include positioning strategies like taping and bracing.
- Gentle stretching of the pectorals, scalenes, latissimus dorsi, and levator scapulae.
- Positional releases
- Some will benefit from gentle neural glides and manual techniques.
- Progressive conditioning program.

Treatment Progression

- Scapular stabilization with middle and lower trapezii recruitment, and strengthening exercises. Abdominal core transverse abdominis and rectus abdominis recruitment.
- Monitor for posterior deltoid and rhomboid compensations which result in excessive scapular anterior tilt and internal rotation and shoulder extension. Progress slowly.
- Those with excessive scapular depression will benefit from gradual progression to over-head involvement as tolerated to emphasize upper trapezius or levator recruitment.

- Monitor for scapular protraction substitutions.
- Progression of deltoid and rotator cuff strengthening as the patient reports substantial improvement in symptoms.

Occupational Therapy Pre-Operative Conservative Management

One-two visits with an occupational therapist with an emphasis on education regarding activities of daily living (ADLs.)

- Posture / Posture Faults
 - Maintain good posture in all activities but do not overcompensate by keeping your upper body tense
 - When relaxing in the sitting position, rest the affected arm on a chair armrest or pillow and keep the arm below shoulder level
- Education regarding work and home ADLs
 - Do not work above shoulder level whenever possible
 - Do not carry heavy objects in the affected hand or over the affected shoulder
- Ergonomics
 - Sitting
 - Standing
 - Computer use
- Sleeping
 - Review sleeping postures and positions
 - Rest the arm on a pillow for 30 minutes before bedtime.
 - Avoid sleeping on the affected side and on your stomach. A position that reduces symptoms is side-lying on the unaffected side with one pillow in the line of the trunk to support the upper arm. Never lie on your stomach.

- You may need to change the side of the bed that you currently sleep on.
- A wrist splint, elbow pad or cervical neck roll might be helpful.
- Driving
 - Keep your hands low and relaxed on the steering wheel.
 - If the shoulder strap crosses the clavicle (collar bone) on the affected side, do not draw the strap too snugly.
- General Precautions
 - Avoid strenuous physical tasks without adequate rest periods. Excess fatigue may result in poor body posture and an aggravation of the condition.
 - For female patients, thick bra straps or strapless bras will assist in decreasing direct pressure on the thoracic outlet. Sports bras are recommended.

(Adapted from Hand Rehabilitation Center of Indiana)

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Author: Chandu Vemuri, MD FACS
Reviewers: Susan Young, BSN, RN, Bethany Lee-Lehner, MSN, RN

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