Thoracic Spine: Mobility and postural control
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The thoracic spine is an overlooked but important component to rehabilitation of the not only mid back complaints but neck, shoulder and lower back injuries. Adequate thoracic spine mobility is essential to not only good posture but functional movements. Improving mobility and restoring postural control of this area should be part of the exercise and rehabilitation programs for all these areas.

Remember to follow the simple rule of stretch what is tight and strengthen what is weak when implementing corrective exercise. In many clients, the pectorals muscles are tight, mid-thoracic spine is stiff and the thoracic extensors combined scapular motor control muscles are weak. The following are some basic stretching and mobility exercises for the thoracic spine to incorporate into your rehabilitation programs and wellness classes.

Breathing:

Research (Izumizaki 2006 and Obayashi, 2012) has demonstrated that deep breathing and respiratory muscle strengthening exercises improve rib cage mobility and reduce thoracic kyphosis. It is important to facilitate posterior lateral rib cage expansion with manual feedback and verbal cues during inhalation for optimal lung inflation and thoracic spine mobility. A simple way for the client to practice at home is to breath into an elastic band wrapped around the torso.

Pec minor (pool side or mid pool)
Posterior tilt the scapula with manual pressure at the inferior border of the scapula and superior lateral pressure on the anterior aspect of the shoulder. Performed unilaterally supine or sitting. To increase the stretch, cue the client to turn body slightly away from you and exhale.

Pec minor/ major: client’s back against the wall, therapist’s hands are providing a retraction force with their hands on the anterior aspect of the chest/ pectoralis. Once stretch is felt in the pectorals have client externally rotate arm placing the back of their hands on the wall and squeezing their shoulder blades back and down. Have the client gradually bring arms up into abduction without losing the contact of their hand on the pool wall. Add to the stretch have the client exhale forcefully this will bring the rib cage down and add to the stretch.
Sitting: trunk rotation
Sitting with good postural alignment, hands together in front of the body and knees together, rotate trunk keeping nose lined up with hands (neck stays in neutral). You should feel the stretch in the mid back. Be sure to keep the knees together otherwise the pelvis will unlock and the stretch will be in the lower spine. Cue, “get taller as you rotate”.

Standing wall touches:
Stand with your right side close to the wall (about 3-4 inches away), place your right leg in front of your left. Keeping your pelvis, knees forward, turn your trunk to the right touching the wall with your hands.

Ideas on having fun and working balance and coordination at the same time while increasing thoracic spine mobility.

- Walking with hands up at chest level perform high knee lifts, turning the body towards the same side as the lifted knee. This can be done with a partner or along the pool wall. Add upper extremity reaching at various angles to challenge the balance and coordination. Increase postural control challenges by balancing a kickboard or other item on your head.
- Tandem stance trunk twist: tandem stance and turn body toward front leg reaching arms out. Increase challenge with head following and looking at arm reaching backward or close eyes.

Gaining postural control and thoracic spine extensor strength can be done in a progression from back against the wall to back on wall with noodle (or portion of) along spine to mid pool and walking backwards.
• Wall posture with deep neck flexor activation (head nod) and arm motions including low I, T and W (add noodle along back)
• Low I, Y, T, W with drag force equipment such as glove, aqualogics or aquaflex paddles.
• Isometric holds against manual resistance of the low I, Y, T or W while walking forward or backwards.

For those not familiar with the I, Y, T and W exercise they are essentially for scapular motor control (stabilizing muscles lower and mid trapezius) where arms are held at side (low I) out in about 45 degrees of abduction (low Y), at 90 degrees of abduction (T) and abduction and external rotation (W). The key is to initiate the motion with scapular retraction and not shoulder extension.

![Low I](image1)
![Low Y](image2)
![T](image3)
![W](image4)

References:


