

A Corrective Exercise Strategy for the Forward Shoulder Posture

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The forward shoulder posture is often associated with and contributes to non-optimal function of the shoulder complex. This posture is often driven by scapular dyskinesia or dysfunctional control of the scapula.

Learning Objectives:

The fitness professional will be able to:

1. Understand the relationship between the scapula and optimal movement and control of the shoulder complex.
2. Identify the scapular motion and muscle imbalances that contribute to the forward shoulder posture.
3. Identify the muscles that are responsible for the forward shoulder posture and those that assist more optimal positioning and control of the scapula.
4. Implement a corrective exercise strategy that releases the over-active muscles and re-activates the inhibited muscles associated with the forward shoulder posture.
5. Integrate optimal scapular mechanics into common exercise patterns such as the horizontal cable row.

Introduction

The forward shoulder posture is a common postural alteration in our clients. This posture makes it challenging for the individual to get their arm into a position that encourages optimal mechanics for overhead motion and loading of the shoulder complex. Additionally, this posture relates to many common shoulder issues including rotator cuff impingement, chronic trigger points, and scapular dyskinesia (alterations in normal scapular motion). In this article, we are going to discuss optimal scapular mechanics and common causes that lead to the forward shoulder position. This article will also outline a corrective exercise strategy designed to release the over-active and re-activate the inhibited muscles prior to incorporating optimal scapular mechanics into your clients' fundamental movement patterns. This will provide you with the tools needed to improve your clients' postures and movement efficiencies.

Optimal Position of the Scapula

As one of the four joints of the shoulder complex, the scapula relationship to the rib cage is one of the vital components to achieving optimal functioning of the shoulder complex. The resting or neutral position of the scapula plays an important part in the development of optimal shoulder mechanics. The scapula is considered in neutral posture when it is positioned along the posterior thorax between the levels of the second and seventh thoracic

vertebrae and where the inferior angle of the scapula is just slightly lateral to the superior border (Lee & Lee, 2013).

Note the optimal position of this client's right shoulder where his scapula is positioned between the second and seventh vertebral segment and the inferior angle of the scapula is positioned slightly lateral from the midline of the body as compared to the superior angle (See Image 1). The scapula should be maintained relatively flush against the thorax during all shoulder motion (Lee & Lee, 2013; Osar, 2012; Sahrman, 2001).

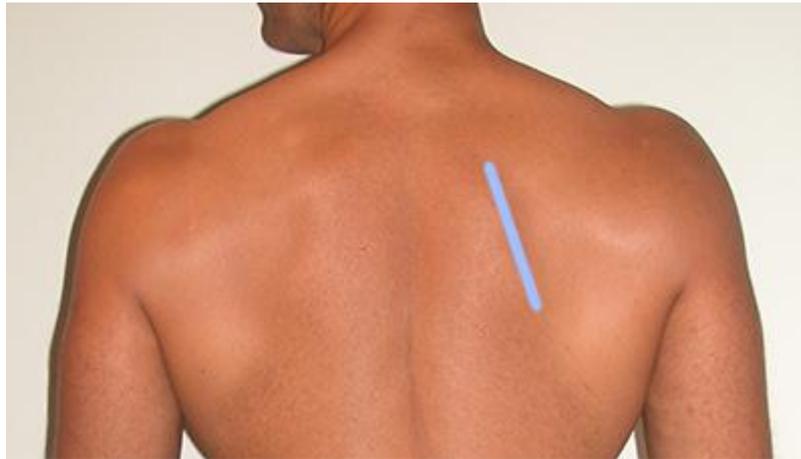


Image 1

When the scapula begins to downwardly rotate (superior angle moves more lateral to the inferior angle) and anteriorly tilt (the top of the scapula tilts forward relative to the bottom), the shoulder begins to assume the familiar forward shoulder position. Therefore, the forward shoulder posture is a downward rotated and anteriorly tilted position of the scapula (Osar, 2012). Note the downward rotated and anteriorly tilted scapular position in this client with chronic neck and shoulder tightness (See Image 2).

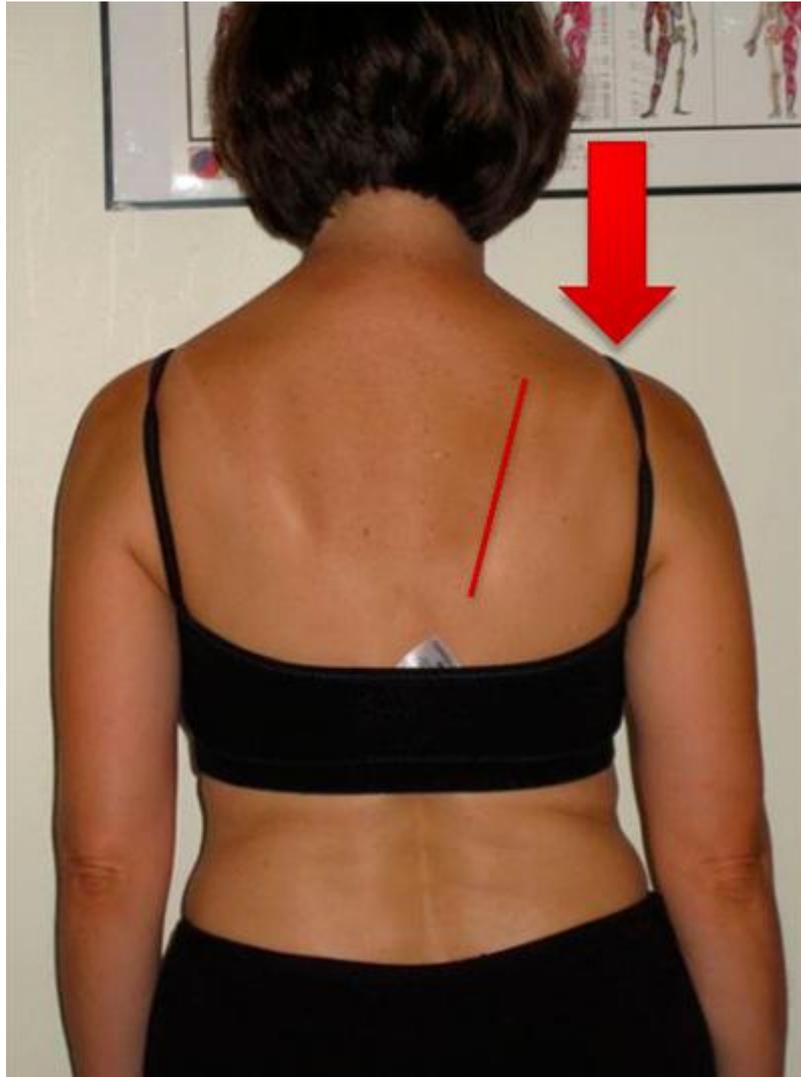


Image 2

Optimal Scapular Mechanics

When the arm is reaching out or overhead, the scapula should wrap around the thorax so that the inferior angle approximates the mid-axilla level of the thorax (Sahrmann, 2001). When the arm is returned from an overhead or reaching motion it should return to the neutral resting position. It is considered non-optimal alignment and mechanics if the scapula is seen to adduct or downwardly rotate beyond neutral position during the return from overhead or reaching movements (Osar, 2013). The inability to maintain neutral position and/or optimal scapular mechanics often occurs when there is fatigue of the scapular stabilizing muscles, especially the lower trapezius and serratus anterior (Giovanni et al., 2010; Osar, 2013).

Common Causes of the Forward Shoulder Posture

While there are many situations that can affect shoulder posture, there are three main causes of the forward shoulder position: the seated posture, breathing, and poor exercise execution.

The seated posture: Because the majority of our clients sit and work on computers, the anterior shoulder musculature – primarily the pectoralis minor – naturally shortens thereby

creating the characteristic forward shoulder position. What makes this posture worse however is when these individuals are cued to over-activate their latissimus dorsi and rhomboids when they are told to squeeze their shoulder blades 'down and back.' The latissimus dorsi and rhomboids both contribute to downward rotation of the scapula and can easily perpetuate the forward shoulder posture by pulling the scapula into a non-optimal position and further compromise optimal shoulder posture and mechanics. It will be imperative that we cue our clients appropriately so that we encourage them to develop optimal scapular mechanics.

Breathing: Many muscles contribute to optimal breathing patterns. When the primary muscles of respiration become inhibited due to stress, injury, or poor habits, the accessory muscles tend to dominate. The pectoralis minor is one of these muscles that becomes significantly over-active in its respiratory role and begins to pull the scapula down and forward. Poor breathing habits are what makes it quite challenging to change chronic forward shoulder issues. Improving diaphragmatic or three-dimensional breathing is one of the most effective strategies for improving the forward shoulder posture since it allows the over-active muscles relax and return to their more normal resting length. For more on developing an optimal breathing strategy visit: <http://www.ptonthenet.com/articles/assessing-the-fundamentals-the-thoracic-connection-part-2>.

Poor exercise execution: Several common exercise patterns directly contribute to the forward shoulder position. One example of this is the push-up plus pattern. The push-up plus pattern – a modification of the traditional push-up exercise where the arms are held straight and the scapula is maximally protracted and retracted around the trunk – has traditionally been used to strengthen and improve serratus anterior function in providing scapular stability. While a common pattern in rehabilitative and corrective exercise strategies, the push-up plus has been shown to decrease the subacromial space (space in front of the shoulder where the supraspinatus tendon and bursa often become impinged) and contribute to anterior shoulder impingement (Lunden et al., 2010). Additionally, the push-up plus does not improve scapular positioning and often directly contributes and perpetuates the downward rotated and anterior tilted scapular position (Osar, 2012). Note the downward rotation and overall poor scapular control in this client performing the push-up plus exercise (See Image 3). Recall that we don't want to encourage cueing our clients to go 'down and back' as that cue encourages over-activation of the downward rotators such as the rhomboids and latissimus dorsi.



Image 3

Another strategy that can perpetuate the downwardly rotated scapula is when scapular retraction and depression is encouraged in combination with pulling the elbows significantly behind the shoulder. This commonly occurs as our clients are performing pulling patterns such as dumbbell and cable rows. This strategy perpetuates the downward rotated and anteriorly tilted shoulder posture making it very challenging to restore optimal position of the scapula. Note the forward position (anterior tilt) of the scapula as the shoulder is overly extended and the elbow moves behind the shoulder (See Image 4).



Image 4

To improve the forward shoulder, we must help our clients achieve more optimal scapular position, encourage this position through the fundamental movement patterns such as rowing, and additionally support it through optimal cuing. We will look at a three-step corrective exercise strategy to restoring scapular position and improving mechanics in the next section.

The Corrective Exercise Strategy to Improving Scapular Stability

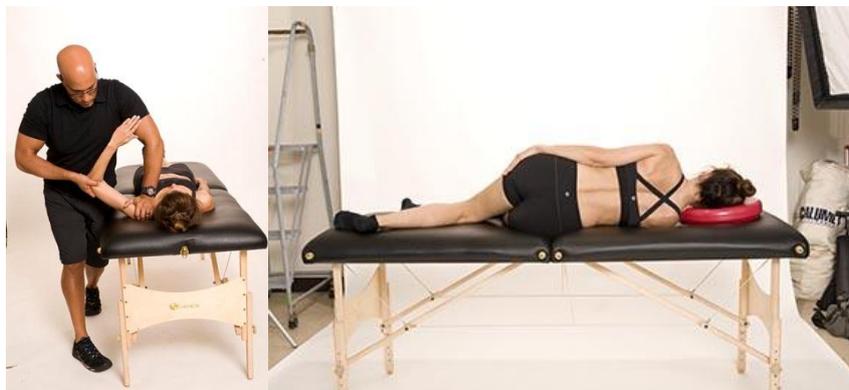
To restore optimal scapular alignment and function, we will utilize a three-step corrective exercise strategy. This corrective exercise strategy is designed to improve optimal movement patterns so your clients can accomplish their functional goals whether they are to exercise with fewer limitations, reduce chronic myofascial restrictions, or play a recreational sport. First, we will release the hypertonic muscles, next we will re-activate the inhibited scapular stabilizers, and finally we will integrate optimal scapular mechanics into the fundamental movement patterns (Osar, 2013).

Step 1: Release

While it is generally not the only muscle that needs to be released, the pectoralis minor is one of the more common muscles that contribute to the anterior tilted and downwardly rotated scapula (Osar, 2013). To release the pectoralis minor, the fitness professional will have the client contract and shorten their pectoralis minor against their resistance, hold for 5 seconds, and then slowly release and lengthen. This contract-relax sequence will generally release a contracted and hypertonic muscle with 2-3 repetitions (See Image 5). Once released, the client must activate the serratus anterior and lower trapezius (upward rotators and posterior tilters) to help stabilize the scapula in a more optimal position.

Step 2: Re-activation

Recall that the forward shoulder is created by a downward rotation and anterior tilted scapular position. The side-lying isometric position is an excellent pattern to restore optimal scapular positioning because it activates the serratus anterior and lower trapezius and encourages upward rotation and posterior tilting of the scapula (Osar, 2013). The client lies on her side with her shoulders and hips stacked on top of each other. Her bottom shoulder is at a 90-90 (shoulder and elbow flexion) position. The client pushes her elbow down into the table (towards the floor) and attempts to lift her body up over her bottom arm (towards the ceiling). You should be able to palpate activation of the serratus anterior and lower trapezius and note that the scapula moves around (wraps) the thorax. She relaxes and repeats for 5-10 repetitions for 2-3 sets (See Image 6).



Images 5 & 6: Release of pectoralis minor (left image); re-activation of scapular stabilizers – side lying isometric (right image)

Step 3: Re-integration

Releasing the pectoralis minor and activating the serratus anterior and lower trapezius

facilitates upward rotation and posterior tilting. Recall that slight upward rotation (where the inferior angle of the scapula is positioned slightly lateral to the superior angle) and posterior tilt (where the lower aspect of the scapula is positioned relatively posterior to the upper aspect) is the optimal resting as well as loading positioning for the shoulder. Once the client understands how to achieve this position, they must be able to use optimal scapular mechanics in their functional patterns. For purposes of this article, we will look at the horizontal pulling pattern, also known as the rowing pattern, as it is one of the more common exercises for improving scapular stability.

As with all the fundamental movement patterns, the horizontal cable rows should encourage optimal mechanics and control established during the re-activation phase of the corrective exercise strategy. The client grasps the cable and pulls the scapula into a neutral position. There should be no excessive adduction during the concentric phase or excessive abduction during the eccentric phase. The scapula should remain flush against the thorax during the entire pattern and wrap around the thorax during both the concentric and eccentric phases of the pattern. For most clients, they should maintain the elbow of the rowing arm in line with the shoulder and not pull the arm into too much extension - since this will often encourage anterior tilting of the scapula and excessive anterior positioning of the humeral head (Osar, 2013). The client is cued to 'open up the front of the shoulder' or to 'pull your shoulders wide' to encourage optimal movement and control of the scapula during the pattern. Notice the improved shoulder posture that is created when the client is cued to keep their shoulders 'wide' or 'open' through the front and to 'wrap' the scapula around the thorax (See Image 7).



Image 7

These mechanics can also be taken into the single-arm cable row to incorporate optimal scapular mechanics with trunk and lower extremity control (See Images 8-9)



Image 8



Image 9