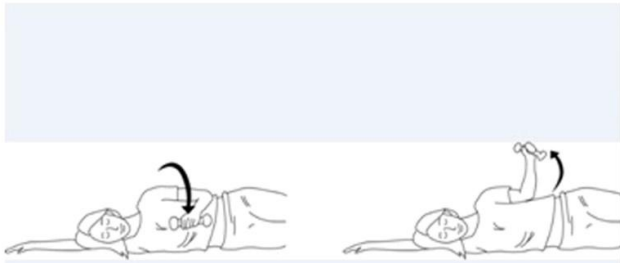
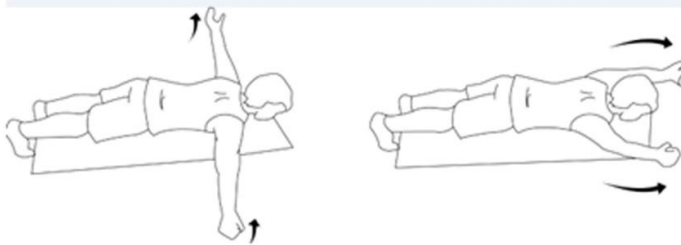
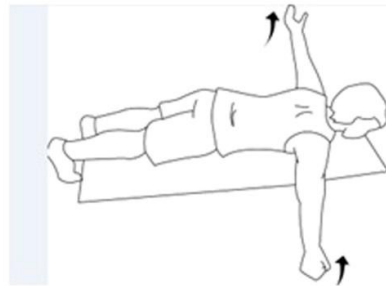


# Resistance and Stretching Exercises for Forward Head and Protracted Shoulder Posture in Adolescents

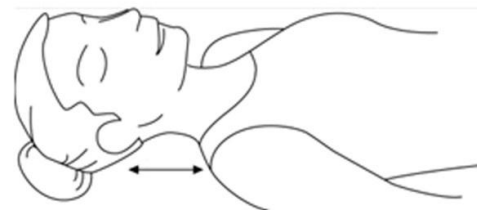
REF: Rodrigo Miguel Ruivo, PhD,<sup>a</sup> Pedro Pezarat-Correia, PhD, <sup>a</sup>Ana Isabel Carita, PhD<sup>b</sup>. Effects of a Resistance and Stretching Training Program on Forward Head and Protracted Shoulder Posture in Adolescents. (J Manipulative Physiol Ther 2017;40:1-10)



**SIDE-LYING EXTERNAL ROTATION:** Slowly lower & raise the weight (keeping elbow on side)



**“Y to I” SCAPULAR STABILIZATION:** Thumbs point upwards; keep head/neck neutral & lift hands / arms towards ceiling squeezing scaps together; slowly raise arms overhead; release slowly!



**CHIN TUCK:** Tuck chin & push the mid-neck down (don't lift head)



**PECT STRETCH** (Repeat low, mid, high)



**SCM & LEVATOR SCAP STRETCHES** (Stretch in multiple directions)



**SUMMARY:** 4 strengthening, 3 stretching exercises; 16-week stretching & strengthening program at 2x/week frequency;  
**Resistance Exercises:** Start with light loads (2 sets/15 reps; increase: **Month 1:** 2 sets/15 reps; **Months 2:** 3 sets/15 reps; **Month 3:** 3 sets/15 reps BUT 12 reps, >1 Kg in dumbbell exercises; **Month 4:** 3 sets/12 reps with 0.5 kg more weight); 30 sec. rest betw exercises.

**Stretch Exercises:** Static stretch, 30-sec. hold for 2 sets

**( NOTE: Turn page for verbal instructions)**

**Table 1.** *Description of Strengthening and Stretching Exercises Used During the Training Program*

Exercise	Principal Muscle	Description
Side-lying external rotation	Teres minor infraspinatus	Side lying with arm fully adducted to side and internally rotated with elbow flexed to 90°. Patients then externally rotate the shoulder with the hand moving in an arc away from the body.
Prone horizontal abduction with external rotation	Middle trapezius Lower trapezius Rhomboids Infraspinatus Teres minor	In a prone horizontal abduction position, the patient horizontally abducts the arm with the elbow extended and with external humeral rotation. The participant lifts the hand toward the ceiling keeping head/neck neutral and squeezing both shoulder blades together.
Y-to-I exercise	Middle trapezius Lower trapezius Serratus anterior	The patient retracts the scapulae with the arms abducted to 90°. As the patient advances, the shoulders are externally rotated with the elbows flexed to 90°, forming a <i>Y</i> . Then the patient moves into a position of full bilateral elevation with the elbow extension forming an <i>I</i> .
Chin tuck	Longus colli Longus capitis	This exercise targets the deep flexor muscles of the upper cervical region, the longus capitis and longus colli muscles. This is a low-load exercise <sup>51</sup> that involves performing and holding inner range positions of craniocervical flexion that specifically activate and train the deep cervical flexor, rather than the superficial flexors muscles. This exercise is done in a supine lying position with the head in contact with the floor.
One-sided unilateral self-stretch exercise	Pectorals minor	The participant's forearm is stabilized by a vertical plane before the trunk is rotated in the opposite direction. Therefore, the arm on the involved side is externally rotated and abducted to 90°.
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Static sternocleidomastoid stretch	Sternocleidomastoid	Start in optimal posture and place right arm behind body, depressing the shoulder. Draw abs in. Tuck chin and slowly draw left ear to the left shoulder. Continue by rotating the neck upward toward the ceiling until a slight stretch is felt on the right side. We can use the left hand to apply slight pressure and assist in lateral flexion and rotation. Switch sides and repeat.
Static levator scapulae stretch	Levator scapulae	Start in optimal posture and place right arm behind body, depressing the shoulder. Draw abs in. Tuck chin and slowly draw left ear to the left shoulder. Continue by rotating the neck downward toward the ceiling until a slight stretch is felt on the right side. We can use the left hand to apply slight pressure and assist in lateral flexion and rotation. Switch sides and repeat.