

Neuromuscular Re-Education, Flexibility, and Initial Strength Training for Marksmanship



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Initial Program Outline

- Core Stability
 - Transverse Abdominis Isolation
- Cervical Stability
 - Longus Coli Isolation
- Rotator Cuff Stability
 - External Rotation with Theraband
- Thoracic and Scapular Stability
 - Seated Row with Theraband
 - Lat Pulldown with Theraband
- Flexibility
 - Latissimus Dorsi Stretch
 - Pectorals Stretch
- Strength Training Progressions for Theraband



Core Stability: Transverse Abdominis (TA) Level 1

- Lying supine with hips & knees flexed and feet on the floor.
- Patient is instructed keep a Neutral lumbar spine using the 'Drawing-in Maneuver' and place two fingers on transverse abdominis and one hand on superficial abdominal muscles.
- Next, patient is asked to "pull the navel in toward the spine" without tightening superficial abdominal muscles and only the TA.
- Level 1 will be the starting position for following Levels 2-5.



TA Level 2

- Lift one foot to 90 degrees with alternate foot on table
- Method:
 - Contract TA and flex and one hip to 90 degrees while keeping knee flexed.
 - Return the leg to starting position and repeat with opposite leg
 - Repeat 10-12 times to progress to level 3



TA Level 3

- Flex the hip to 90° and lift the other foot.
- Methods:
 - Contract TA and flex one hip to 90 degrees.
 - Lift other leg to same position. While maintaining contraction of TA, lower the legs one at a time to starting position.
 - Repeat by starting the sequence with the opposite LE.
 - Repeat, alternating legs, correctly 10-12 times to progress to Level 4



TA Level 4

- Flex one hip to 90 degrees, and lift the other foot. Extend the one leg without touching the support surface.
- **Methods:**
 - Flex hip to 90 degrees, lifting foot from the table.
 - Maintain contraction of TA and lift other leg up to and same position.
 - Maintain one hip at 90 degrees, extend the other hip and knee while holding the foot 6 inches off the table.
 - Return leg to the hip and knee flexed position.
 - Maintain contraction of abdominal muscles, extend other leg and return it to the 90 degree position.
 - Repeat, alternating legs, correctly 10-12 times to progress to Level 5.



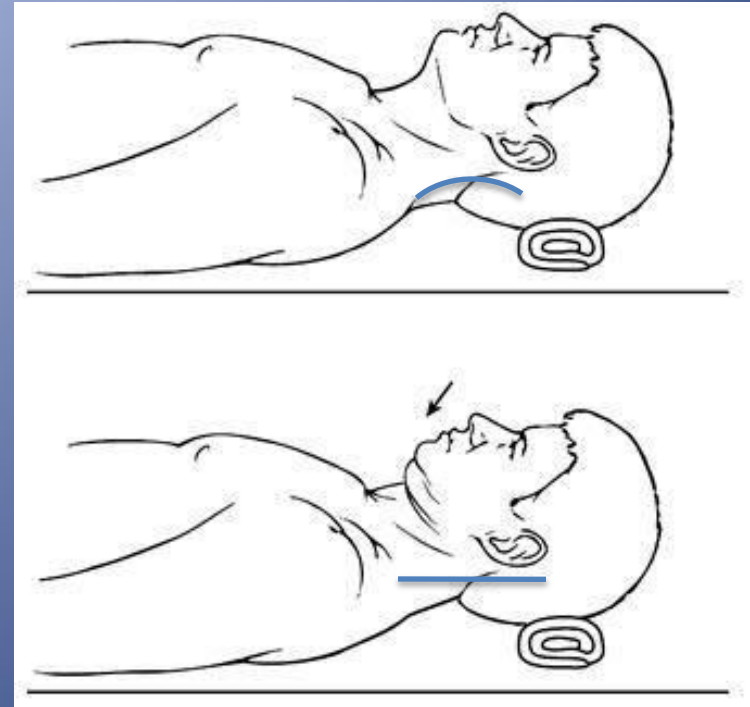
TA Level 5

- Flex the hips to 90 degrees and extend the knees without touching the support surface.
- **Methods:**
 - Flex hip to 90 degrees, lifting foot from the table.
 - Maintain contraction of TA and lift other leg up to and same position.
 - Extend both hips and knees while holding the feet 6 inches off the table.
 - Return legs to the hip and knee flexed position at 90 degrees.
 - Repeat correctly 10 times.



Cervical Strengthening & Posture

- Longus Coli Isolation
 - Lie on a firm surface. Roll up a wash cloth or small towel (1 to 3 inches in diameter) and place it directly under your head as shown.
 - Gently tuck your chin down toward the floor.
 - You will feel a stretch on the back of your neck.
 - Hold this position for 3-5 seconds.
 - Repeat exercise 10-12 times, 2-3 times per day.



Theraband Rotator Cuff Strengthening

- Seated External Rotation
 - Grab the Theraband so that it is not too slack or too tight when holding it in the starting position.
 - Begin by holding the Theraband with your thumb is facing the ceiling with your elbows at your side bent to a 90 degree angle.
 - Exhale as you slowly bring the Theraband outwards, away from your body, while keeping your elbow at your side. Inhale as you bring the Theraband back to the starting position in a controlled manner.
 - Repeat this process 10-12 times for 3 sets.



Theraband Back Training

- Seated Scapular Retraction and Row
 - Contract your abdominals for trunk stability. Position the Theraband so that it is at an equal height with your shoulders.
 - Exhale and first pull your shoulder blades back, then pull your hands towards your chest by bending at the elbows.
 - Keep your back upright and straight as you bring your elbows to your side while squeezing your shoulder blades together. Inhale and return to starting position in a slow and controlled manner.
 - Repeat this process 10-12 times for 3 sets.



Theraband Back Training

- Seated Lat Pulldown
 - Contract your abdominals for trunk stability. Keep your spine and neck in a neutral position.
 - Exhale and pull the Theraband down while bending your elbows and extending your arm.
 - Inhale as you bring the Theraband back to the starting position in a controlled manner.
 - Repeat this process 10-12 times for 3 sets.



Latissimus Dorsi Stretch

- Place Stretch foam roll or rolled up towel under the length of your spine
- Bring your arms out to a 90° angle as in the first picture, being sure your low back stays flat against the foam roll or towel and does not arch
- Hold stretch for 30-60 seconds
- As your flexibility improves, bring your arms up to a 135° angle and eventually a 180° angle
- Again, make sure your low back stays flat against the foam roll or towel and does not arch as you increase the angle of your arms



Pectoralis Stretch

- Place your shoulder against a door frame or stationary object
- Turn your body away from your shoulder, feeling a stretch between your shoulder and chest
- Hold stretch for 30-60 seconds
- Repeat for opposite side



Seated Row

- Begin seated with upright posture and back flat, do NOT lean forward
- Pull handle back toward lower chest, your back should remain straight, do NOT lean backward
- Focus on squeezing your shoulder blades together first and then pulling with your arms
- Return to starting position
- Repeat this process 10-12 times for 3 sets.



Bent Over Row

- Begin supported on bench as in first picture, with a flat back
- Pull weight up to chest, keeping your elbow in, without rotating your shoulders
- Focus on squeezing your shoulder blade in first, then pulling with your arm
- Return to starting position
- Repeat this process 10-12 times for 3 sets.



Lat Pulldown

- Begin seated, back straight, with a slight backward lean
- Pull bar down to top of chest, focusing on squeezing your shoulder blades down and in
- The angle of your trunk should remain unchanged throughout the movement
- Return to starting position
- Repeat this process 10-12 times for 3 sets.



QUESTIONS

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