Pilates for Rounded Shoulders and Kyphosis in Road Cyclists

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ABSTRACT

Cycling offers the mental and physical health benefits of outdoor exercise and improved cardiovascular strength. A common problem among most avid cyclists is the tendency to an anterior rotation of the shoulder joint, otherwise known as rounded shoulders. This is so prevalent and can cause so many issues. Basically the issue springs from the fact that, while on a bicycle, you’re locked into a certain posture over prolonged periods of time. Our body is a great adapter and it conforms to repetitive action. Rounded shoulders are a restriction of the pectoral muscle group as they connect to the shoulder area. Using the BASI Pilates block system i want to share ways of how to counteract this common problem, increase mobility and minimize pain and discomfort in the shoulders.
Anatomy of the Spine

The human spine is a complex anatomic structure that is the scaffolding for the entire body. It provides several important functions, including:

- Protecting the spinal cord and nerves
- Structural support for the body, allowing us to stand upright. The spine supports about half the weight of the body.

The average person is born with 33 individual bones (the vertebrae) that interact and connect with each other through flexible joints called facets. By the time a person becomes an adult most have only 24 vertebrae because some vertebrae at the bottom end of the spine fuse together during normal growth and development. The bottom of the spine is called the sacrum. It is made up of several vertebral bodies usually fused together as one. The remaining small bones below the sacrum are also fused together and called the coccyx. The spine above the sacrum consists of:

- Seven bones in the neck — the cervical spine
- 12 bones in the chest — the thoracic spine
- Five bones in the lower back — the lumbar spine

Kyphotic spine.
Rotator Cuff Muscles and Tendons

The Rotator Cuff is a common name for the group of four distinct muscles and their tendons, which provide strength and stability during motion to the shoulder complex. They are also referred to as the SITS muscles, with reference to the first letter of their names (Supraspinatus, Infraspinatus, Teres minor and Subscapularis). The muscles arise from the scapula and connect to the head of the humerus, forming a cuff around the glenohumeral joint. The Rotator cuff muscles are each used in a variety of upper extremity movements including flexion, abduction, internal rotation and external rotation. They are essential players in almost every type of shoulder movement. Balanced strength and flexibility in each of the four muscles are vital to maintain functioning of the entire shoulder girdle. As a group, the rotator cuff muscles are responsible for stabilizing the shoulder joint, by providing the "fine tuning" movements of the head of the humerus within the glenoid fossa. They are deeper muscles and are very active in the neuromuscular control of the shoulder complex during upper extremity movements. They keep the head of the humerus within the small Glenoid fossa of the scapula in order to enlarge the range of motion in the Glenohumeral joint and avoid mechanical obstruction.
Actions of Supraspinatus:
Helps the deltoid muscles initiate the abduction of the arm at the shoulder joint and also helps to stabilize the shoulder by drawing the humerus toward the glenoid fossa of the scapula.

**Supraspinatus**

- **Origin:** supraspinous fossa of scapula
- **Insertion:** greater tubercle of humerus
- **Action:** Abducts the arm

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Actions of Infraspinatus:
Helps to maintain shoulder stability by keeping the head of the humerus in its proper position against the scapula while the upper arm moves throughout the shoulder joint. The infraspinatus causes lateral (external) rotation of the humerus.
Actions of Teres minor:
The teres minor is a medial rotator and adductor of the humerus and assists the latissimus dorsi in drawing the previously raised humerus downwards and backwards into extension. It also helps stabilise the humeral head in the glenoid Cavity.

Teres Minor

Insertion: greater tubercle of humerus
Origin: lateral border of scapula
Action: Externally rotates the arm
Actions of Subscapularis:
Rotates the head of the humerus medially (internal rotation) and adducts it; when the arm is raised, it draws the humerus forward and downward. It is a powerful defense to the front of the shoulder-joint, preventing displacement of the head of the Humerus.

Subscapularis

Insertion: lesser tubercle of humerus
Origin: subscapular fossa of scapula
Action: Internally rotates arm
Case Study

Client X who is 44 years old. He has been cycling since 1992 and have completed 25 Cape Town Cycle Tours. He also ran the Two Ocean’s Half Marathon 10 times.

During the past 12 months he has been cycling an average of six (6) hours per week. He also does Pilates mat work classes twice weekly for 9 years already. He started noticing severe neck and shoulder pain about 18 months ago. He began physical therapy (Biokineticist) together with Pilates equipment classes to aid him with his posture and pain management.
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<td>Roll down, Roll up, Spine Twist Supine, Dbl Leg stretch, Sing leg stretch, Criss cross</td>
<td>Warm up for the Spine plus Abdominals</td>
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<td>Footwork (Wunda chair)</td>
<td>Parallel Heels/Toes, V position Toes, Open V Heels/Toes, Calf raises, Sing' leg Heels/Toes</td>
<td>Trunk stabilization, hip extensor strength, knee extensor strength, foot/ankle control</td>
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<td>Abdominals (Cadillac)</td>
<td>Roll up Bottom loaded, Breathing with PTB, Bottom lift with RUB.</td>
<td>Abdominal strength, Shoulder strength, Spinal articulation, Improve co-ordination, balance &amp; control.</td>
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<td>Hip Work (Cadillac)</td>
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</table>
Conclusion

It was a pleasure working with client X. He has made major progress using the Pilates program. He can now properly activate the correct muscles for the given exercises. We have focused on releasing the tight rotator cuff muscles and chest muscles. This will give him balanced shoulder mechanics. This Pilates program could help many others in a similar situation.

Pilates can be beneficial in relieving rounded shoulder posture.
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