

The Swimmer's Shoulder

By Brian Goldman

Anatomy on the net

The following are links to anatomy sites on the web. They will be good references for the article. Use control + click to follow the link.

Shoulder anatomy: (front only)

<http://xrl.us/bnxxnh7>

Shoulder anatomy (front and back)

<http://xrl.us/bnxxnij>

Rotator Cuff Anatomy (group of muscles that move the arm bone)

<http://xrl.us/bnxxniq>

Serratus Anterior (muscle, shoulder blade stabilizer)

<http://xrl.us/bnxxni8>

Rhomboids (muscle, shoulder blade stabilizer)

<http://xrl.us/bnxxniu>

I want to start with anatomy again. You can look back at the prior articles from earlier this year on the NCMS Website, or you can read on. The shoulder girdle is made up of three main bones with muscular connections: the scapula or shoulder blade, the clavicle or collarbone and the humerus or arm bone. The bones connect loosely with contacts between the shoulder blade and the arm bone at the glenohumeral joint and the shoulder blade and the collarbone at the acromioclavicular joint. The arm bone contacts the shoulder blade loosely and broadly.

A number of muscles and ligaments and a broad capsule of fibrous tissue surround the joint. We move our arm bone by using the muscles that arise from the shoulder blade and the chest wall. The rotator cuff muscles arise from the shoulder blade primarily and attach to the top of the arm bone. Contracting these muscles lead to movement of the arm bone. The rotator cuff muscles cannot use the shoulder blade as a leverage or pivot point unless the shoulder blade is supported by additional muscles. Those muscles are called **stabilizers**. With the counter forces of the stabilizers the shoulder blade can facilitate work such as pulling the arm through the water, rotating the arm, etc.

The main stabilizers are the **rhomboid** muscles and the **serratus anterior** muscles. There are others but we will focus on only those. (Feel free to read about the other stabilizers on your own.) The serratus anterior is attached to the ribs along their outside edges (along the edge of the chest below the armpits). The rhomboids attach to the ribs just by the spine and stretch to the inside edge of the shoulder blades. With the serratus anterior on the outer edges of the shoulder blades and the rhomboids on the inner edges we have two sets of muscles each attached to the shoulder blades from opposite sides that offer a perfect pair of matching, balanced forces. They hold the shoulder blades in place and allow them to pivot and shift as needed. The stabilizers keep the shoulder joint in proper alignment so that it does not rub against the structures that contain it. Persistent rubbing will lead to wear and tear and subsequent damage and potential injury.

Over the years our shoulder joints take a lot of abuse. As swimmers we create a lot of strain from overhead activity. It happens over and over and over from the repetition of daily swimming, weights, etc. It may come as no surprise that as the years pass, we sustain a significant amount of trauma which can result in actual damage, degeneration and sometimes failure of the shoulder structures to remain intact. Examples of damage are tendonitis of the rotator cuff muscles, arthritis of the joint surfaces, and tears in the muscles and tendons of the shoulder.

What can we do to prevent such degeneration and injury? Well, one answer is stop swimming. We'll skip that option.

Other options include the following:

1. **Exercise** using good technique. Swimming using good technique sounds easy, but as we all know it is not, especially when we are tired. Your coach may be able to give you feedback when she sees subtle signs of muscle fatigue like elbow dropping on recovery, an early hand exit on pull through or a wider hand entry.
2. **Stretch**: Proper stretching includes **avoiding stretching out the front part of the shoulder** and keeping loose the back part of the shoulder. By stretching the front part of your shoulder you are actually making your shoulder joint a little more **unstable**. You can counter that by stretching the back part of your shoulder and allowing the front of the shoulder to be stretched by simply swimming smoothly during warmup.

Some shoulder stretches include the following: (Check out these web videos!)

<http://www.youtube.com/watch?v=X100xYDK0FY&feature=related>: A good video with a little bit of camera shake and 15minutes long! Avoid stretching the front (anterior) part of the shoulder as swimmers tend to be too loose in that part of the shoulder already (Examples include external rotation on the doorframe, extension stretch.) The posterior (backside) capsule stretch is a good one for swimmers.

<http://www.youtube.com/watch?v=FfcvMXuT8ac&feature=related>: Wall angel stretches are something I need to get better at! Some camera shake makes this video not for the light of stomach.

A good stretch for **rhomboids** that starts at about 58 sec into the video:

http://www.youtube.com/watch?v=u1GBUNn36_E&feature=related

Exercises for **rhomboids**:

<http://www.physioadvisor.com.au/8292950/rhomboids-exercises-rhomboid-strengthening-exerc.htm>

3. **Strengthen** the muscles that stabilize the shoulder blade: **serratus anterior and rhomboids**

One exercise for your **serratus anterior muscles**: <http://www.youtube.com/watch?v=8SBqRKZinFg>

Using a swiss ball: <http://www.youtube.com/watch?feature=endscreen&NR=1&v=FvzELdpmeNc>

Finally you can check out the latest *Swimmer Magazine*. There is a great article on the swimmer's shoulder.

It may sound easy and straightforward but it actually takes a lot of work to do those three things properly. Sometimes that means breaking bad habits like ending stretches that we have done for years or trying to learn new stroke techniques that are better for your shoulder. Listen to your coach! (Sometimes that is hard, too!)

What should you do to help an injured shoulder? If your shoulder is sore from a hard workout, there is a good chance that it is not actually injured or damaged. It may be that you worked out really hard. If there is acute pain, not just soreness, you may have actually harmed your shoulder. You may need medical attention along with a break from swimming. Rehab for your injured shoulder may include rest, medication, clinical assessment, physical therapy and surgery. It is better to avoid all of that by taking good care of your shoulders!

Well...that's the latest from THE DOCTOR IS IN...THE WATER.