



# Swimmer's Shoulder

**S**wimmer's shoulder is an umbrella term covering a range of painful shoulder overuse injuries that occur in swimmers. Because there are various parts of your shoulder that can be injured from your swimming stroke, your pain can be anything from a local pain near the shoulder joint, to a spreading pain that travels up your shoulder and neck or down into your arm. It is caused by repeated trauma rather than a specific incident.

## WHAT IS SWIMMER'S SHOULDER?

Compared to many other joints in the body, the shoulder joint has a particularly wide range of movement enabling us to do a lot with our shoulders. However, what we gain in range of motion, we lose in stability, which is why shoulder injuries are fairly common even though swimming is not a weight-bearing or high impact sport.

The repetitive movement through a wide range of motion during swimming, has the potential to cause irritation or damage in the shoulder joint, particularly if the joint isn't working optimally. Many swimmer-related shoulder injuries are a consequence of poor posture and/or errors in technique/mechanics in the pool.

## WHAT GOES WRONG?

The shoulder is a ball and socket joint which – but unlike the hip joint – has a very shallow socket. A good way of imagining what it looks like is by thinking of a golf ball on a tee.

The bony part of your shoulder that you can feel sticking out at the end is called your acromion and this is where your collar bone meets your shoulder blade. This forms the golf tee. When you lift up your

arm above your head there is potential for the top of your humerus (upper arm which has the golf ball at the top) to knock and cause irritation against the under surface of your acromion/golf tee. In order to balance and control the ball on the little tee a variety of ligaments, tendons and muscles must work together to keep it in place.

The ball needs to sit and/or roll smoothly on the tee as you move your arm overhead during swimming strokes. If it knocks and bumps it can cause pinching and irritation, with subsequent inflammation. This often results in a tendonitis and bursitis, or impingement.

Similarly, if the muscles around the ball and tee are not balanced, the ball will slide and slip off in different directions and potentially damage, strain or irritate structures around the shoulder. So, muscles that are balanced in strength and working together are essential to keeping the ball moving smoothly on the tee. Muscles that are important in swimming include the rotator cuff and shoulder blade (also called scapular stabilising) muscles.

Ligaments also stabilise the ball and stop it from 'falling off' the tee. However, ligament laxity is very common in swimmers, who often have hypermobile shoulders. This enables them to have good reach and recovery during swimming strokes, however it can become problematic if it's excessive because it affects how the ball sits and moves in the socket. Some swimmers have the ability to almost dislocate and relocate their shoulders themselves.

## CHARACTERISTICS OF SWIMMER'S SHOULDER:

1. Inflammation of tendons, most

commonly the biceps tendon and rotator cuff tendons, causing shoulder impingement syndrome.

2. Over many years of swimming some tendons become thicker from overuse and this too can result in impingement.
3. The onset of symptoms is often associated with poor posture, excessive joint mobility, muscle weakness or imbalance, bad muscle control and fatigue.
4. Training errors such as overtraining, overloading, and especially poor stroke technique may also contribute to this condition.

By the nature of swimming all swimmers develop muscle imbalances purely by using certain muscles more than others with each stroke. So, specific strengthening of the 'opposite' muscles should be done to ensure balance around the joint.

## WHAT DO YOU FEEL WITH SWIMMER'S SHOULDER?

- Pain that gradually increases while swimming
- Pain during periods of rest
- Over time the shoulder may become painful to touch and aggravated during sleep
- Pain with certain movements like putting your hand on the top of your head, or doing up a bra behind your back
- The pain can be felt on the front or back of the shoulder, and can travel down the arm towards the bicep muscle or up to the neck
- Often there's a painful arc. That is no pain as you start to lift your hand out to the side, as your shoulder moves upwards towards your ear, then suddenly

it 'catches' or pinches, but if you keep moving your arm upwards the pain then goes away. The same pattern happens in reverse.

## TREATMENT FOR SWIMMER'S SHOULDER

Typically, two muscles (supraspinatus and the long head of biceps) are involved. They're squeezed between a bony arch called the acromion (the golf tee in our analogy) and the head of the humerus (upper arm bone, the golf ball), causing soft-tissue irritation and pain. This squeezing interferes with the delicate blood supply to the tendon, and if the impingement goes on for weeks, the tendons eventually break down, leading to the long-term problem of tendinopathy. This condition can take weeks to recover from, mostly because healing is slow due to a poor blood supply to the tendon. So it's important not to ignore shoulder pain and accept it just as a consequence of swimming. Ease off your training and get yourself along to see a sports doctor or physical therapist as soon as you can.

### STEP 1 Pain Relief and Anti-Inflammatories

- RICE - Rest, Ice, Compression and Elevation
- Stop doing the movement or activity that provokes the shoulder pain
- Sleep relatively upright or on your back with a pillow to support your arm. Avoid sleeping on your side
- Anti-inflammatory medication
- Supportive taping, applied by your physical therapist
- Joint mobilisation techniques and massage to assist in pain relief.

### STEP 2 Regain Full Range of Movement

Symptoms related to swimmer's shoulder may take several weeks to improve. During this time, it is important to create an environment that allows you to return to normal use quickly and prevent a recurrence.

If you protect your injured rotator cuff structures appropriately the injured tissues will heal. However, overprotection can lead to the development of short or long-term protective tightness of your joint capsule and some muscles. These structures need to be stretched and/or lengthened by your physical therapist to allow normal movement.

The physical therapist will mobilise your shoulder joint to ensure normal movement, as well as provide massage, shoulder muscle stretches and light active exercises.

### STEP 3 Restore Scapular Control

That is a fancy way of saying you need 'normal' shoulder blade movement that is co-ordinated when your arm moves overhead. Normal shoulder blade-shoulder movement is essential for pain-free and powerful shoulder function. Alteration of this movement can result in shoulder impingement and injury.

Scapular stabilisation exercises taught by your physical therapist are key to successful rehabilitation and injury prevention.

### STEP 4 Restore Neck and Thoracic Spine Function

You may think this is not necessary, or in fact part of your shoulder joint, but actually the muscles of your neck and the mobility of your upper back are essential in the movement of your shoulder blade and shoulder.

Poor posture, like slouched forward shoulders, curved upper back and chin forward neck can all negatively affect your shoulder movements, especially contributing towards shoulder impingement.

Better back extension, and mobility as well as correcting weak, tight neck muscles will help in treating and preventing shoulder injury. Neck dysfunction can also refer pain to the shoulder.

### STEP 5 Rotator Cuff Strength

You don't want to load these muscles too early, especially if painful. Allow some time for them to heal first. Progressive loading of the muscles with specific exercises can be taught by your physical therapist. The abductors and external rotators are traditionally weak, as these muscles are the opposite ones to those 'over-used' in swimming.

### STEP 6 Restore Technique, Speed, Power and Agility

In order to treat and prevent recurrence of the shoulder injury as you return to swimming, your therapist will guide you with swimming-specific exercises to improve your sporting performance.

Depending on what your training or competitive programme entails, a speed, agility, technique correction and power programme will be customised to prepare you for swimming-specific training.

### STEP 7 Return to Swimming

You may not have stopped swimming completely, maybe doing other strokes or focusing on some kicking for a few sessions, but it is important is to progressively return to training and not overdo it too quickly. Maintaining your fitness while injured may require cross-training. General fitness in the pool is critical – as the rotator cuff fatigues, shoulder stability is compromised. In addition, with tiredness, movement becomes sloppy, technique fails, and elbows drop during the recovery and pull through phase, risking shoulder impingement. Quality is much more important than quantity at this stage.



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