

Prevention of

Swimmer's Shoulder

Overuse and the seemingly endless repetition of arm rotations seems like an inevitable prescription for shoulder pain, but when you have proper shoulder alignment and posture you can significantly reduce the chances of injury. Three key areas for injury prevention include your stroke, your body and your training.

YOUR STROKE

Repetition alone isn't enough to injure your shoulder, but repetition of a bad technique definitely is. Correcting your technique is not actually that difficult, but you do need to know what to look out for and, just as importantly, work diligently to improve in these areas. Video analysis is a great tool, because it really helps you identify what you personally need to work on. Get some instruction from a coach or have a friend film you to see where you are going wrong.

FOUR STROKE TECHNIQUE TIPS TO HELP AVOID DEVELOPING SWIMMER'S SHOULDER INCLUDE:

1. Body Rotation: Developing a good, symmetrical body rotation through the development of an efficient bilateral breathing pattern is key to removing shoulder injury. Swimming with a flat body in the water with limited rotation along the long axis of the spine causes the arms to swing wide around the side during the recovery phase. This swinging action results in large amounts of internal rotation at the shoulder joint which is the major source of impingement and rotator cuff issues.

2. Hand Placement into the Water: A hand pitch outwards with a thumb first entry into the water leads to excessive internal rotation which, can eventually lead to acute pain in the shoulder as an 'over-use' injury. Instead of entering the thumb first, change your technique to enter with a flat hand, finger-tip first.

3. High Elbow Catch: Without the use of video analysis, many swimmers are unaware of how they pull through under the water. Typically, swimmers will pull through with either a dropped elbow or with a very straight arm. Doing this, will load the shoulder muscles excessively as the majority of the pull through phase is spent pushing down, rather than pressing back. Working to develop a 'high elbow catch' technique utilises the larger, more powerful muscle groups of your chest and upper back, rather than relying upon the shoulders.

4. Hand Entry in Line with the Shoulder: At the point of hand entry often swimmers allow the hand to cross the midline of the body, this causes impingement in the front of the shoulder. Likewise, during pull through the hand should not pass the midline if your stomach/chest. Visualise an imaginary line cutting through your body into a left and right half. Make sure that during hand entry and pull through the hand doesn't cross over onto the other side.

YOUR BODY

1. Posture: It starts with building better posture, both in the pool and out of it. Modern life, with long hours sitting stationary, perpetuates poor posture.

The posture you carry for the majority of the day inevitably bleeds into your swimming. Poor posture limits the mobility of your shoulders but also dramatically short-changes the amount of power you can exert.

POSTURE CORRECTION CAN START WITH:

- **Sleeping on your back.** Lying on your sides accentuates the rounded shoulder position and can result in impingement of structures either causing shoulder pain or exacerbating it. Lying on your back stretches out your pectoral (chest) muscles. You can place your hands across your chest with a pillow under your elbows to ensure your shoulders roll backwards.
- **Thoracic spine mobility.** This is the stiffness of your upper back. With bad posture it is normally hunched or curved forward which accentuates rounded shoulders, causing impingement. Your thoracic spine is important in swimming as it is part of the shoulder complex and essential in rotation with freestyle and backstroke. A stiff thoracic spine also restricts your ability to undulate during butterfly kick. Specific exercises and stretches can help improve your upper back extension. Mobility helps your posture and your stroke technique which helps prevent injury.
- 2. Scapular Stability:** Research has shown that swimmers who have muscle deficiencies or imbalances around the scapula (shoulder blades) are more likely to develop shoulder injuries. The shoulder blades need to rotate



smoothly as you lift your arm, in a correct sequence and timing, as well as sticking to your rib cage and not winging outwards. If they are lacking in any of these it is called scapular dyskinesis and needs addressing. Specific exercises from a physical therapist, can correct this.

3. Strong Rotator Cuff Muscles: Endless repetitions with elastic bands is not the be all and end all of swimming rehabilitation but while it may not be the cure to all swimming shoulder injuries, muscle imbalances which develop from the repeated swimming patterns are generally the cause of most injuries. In order to restore balance around the joint and to prevent injury, you need to focus on strengthening the weaker muscles and movements and not randomly include all shoulder directions. Most often external rotation and abduction are weak in swimmers, so these should be the focus of rotator cuff strength training. Assessment and prescription of certain exercises can be done by your physical therapist.

YOUR TRAINING

- 1. Training Load and Intensity:** Swimmer's shoulder is ultimately an overuse injury which means it is important to be aware of your training. Watch your mileage and increase it gradually. Don't combine high intensity training days with high mileage days. You must include easy days in the week to allow for recovery.
- 2. Hand Paddles:** These can be controversial! Many competitive swimmers will testify that they are crucial for increasing strength and power in your stroke. However, if you are new to using them, then only do a short set with them initially and progressively increase their use. They shouldn't be used for an entire

session, as this will result in fatigue of the shoulder muscles, which compromises their ability to support the joint position and result in abnormal loading of structures and injury.

Also, don't go for the biggest hand paddles in the shop thinking these will give you the best result. The result will probably be injury. The bigger the paddle, the more resistance through the water, which could overload tendons if you are not accustomed to them. One with more holes allow more water through thus reducing the resistance and possible strain.

- 3. Kicking boards:** Again, this is a controversial accessory in your swimming bag. It is critical to have a strong powerful kick for swimming. Generating good power from your legs will help support your body on the water and work together in off-loading the shoulders. Think outboard engine on a boat – driving from the back.

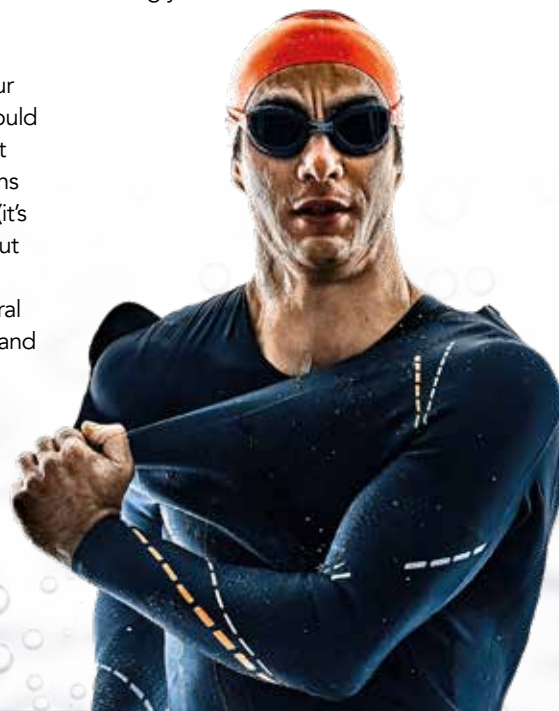
However, hours spent with your arms outstretched holding onto a board can cause or irritate a shoulder injury. That position alone causes impingement in the shoulder joint. Kicking is often prescribed when you are 'resting' your shoulder due to injury, however it should not be done with a board. To prevent injury also consider doing kick sessions without a board, hands by your side (it's a lot harder) but offers a good workout and it allows for a better body roll if you breathe to the side, a more natural swimming position, than being rigid and stuck to a board.

- 4. Fins:** The use of fins or flippers can be great in training. The force generated from kicking with fins allows your body to 'plane' on top of the water, off-loading the

shoulders, giving them a rest during a training session. This could be helpful if you have an injury but it's also a great idea to incorporate in your training to prevent an injury. They are also very useful for speed sessions or sprinting in preparation for a race or swim meet.

- 5. Stroke Variation:** Regardless of your primary stroke, the majority of fitness training is done in freestyle. The repetitive overuse of this rotational movement pattern can lead to shoulder injury. It is wise to use other strokes during your session to off-load the shoulder and allow some recovery time between sets.

Swimming is a big investment of time. In addition to school, work, and what passes for a social life it is hard to put together the extra time to ensure the health and wellbeing of your shoulders. But you can avoid having to put out the fires of chronic or sudden shoulder injuries by spending just a handful of minutes per day priming your body. Make 'pre-hab' as essential as wearing your bathers!



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