

SWIMMER'S SHOULDER

What is swimmer's shoulder?

Swimmer's shoulder is a general term used to describe an overuse shoulder injury occurring in swimmers. It represents a chronic irritation of the shoulder soft tissues (tendons, muscles, ligaments). This is also known as impingement syndrome. As an example: during a 25 yard freestyle swim, the right arm will typically perform 8 strokes (pull and recovery). In a typical workout of 4,000 yards the right arm will rotate 1,280 times. As you can see, if you have a small biomechanical problem, by the end of workout it will be worse.

What are some of the symptoms?

The symptoms will vary with the cause. However, there are some general trends. Usually the pain is the worst in backstroke, and least during breaststroke (except perhaps, where the biceps tendon is the primary culprit). Pain may occur at any phase of freestyle, and, depending on when it occurs; the diagnosis will be different (i.e. if the pain is worse during the recovery phase, think of rotator cuff involvement, whereas if the pain is worse during the initial pull, the biceps tendon may be more involved). Sleeping on the involved side aggravates the pain. When the problem is fairly advanced, the swimmer will also experience shoulder pain when not swimming, and the shoulder becomes progressively tenderer to the touch.

Swimmer's shoulder is not an exact diagnosis. To obtain an accurate diagnosis (which muscles and tendons are involved) you should seek professional help from a sports medicine specialist (chiropractor, orthopedic surgeon). The examiner should take a detailed history and should understand the mechanics of swimming (see below). The examination should at least include an evaluation (for pain and weakness) of all your shoulder movements with and without resistance. X-rays are usually not necessary.

What causes swimmer's shoulder?

The causes will vary according to the specific problem. If your problem is the most common type of impingement syndrome, then it is usually related to a muscle imbalance.

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The large internal rotators (pecs, lats) are used in the pull phase of freestyle, whereas the smaller, weaker external rotators (e.g. the rotator cuff muscles) are used in the recovery phase. Your problem may be with either group, although more commonly the problem is with the weak external rotators.

Some of the problems which may develop and cause impingement syndrome are:

- Insufficient body roll (should be 40°-60°) in crawl. This is even more important in backstroke, where insufficient body roll causes excessive tugging on the tendons.
- Over-developed pectoral muscles and under-developed rhomboids, middle and upper trapezeii, levator scapulae, upper lats (leads to instability of shoulder).
- Weak rotator cuff muscles. These are the dynamic stabilizers of the shoulders.
- Excessive internal rotation during "catch": middle finger should enter water first, not thumb and index finger.
- Excessive adduction on the pull-through phase (your hand should not cross the midline).
- Dropped elbows occur if the internal rotators and adductors (pecs, lats) are not strong enough.
- Over-training with insufficient recovery time. This is especially true for those of you doing a rigorous weight-training program as well as swimming, without allowing your body enough time to recover. Over-training also occurs when one tries to make up for months of sloth in two weeks time (or years in 6 months)!
- Cantilevering on the arm opposite the breathing side. This is seen especially in one-sided breathing. If the elbow is not "cocked" at the beginning of the catch phase, a cantilevering occurs at the shoulder which aggravates or accelerates an impingement syndrome.

How do I treat swimmer's shoulder?

I can not emphasize enough that a proper diagnosis (identifying the involved muscles/tendons, and stage/severity of the problem) will lead to the most appropriate treatment. A good treatment plan includes:

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- Reducing the inflammation and apply ice to the shoulder for 20 minutes after training (if training is appropriate). Use anti-inflammatories for the first few days. Chronic use of anti-inflammatories can affect the stomach, kidneys, and liver. It is not recommended to cover up the pain with drugs and swim anyway.
- Rest and depending on how severe the involvement, this may mean total rest (no swimming), or decreasing yardage while avoiding backstroke and butterfly, or kicking only with arms at one's side. It is wise to wait at least a couple of pain free days before resuming swim training.
- Passive care by a professional and may include ultrasound, interferential current, cross friction massage to the tendons, trigger point work (if trigger points were found in the diagnosis), post-isometric relaxation of the involved muscles, and adjustments of the shoulder and/or neck.
- Rehabilitation exercises strengthen the weak muscles (usually the external rotators of the shoulders). These are not exercises commonly done at the gym, but exercises with minimal weights (3-5 lb.) done in a very specific, controlled manner. See handout for these exercises. If you have ever had shoulder problems, it is wise to do these exercises at least several times per week. Generally it is said that for every day a swimmer swims on a bad shoulder, one day of rehab time is required.
- Modify training: I could write a whole article alone on why hand paddles are bad for your shoulders... On the other hand, Zoomers or other fins, elevate your body in the water, so they may help if your shoulder starts giving you a small problem in workout. Have the coach check your body position (for roll), and arm position. If no coach is available, have a friend video tape you swimming. The tape is often quite revealing. Best of all: have a coach video tape your swimming and go over the stroke mechanics with you.

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