

## **Shoulder Stretching for Competitive Swimmers Helpful or Harmful?**

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The following is a summary of a literature review that is also offered on this web page.

The most commonly employed shoulder stretches on a pool deck have not changed over the past 30 years, but a closer look at shoulder physiology calls these practices into question. Shoulder stretching has been well accepted among the swimming community, and advocated in literature by its governing body and in books considered to be the authority on swimming. Accordingly, swimmers and their coaches tend to devote a considerable amount of time to stretching.

Some of the reasons athletes stretch include:

- to improve muscle flexibility and joint range of motion;
- to reduce the risk of skeletal muscle injury;
- to offset the stiff and achy sensations brought on by delayed onset muscle soreness (DOMS);
- to relieve pain and provide muscle relaxation;
- to emulate older, faster, or famous swimmers they consider role models;
- and to improve performance (perceived improvement benefit).

It is well documented that up to 80% of competitive swimmers will suffer from shoulder pain at some point in their careers. Faulty stroke mechanics, training errors, overuse (repetitive micro-injuries) and muscular imbalances have been postulated as some of the elements that contribute to shoulder pain in swimmers. Additionally, a loose / unstable shoulder joint can lead to a painful impingement.

Elite level competitive swimmers are naturally selected to the sport and are typically flexible with loose connective tissue throughout most all of their joints (general joint laxity), but especially the shoulder joint. A joint with a range of motion beyond the norm may be healthy as long as the muscle balance surrounding the joint is in control. Each individual has a different level of stability. However, swimmers can overdo it. Normal laxity and therefore joint stability can be compromised due to overuse and/or inappropriate stretching.

Many of the traditional shoulder stretch techniques utilized by the swimming community over the years tend to emphasize increasing tissue extensibility (stretching out) of the anterior, posterior and inferior portions of the shoulder joint capsule. These stretches can be potentially harmful for the inherently lax shoulder joint in swimmers because the joint capsule is one of the primary static stabilizers of the shoulder.

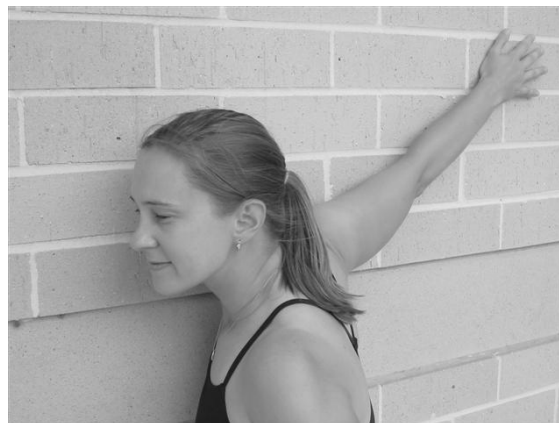
The inappropriate shoulder stretches identified on the pool deck are as follows:

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**Inappropriate stretch #1:** Placing the upper extremity on a firm surface at 90° of forward elevation and greater than 90° of horizontal abduction while turning the trunk in the opposite direction – stretching the anterior capsule.



**Inappropriate stretch #2:** Pulling the elbow overhead with the opposite arm, stretching the inferior capsule.



**Inappropriate Stretch #3:** Pulling the arm across the trunk in a horizontal adduction direction, stretching the posterior capsule.



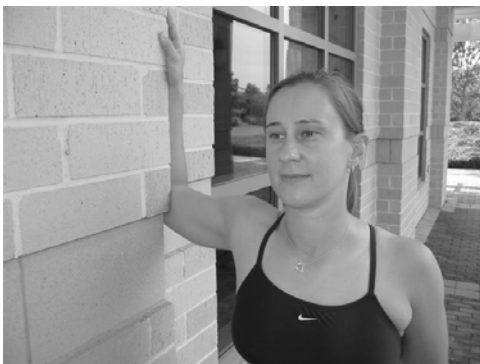
**Inappropriate Stretch #4:** A partner stretch and / or solo stretch in which the swimmer's arms are pulled behind her in a horizontal abduction direction, stretching the anterior capsule.



Skillful shoulder muscle stretching does have a place in swimming programs. It can address the stiffness and achiness resulting from delayed onset muscle soreness, and the muscle imbalances to reduce the risk of injury. Special care should be taken, though, to avoid insult to the joint capsule and respect the advantages of a stiff musculo-tendon unit. The following three stretches should be employed in a dry land exercise routine to target the muscle tissue of the pectoral group, the latissimus dorsi, and the neck muscles without jeopardizing the glenohumeral joint capsule. They are as follows:

## Door Frame Stretch For the Pectoral Group

Stand at doorway with forearm on doorframe. Elbow bent to 60-90 degrees. Step through the door. A good stretch should be felt along the anterior chest, not the shoulder joint. If you are stretching the right shoulder, step through with the right leg. Complete 3 x 30 seconds each side, two times a day and especially after workout. The angle of the arm can vary depending on which fibers of the pectoral group you wish to stretch. A combination of angles can be added to the stretching routine to incorporate the different fibers.



## Two Part Latissimus Dorsi Stretch

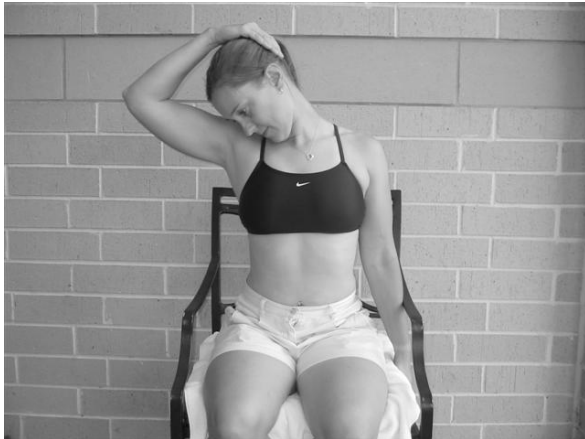
Arch your back up like an angry cat to round out your back. Keep your back rounded and drop your rear to your heels. Reach out with your hands and then reach to a side to specify the stretch and address each of the Latissimus Dorsi. Hold each stretch 30 seconds and repeat twice, alternating sides.





## Upper Trapezius / Levator Scapulae Stretch

Sit on a chair and grasp the seat with the hand on the side of the tightness. Place your other hand on your head as outlined below and gently pull down and diagonally to the other side. Two versions of this stretch are shown below. The first version is to turn your nose towards your armpit and gently pull down. The second version is to look straight ahead and gently pull down. Hold for 30 seconds and repeat twice, alternating sides.



### Conclusion

Shoulder stretches that target the joint capsule of the glenohumeral joint in a swimmer are strongly discouraged unless prescribed by a consulting physician or physical therapist. Although there appears to be a debate with regard to frequency and duration of a stretch, most studies suggest completing a specific stretch 1-3 times for 30 seconds each approximately 5 days a week. Generally, stretching a warm muscle is more effective than a cold muscle. Therefore, stretching muscles after a swim practice may be the most optimal time frame. Everyone's physiological makeup is different. If in doubt, please consult a physician or physical therapist to outline a stretching routine that is specific to individual needs.

For a complete copy of the literature review for shoulder stretching with references to support the recommendations, please refer to the full-length article also offered on this webpage.