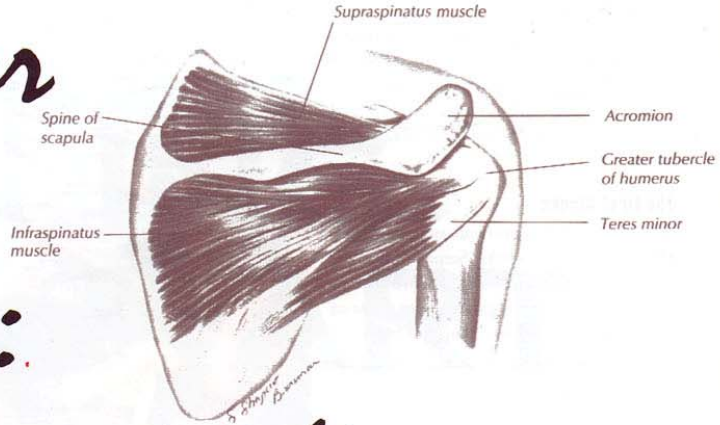


# Rotator Cuff Injury:

## Your worst nightmare



A doctor explains what it is and what to do

by Jeremy Theal, MD

**Y**OUR DRUMMER HAS JUST CALLED FOR THE FINISHING series of a crucial 500m race, injecting an electric surge of adrenaline through you and your team. You respond by pushing yourself to the limit, forcefully ripping the water with every stroke until every muscle in your body screams for mercy. After the elation of the race wears off, you notice that your shoulder is protesting with a throbbing pain. The next day it's even worse.

Congratulations. You have just joined the fastest growing group in dragonboating. You have a shoulder injury and, unless you take immediate steps to deal with it, that pain could develop into a serious injury could put you out of commission for a whole season, or even longer.

Dragonboating involves a series of movements that are repeated thousands of times in a single hour-long practice session. It's that repetition that makes the muscles and connective tissue involved susceptible to a potentially serious set of problems known as repetitive strain injuries. The shoulder is particularly vulnerable.

A series of four very important muscles called the rotator cuff anchor the upper arm (humerus bone) in the shoulder joint socket via tendons (which attach muscle to bone). These four muscles and their tendons help to guide the arm through its many possible motions, and stabilize the arm in the shoulder joint as it moves. If one of these structures becomes injured or inflamed,

shoulder pain, weakness, and instability can result.

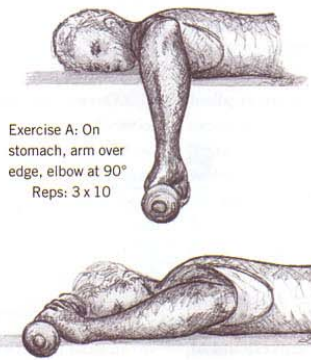
Particular arm positions put the shoulder at much higher risk for injury during repetitive motions. Unfortunately, the usual positions of two sports – baseball and dragonboating – involve most of these positions. This is particularly true when the arm is raised laterally away from the body (abduction), in combination with turning the upper arm outward (external rotation).

In baseball, the pitcher is most vulnerable when he cocks his arm just before he throws the ball. In this arm position, tendon of the rotator cuff can get trapped between the bone of the upper arm (humerus) and the shoulder (scapula). A protective lubricated sac of tissue called a bursa cuts down on the friction between the tendon and these bones, but with repetitive motion, friction causes the bursa and/or the rotator cuff tendon to become inflamed (bursitis and tendonitis, respectively). In severe cases, the rotator cuff tendon may actually tear.

In addition, forcefully stretching the rotator cuff during the follow-through of the throw can lead to further shoulder joint imbalance and injury. Since pitchers repetitively put their shoulder into this position at the beginning of each throw, they usually all become experts in rotator cuff injuries very early in their careers.

Since the paddling motion is similar but done at a much higher frequency, dragonboaters are following the pitchers into sports medicine clinics in increasing numbers.

For dragonboaters, the inside shoulder



Exercise A: On stomach, arm over edge, elbow at 90°  
Reps: 3 x 10

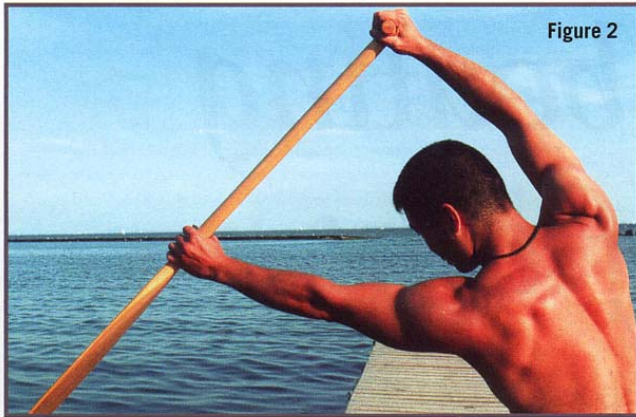


Figure 2

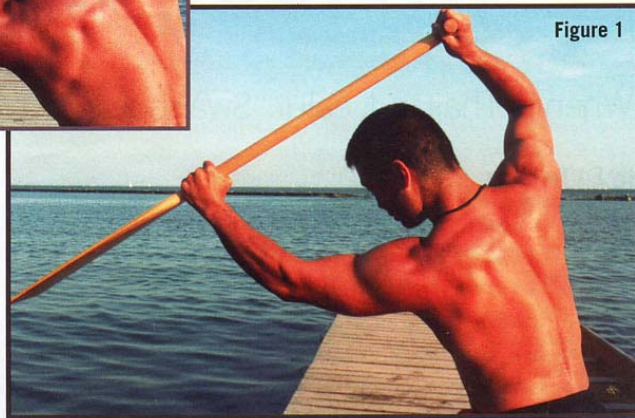


Figure 1

## The good and the bad

(facing the middle of the boat) is specifically vulnerable during the peak of the return phase, since it is raised above the head and cocked slightly back. As well, during the catch, the shoulder is forcefully de-rotated, thus increasing risk for rotator cuff imbalance. Hundreds of thousands of repeated strokes during the course of a paddler's career can magnify small imperfections in technique and/or in a paddler's individual shoulder anatomy, leading to injuries.

Fortunately, there are ways to prevent them. Paddle with correct technique. Correct arm position during the return and catch phase of the stroke are crucial. In particular, you must avoid putting your arm into any further external rotation and abduction than necessary. In figure 1, this paddler's arm is excessively externally rotated, and bent at the elbow. He appears to be "pulling down" the paddle on the catch. This not only puts the shoulder in a more vulnerable position for injury, but also reduces the amount of torque and power available to be applied at the catch. In figure 2, the paddler's arm is now much straighter at the elbow, and the arm is much less externally rotated. This technique reduces chance of shoulder injury, and correctly positions the arm to be used as a lever. This way the pull comes from the back instead of the arm and it means maximum torque and force on the catch. In other words, using the correct technique will prevent injury and help you pull with more power.

Listen to your body. A number of symptoms will tell you that you are putting too

much strain on your shoulder. Symptoms of a mild problem might include a dull pain on the front, top, or side of your shoulder. The pain may be worse after doing activities with your arm extended overhead (such as paddling)! Signs of a more significant injury would include: more intense, or prolonged pain; pain that awakens you at night; or shoulder stiffness. Severe injury might cause shoulder weakness, or limitation of the range of movement of your shoulder. If you believe you are experiencing any of these symptoms, consult a physician without delay. **DO NOT** continue aggravating exercises (such as paddling, even if your coach or team tempts you). Early diagnosis and treatment of an injury is the key to preventing a serious problem that might cut short your dragon boat season, or even affect other daily activities.

Stretch and strengthen the shoulder (rotator cuff) muscles. Used when training on dry land and before paddling, these exercises can help prevent possible shoulder injury. The idea behind these exercises is to develop a balance between muscles that externally and internally rotate the shoulder. Use light weights – 1 kg is fine initially, and should not be increased above 5-10 kg. See Exercise A and B.

Remember these points, and you can help prevent an injury from affecting your enjoyment of the sport you love. Paddle smart, and paddle strong!



Exercise B: On side, support under armpit, elbow at 90°  
Reps: 3 x 10



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