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Tips for Injury Prevention—Swimming

The path to body awareness begins with your head position: The head should be aligned with the spine so that your nose points at the bottom of the pool. The position is called "neutral" because there is no forward tilt or tucking of the chin. When the head is in this neutral position you are able to relax the neck, allowing the water to handle the weight of your head. Relaxed neck muscles offer the platform for the shoulders and back muscles to work effectively. Tension in the neck caused by poor head positioning will cause strain on the neck and shoulder muscles increasing the risk of injury. Once you have the head aligned properly you can focus on the arm cycle. During each part of the arm cycle the correct positioning of the forearm and elbow offer protection for the shoulder. The arm cycle breaks down into these components: Recovery, Entry, Glide, Catch, Mid-Pull and Finish.

The Recovery: is the part of the stroke cycle where the arm moves over the water. The word "recovery" itself is a hint—it should be a relaxed movement. All too often swimmers tackle this movement in a rigid manner causing not only discomfort and sometimes pain, but the tension robs the swimmer of energy and momentum. In order to perform the recovery properly you need to be aware that the lifting of the arm over the water is a movement that is initiated by using the upper arm not the hand. The upper arm lifts the elbow upwards to the sky so that the arm is positioned next to the body not over the side of the body or the back. The forearm stays low and is very relaxed so that it swings freely as the elbow is moved forward and just past your head. At this point in the arm cycle the arm should be positioned in what looks like an upside down "V", hand low, elbow high.

The *Entry: begins once the lifted elbow passes the head. The entry of the arm into the water is not an independent arm movement. The arm is driven into the water by the rotation of the core. Forcibly driving the arm into the water as an "arm" focused action pulls on the muscles, irritating the tissues of the shoulder and back. Another important element of the entry to remember is that as the arm is moved into the water you need to keep the hand and forearm aligned in a "mail slot" position. This means that the hand should be oriented so that the palm faces the bottom of the pool and the thumb and pinky are on the same horizontal line. If you rotate the hand/forearm so that the thumb points at the bottom of the pool it puts stress on the rotator cuff as the arm enters the water. Having entered the water the

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The Glide: is the part of the cycle where that arm is stretched out under the water reaching forward. Be sure to keep the hand directly in line with the shoulder in front of the body. The arm should be held steady during the glide with your palm facing down. Keeping the hand positioned slightly deeper than the shoulder will reduce strain on the rotator cuff and neck muscles. The first part of the pull is called the "catch".

The Catch: is another term that gives the swimmer a hint—it means to grab a ball of water. In order to grab a ball of water you need to wrap your arm around it. To perform the catch movement you move the forearm into an almost vertical position while keeping the elbow and upper arm high in the water. Snapping into this movement quickly from the glide will allow the arm to "grab" a ball of water to hold on to in front of the body. The catch phase of the arm cycle is the leading cause for shoulder injury. Dropping the elbow as you make this movement puts the pressure of the water on your shoulder as you move your arm. Keeping the elbow high and the forearm vertical so that at the fingers point at the bottom, will enable the muscles of the biceps, triceps, shoulder and the lats to engage in this power phase of the stroke cycle.

The Mid-Pull and Finish: the last two parts of the arm cycle are the Mid-Pull and Finish. During the Mid-Pull the arm is pushing the ball of water alongside the core. Maintaining the vertical forearm position will eliminate an inward pull on the shoulder muscles. The finish is the final pushing of the ball of water toward the feet. You can protect your muscles at this point by being sure to press the water to your toes and not toward the surface or over your back.

While swimming is a low impact sport, the amount of pressure put on the muscles as you try to move your body through the water is a concern. Proper technique, body awareness and dry land training will not only increase your efficiency and speed in the water, but greatly reduce your chances of being sidelined with an injury.

Juliet Adams—Former Dai Roberts Group Swim Coach

*Entry timing in this article is based on a Front Quadrant Stroke Cycle.

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