Swimming Associated Shoulder Injuries

As a general rule, it is difficult to find a sport or exercise that is more healthy than swimming. This athletic activity is outstanding for cardiopulmonary fitness, muscle strength, joint preservation, and stress relief. It’s actually pretty rare for an athlete to suffer an injury from everyday swimming. However, as with any endurance sport, overuse injuries do occur and they are almost always related to competitive swimming events (e.g. the Ironman). Young athletes are also prone to this type of shoulder injury because they swim in multiple venues, i.e. high school, club teams, and private lessons. In fact, a study showed some swimmers have as many as 16,000 shoulder revolutions in a week, with the potential of one million shoulder revolutions per year. By comparison, a baseball or tennis player will have 1,000 shoulder revolutions per week. Thus, there is a tremendous strain placed on a swimmer’s shoulder.

Any overhead sport can lead to a myriad of common shoulder complaints and symptoms, and swimming is no different. The etiology of shoulder pain from the swimming stroke most often comes from rotator cuff tendonitis. This condition, sometimes referred to as tendinopathy, is usually a result of impingement of one of the four rotator cuff tendons on the bones within the shoulder. The progression of this condition to significant rotator cuff tear is possible, but unlikely from this athletic activity. This is important because full thickness rotator cuff tears often require surgical intervention, especially in active, healthy individuals, regardless of age. If a patient is diagnosed with cuff tendonitis, then anti-inflammatories (e.g. Naprosyn or Ibuprofen), physical therapy, and ice are usually prescribed. A corticosteroid injection is often given in the shoulder as well. If these non-operative treatment regimens do not alleviate the discomfort then time off from swimming will be required. Depending on the patient’s physical exam, a MRI might be necessary to further diagnose or rule out a significant injury.

All of the above mentioned modalities aid in recovery, but physical therapy is often the most important because the swimming stroke has a tendency to over develop certain shoulder girdle muscles while, at the same time, under develop other muscles. In fact, there are 18 muscles that attach to the scapula (shoulder blade) and they all coordinate shoulder joint movements precisely. Abnormal scapular motion, known as scapular dyskinesis, is a common result of multiple shoulder revolutions. This condition can cause shoulder pain and functional loss because the shoulder “ball and socket” joint is malpositioned. The glenoid (socket) is formed from the scapula and if the glenoid is not positioned correctly in space, then shoulder symptoms will occur. Scapular dyskinesis is readily treated with physical therapy and time off.

The labrum is a ring of fibrocartilage that surrounds the glenoid and has several important shoulder functions such as deepening the socket and providing attachments for muscles and ligaments that give the shoulder some stability. Overhead athletics, such as baseball, volleyball, tennis, and certainly swimming can injure this cartilage, especially if scapular dyskinesis is present. A MRI is often necessary to confirm a labral tear, but if present, surgery is not a predetermined destiny. Often physical therapy, NSAIDs, and time away from swimming will eliminate the discomfort. Surgery may eventually become necessary, but not until all non-operative options are exhausted.
Overall, swimming is full of many more positives than negatives. Any pain or injury as a result of this activity can usually be treated and eliminated with attention to proper swimming technique, changing up the swimming stroke (e.g. rotate freestyle, backstroke, and breast stroke), and cross training. Endurance athletes relentlessly push themselves to achieve goals that many consider insurmountable. I have a tremendous amount of admiration for their dedication, determination, and athleticism. On the other hand, it is important for these competitors to remember that their sport, when taken to extremes, can lead to body breakdown. Unfortunately, swimming is no exception.