

Scapular Winging: What Is It and How Is It Treated

Have you ever heard of scapular winging? If not, you might recognize it if you saw it -- it's the way the shoulder blade sticks out when it's not where it's supposed to be. And it's supposed to lie flat against the back while gliding up and down/in and out with arm movements.

Sometimes you see scapular winging in young children. They haven't developed the full strength of the arms and upper back yet. If they are skinny and all arms and legs, you might not think twice about the scapulae (plural for scapula and a scapula is the same as shoulder blade) sticking out.

But in adults, scapular winging (especially when it's only present on one side) isn't normal and can have some serious consequences. Without proper scapular positioning and movement, the arm doesn't move normally. Lifting the arm overhead and then lowering it back down can become painful, difficult, and even impossible.

What causes this problem and what can be done about it? That's the focus of this article written by three orthopedic surgeons from the University of Illinois Medical Center in Chicago. They review the anatomy and biomechanics of the scapula along with the 17 muscles that attach to the scapula.

Causes of scapular winging are broken down into two groups: primary and secondary. Primary scapular winging occurs when one of the main muscles that hold the scapula steady stops working as it should.

Injury to the nerve controlling scapular muscles is one cause of primary scapular winging. Athletes are at greatest risk for nerve paralysis causing primary scapular winging. Whether an athlete, homemaker, industrial worker or other individual who suffers a fall, collision, or repetitive motion, you could develop this problem.

Secondary scapular winging is the result of a problem somewhere else in the shoulder complex. That other problem could be a rotator cuff tear, shoulder bursitis, shoulder dislocation, or a frozen shoulder. Osteochondroma (bone tumors) can also cause secondary scapular winging. With osteochondromas, there is usually a "clunk" that can be felt and heard as the arm moves away from the side.

Any injury or condition that can alter the way the muscles fire or cause muscular fatigue can result in impairment of the scapular rhythm needed for normal arm movement. Likewise, anything that changes the alignment of the scapula can have the same effects on scapular position and movement.

How can the physician tell what's causing the problem? That's a good question -- it isn't always an easy task. Oh, it's easy to see there is a problem because the scapula is clearly either sticking out away from the body or not where it's supposed to be in the middle of the back next to the spine. But whether that's a primary or secondary scapular winging and what's causing it can be much more difficult to sort out.

Diagnosis will require a careful evaluation of the patient. A physical exam will be necessary to look at the scapula and watch how it moves during arm motions. Testing of the individual muscles will help identify weakness. Nerve conduction velocity tests along with electromyography of the muscles may be needed to look for nerve palsy.

Imaging studies such as X-rays, MRIs, and CT scans each have their place in the diagnostic process. Once the diagnosis has been made, then treatment can begin. Conservative (nonoperative) care is advised first. If there's nerve damage, the process of healing and recovery can take many months up to two years.

A physical therapist will conduct a movement system analysis. From this information, a program of movements, activities, postures, and exercises will be set up to help restore normal motion of the scapular-shoulder complex. When indicated, electrical stimulation may be used to retrain muscles that have lost the normal nerve signals telling them when to contract and when to relax.

Sometimes surgery is needed. There are a number of different surgical procedures for this problem depending on the underlying cause. Tendon or nerve grafts, muscle transfers, or neurolysis can be done. Neurolysis refers to using heat to destroy the sensory nerve fibers that carry pain messages to the brain. The treatment doesn't affect motor function, just puts an end to the pain.

For surgeons interested in an update on the surgical treatment of scapular winging, this article provides tips from the authors as well as a description of their preferred treatment. Drawings and photos taken during surgery are provided along with step-by-step instructions for several surgical procedures.

Reference: Alexander K. Meininger, MD, et al. Scapular Winging: An Update. In *Journal of the American Academy of Orthopaedic Surgeons*. August 2011. Vol. 19. No. 8. Pp. 453-462.