Can neck problems cause shoulder pain?

Shoulder pain, arm pain or numbness in the hands can sometimes result from a pinched nerve in the neck. Nerves are similar to electrical wires carrying signals throughout the body. When a light goes out on an electrical circuit, the cause may not be the light bulb, but actually a problem with the wire anywhere on the circuit. Likewise, you may have shoulder pain, with no neck pain, when the cause is a pinched nerve as it exits the spinal column in the neck area. A herniated (bulging) disc is often the cause of a pinched nerve in the neck.

Strengthening the neck muscles with the neck machine may stabilize the neck bones (vertebrae), sometimes relieving the symptoms. The neck machine has the additional benefit of building and strengthening the bones in the upper spine, preventing the slow collapse of these bones from osteoporosis.

Anytime symptoms persist you should see your doctor.

(For further information regarding osteoporosis, please see our osteoporosis brochure.)

How does strengthening help a shoulder impingement?

When the arm is raised, precise spacing is needed between the top of the upper arm bone (humerus) and scapula bone (the socket of the joint). An impingement may occur when a muscle imbalance pulls the upper arm bone too high in the socket or when a bone spur develops in this space. Either situation may cause the ligaments, tendons, and/or muscles to become pinched in the joint as the arm is raised. (See fig #3.)

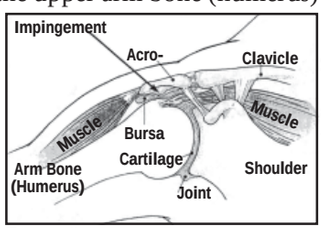

Figure 3

A balanced strengthening program like the MedX circuit is essential to restore "balanced strength" to the shoulder joint. When the muscles surrounding the shoulder joint are strengthened, they will tend to pull the end of the humerus down into the socket, "centering" it in the correct position. This may eliminate an impingement and allow healing to occur. In an article for *Physician and Sports Medicine Magazine*, Dr. Brent Kay wrote, "shoulder impingement syndrome heals slowly, and long time consistency in strengthening is paramount."

What is frozen shoulder?

Frozen shoulder is a condition in which the connective tissue in the shoulder contracts and severely limits the shoulder movement. It usually results from a period of shoulder inactivity. If the arm has to be immobilized for more than a few weeks, frozen shoulder can occur. Make sure to ask your doctor about performing some shoulder movement whenever it is immobilized to prevent frozen shoulder.

Why do I feel like I am getting weaker on the lateral raise machine?

The lateral raise is unique because as we get stronger, the weight on this machine will need to be lowered! This is normal! For the first few weeks of a MedX program, the weights are generally light. As a result you have plenty of strength left when you reach the lateral raise machine. As weeks go by, the weights on the machines before the lateral raise (MedX pullover, torso arm and arm cross) are usually increased. As a result, the shoulder muscle (deltoid) will be much more tired when you reach the lateral raise machine. In order to do the lateral raise machine correctly and get the full benefit from the exercise, the weight must be lowered! As long as the weights are going up on the other machines, don't worry. You are getting stronger!

Why should we use the lateral raise machine if the shoulder muscles are exercised on the other machines?

The shoulder muscle (deltoid) is a large muscle that has three sections: the front (anterior), middle (medial) and back (posterior) deltoid. The machines prior to the Lateral Raise do not isolate the middle deltoid, which this does. A strong middle deltoid is very important for maintaining a healthy shoulder.

Why do women seem to have so much trouble with shoulder problems and the lateral raise machine?

Over the evolutionary history of the human species, women have generally been stuck with much of the physical work. Why they often have weak shoulder muscles remains a mystery! Couple this with the fact that women's joints are "more loose" than men's joints, and it is understandable that shoulder problems are more common in women. Therefore it is even more important for women to use the lateral raise machine and increase their shoulder strength.

If you hate this machine, you are not alone! Here is a hint to make it less annoying. Don't make the lateral raise machine torture! Keep the weight light and slowly go through the range of motion. After completing the other upper body machines, even easy regular exercise on this machine will produce the necessary strength gains.

How do I get started?

Please speak to one of our staff members and schedule an appointment to establish a shoulder strengthening program specifically for your situation.

Why is All Sport different?

It is often a surprise when members visit health clubs in other areas of the country and discover that all centers are not like All Sport. The most important difference is that All Sport is one of only a few gyms in the country that provides knowledgeable interactive training in the fitness center as part of membership. When most other gyms have trainers they are usually personal trainers trying to sell you personal training services at $50 – $75 an hour.

Very few gyms invest in MedX equipment.

All Sport is also known as a health resource for its members, with the goal of helping you preserve your health with lifelong exercise.

Mike Arteaga

Owner, founder (1973), health and fitness consultant

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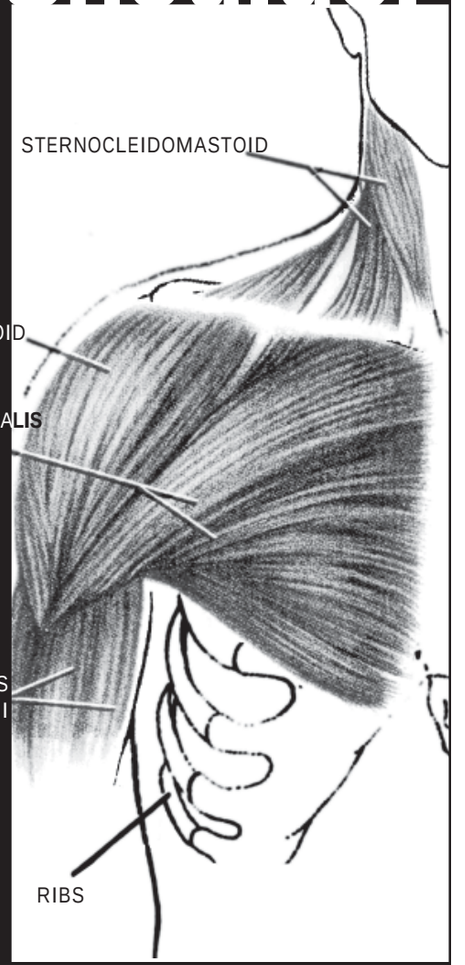
The Shoulder



THE SHOULDER joint has the widest range of motion of all the joints in the body. This makes it tremendously mobile, but this mobility comes at the price of relative instability.

A joint is any point where two bones connect and move or hinge (articulate) against one another. The ends of the bones making contact are covered with a super-smooth tissue called cartilage. Cartilage minimizes friction as the bones move against each other. The joint is then enclosed in a sack called the joint capsule. The joint capsule contains synovial fluid, which acts as a lubricant to further reduce friction. In a healthy joint these structures create almost frictionless movement.

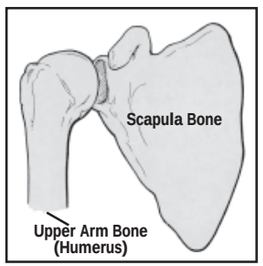


Fig 1. Shoulder Socket

The shoulder is a ball and socket type joint. In order to provide a wide range of movement, the shoulder socket is very shallow (see figure #1). The rounded "ball like" end of the upper arm bone (humerus) fits into the shallow socket on the scapula bone forming the shoulder joint.

What are the structures that support the shoulder?

The shoulder socket, called the glenoid cavity, is made slightly deeper by an additional "ring" of cartilage, called the labrum. The labrum forms a wedge shaped rim around the edge of the socket to expand and deepen it. The labrum also serves as a site of attachment for some of the ligaments and muscle tendons responsible for stabilizing the shoulder joint.

Ligaments are extremely strong bands of connective tissue that resemble flat nylon straps but are many times stronger than nylon. They cross the joint attaching bone to bone at a number of locations around the joint.

The muscles cross the joint over the ligaments. Muscles taper at their ends into thin bands called tendons. Tendons are made of the same tough connective tissue as the ligaments and attach the ends of the muscles to the bones on both sides of the joint. Due to the shoulder's basic instability, the joint is very dependent on strength, balance and coordination of the muscles to prevent injury and dislocation. Even at rest, strong muscles apply a constant pressure called "tonus" across the joints. This tension serves to hold the joint snugly together.

The shoulder joint has an "extra layer" of muscles called the rotator cuff.

The rotator cuff consists of four muscles that surround the joint. It is under the deltoid muscle, the primary visible shoulder muscle that drapes over the shoulder, giving the shoulder its round shape. The rotator cuff's primary purpose is holding the joint together, but it also aids in lifting and rotating the upper arm. The four relatively small muscles that make up the rotator cuff are the teres minor, supraspinatus, subscapularis, and the infraspinatus (see figure #2). Each muscle crosses the shoulder joint, attaching to the scapula bone, (the socket part of the joint) on one end, and the humerus (the upper arm bone) on the other side of the joint. Each muscle crosses at a different point on the front, back and top of the joint, surrounding the joint and providing symmetrical pressure needed to reinforce the joint.

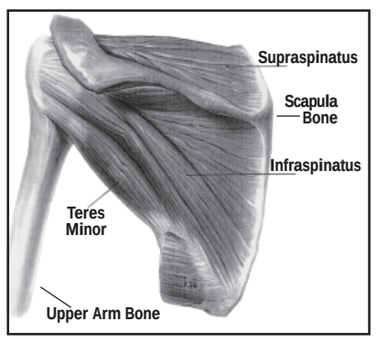


Fig 2. Rear view of the shoulder with three of four rotator cuff muscles

The larger "primary" shoulder muscles which include the deltoid, the pectoralis muscles (chest muscles), and the latissimus dorsi (back muscles) cross the joint over the rotator cuff. These larger muscles provide most of the power for arm movements.

Why is muscle strength so important?

The stronger the shoulder muscles are, the greater the stability of the shoulder and the less likely it will be injured. Balanced strength on both sides of the shoulder joint is critical to maintain joint health. All the muscles that cross the shoulder joint must coordinate precisely during any movement. For example, when the arm is moved forward in a throwing movement, the muscles on the front of the shoulder contract rapidly. In a healthy shoulder, the muscles on the back of the shoulder lengthen at the exact same speed, but as they lengthen, they resist very slightly to maintain a precise amount of pressure in the joint. This pressure allows the arm to rotate forward without allowing the "ball" end of the upper arm to fall out of the socket.

This precise muscle coordination becomes very difficult to maintain when the muscles are weak or when the muscles on one side of the joint become stronger than the muscles on the other side. A balanced strengthening program, such as the MedX circuit, is essential to maintain this coordination.

When all the muscles surrounding the joint are strong, a snug fit is maintained. A strong shoulder is much less likely to be injured, re-injured, develop arthritis, develop an impingement or a myriad of other potential joint problems.

How can we strengthen our shoulder after injury?

After a joint injury, damaged cartilage or ligaments will often never heal to their original tightness or strength, even with surgery. The muscles are the only support structure that can actually be brought to a pre-injury level or higher. When muscles are strengthened to a higher than pre-injury level, they can often compensate for stretched ligaments or damaged cartilage.

Once your doctor has given permission to begin exercise, the goal is to slowly increase the strength of the primary muscles and rotator cuff muscles to a higher than pre-injury strength level. This reduces the chance of further injury, helps diminish or eliminate joint pain and reduces the chance of developing osteoarthritis.*(For more information regarding strengthening exercises and osteoarthritis, please see our brochures on these subjects.)*

In general we heal more quickly with activity. Joint injuries heal faster when the muscles supporting the joint are strengthened. As muscles are strengthened, all the tissue around them will be strengthened. The key is to carefully strengthen without aggravating the injury. This requires strictly limiting the exercise to a pain free range of motion, stopping before the point of pain at any point in the exercise to avoid further aggravation to the joint! Initially the range of motion may need to be very short, perhaps only a matter of inches.

Strengthening the deltoid (the primary shoulder muscle) with the MedX lateral raise machine is very important, but often at the start, it must be limited to a very short range of motion to avoid pain. It's essential to resist the temptation to see where the point of pain is each time the exercise is performed. Just like picking a scab every day to see if a cut has healed, continued movement to the point of pain will prevent proper healing.

The same principles should be applied to strengthening exercises for the pectoralis (chest) on the front and the latissimus dorsi (upper back) on the back of the shoulder joint with the MedX pullover, torso arm, arm cross, and triceps machine.

All exercises should be performed slowly with a limited range of motion, when necessary. As strength increases, the pain free range of motion will usually increase and the pain will often be greatly reduced or eliminated.

Shoulder strengthening is a drug free and non-surgical approach to healing the shoulder joint. Even if surgery is eventually necessary, increased muscle strength is essential to minimize the rapid muscle loss caused by inactivity after surgery. The stronger the muscles, the faster the healing and the less likely re-injury will occur.