Are Your Shoulders Hurting Yet?!
Five Tests to See if You Are At Risk For Developing Shoulder Pain

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Have you or someone you know had to reduce or stop their training because of shoulder problems. You probably know of someone who has had surgery on their shoulder(s). This article will show you some easy to follow tests that if you are deficient can put your shoulders at risk. You will also learn how to correct each deficiency and keep your shoulders healthy.

Gross (1993) examined bodybuilders and found that their workout regimens led to muscle imbalances about their shoulders. These lifters would over emphasize larger muscle groups (pectoralis and deltoid muscles) while neglecting the scapular stabilizing muscles (rhomboids, middle and lower trapezius). This strength imbalance was correlated to the higher incidence of shoulder pathology in bodybuilders.

Barlow (2002) examined avid weightlifters and found that when compared to non-weightlifters they had decreased over head motion when raising their arms, decreased range of motion when reaching behind their backs, and although stronger in all muscle strength tests they were not significantly stronger in the scapular (upper back)muscles. This proved that a strength imbalance as well as a flexibility imbalance can exist about the shoulders of athletes who perform consistent weight training routines.

Because we all sit a great deal in this society (in cars, in front of computers, etc) we tend to develop postures that are slightly rounded. Forward head posture (FHP) is the first sign (Figure 1) that muscle imbalances are present in the athlete. Usually athletes with a FHP will have some roundness of the shoulders. This will cause the front muscles (pectoralis, subscapularis) to become slightly tighter and the muscles around the shoulder blade to become lengthened. If a muscle is too tight or too lengthened it cannot function at 100% of its capacity and this will place additional stress on the shoulders. The key components to a healthy shoulder are proper posture, good flexibility, and good strength about the scapular region.

Figure 1 – Assessing forward head posture. The middle of your ear should be directly over the top of your shoulder. For illustration purposes, a hand is placed on the top on the shoulder to illustrate how forwardness of the athlete's head. This is the first sign that muscle imbalances about the upper quadrant are present.

5 Tests to Assess the Health of Your Shoulder

Test 1 – Latissimus Flexibility

The lattisimus muscle is one of the largest muscles in the body. Its function is to extend the arm backward in a rowing type motion and rotate the arm inward. It attaches to the inside upper arm and when tight it can limit full range of over head movements and cause the shoulders to be slightly turned inward. This limitation in full range and also causing the shoulders to turn inward can affect posture and ultimately place more stress on the shoulder.

To test for tightness lie down on a flat surface with your knees bent and low back flat against the surface. Lift your arms overhead and let them completely relax. The backs of your upper arms should easily lie against surface you are lying on. Failure to achieve this position or achieving this position but having the upper or lower back arch would signify latissimus tightness.

To address tightness in this area you need to perform the "prayer stretch".

Prayer Stretch "Sag"

Leaning against a table or edge of bed with your elbows together, lean back with your hips going towards your heels. Let your upper back relax and "sag".

Keys: Keep elbows together
You should feel the stretch in your upper back or lat area. You should not feel any discomfort in your shoulders.

Goal: 3 times for 30 seconds

This stretch also mobilizes the thoracic spine which is commonly stiff

Test 2 – Posterior Capsule (back of shoulder) Flexibility

The second area that must be flexible in the athlete's shoulder is the posterior capsule. Whenever you raise your arm above your head, your shoulder bone (humeral head) must stay centered in the joint. If the back or posterior part of your shoulder capsule is tight, your humeral head will not stay centered. It will translate forward or anteriorly. This will increase your chances of shoulder impingement which can lead to tendinitis or bursitis. Barlow (2002) found that avid weight lifters are often restricted in this area.

One way to test for posterior capsule tightness is the "Appley's Scratch test". For this test, place one hand behind your back and the other up and over your back in an attempt to touch both hands together behind you. If you cannot touch both hands your shoulder flexibility is limited. In most cases it is because the lower hand's shoulder is tight. Compare both sides to get a sense if one side is significantly tighter. Usually the dominant side is slightly tighter.

A corrective stretch for lack of internal rotation is called the "sleeper stretch". Lie on one side with your shoulder positioned in 90 degrees of flexion (right angle to your body) and elbow bent 90 degrees. Keeping the back of your shoulder down on the table, take your other hand and passively and gently rotate your forearm down towards the floor. Your forearm should achieve an angle of 70 degrees or almost parallel with the floor/table. Make sure you do not stretch aggressively and your goal is to feel the stretch in the back of the shoulder.

Sleeper Stretch

Lie on your side with your shoulder and elbow positioned at a 90-degree angle. Turn slightly off your side so that your are not lying directly on your shoulder. Maintaining your shoulder at 90 degrees and elbow at 90 degrees, position your opposite hand around the wrist and gently push the wrist and forearm down towards the table. You should feel the stretch in the back of the shoulder.

Keys: Make sure you do not lie directly on your side

You should feel the stretch in the back of your shoulder

Make sure you keep your shoulder from rising off the table

Goal: 3 sets of 30 seconds

Test 3 – Strength of Rhomboids and Middle Traps

Barlow (2002) stated that the upper back muscles of bodybuilders were not significantly stronger when compared to non-bodybuilders. This fact is not surprising since most strength programs although balanced do not emphasize the upper back more than the chest. Our upper back muscles are usually weaker than ideal since as a society we sit an enormous amount of our day. As we sit our upper back becomes rounded, placing the upper back muscles (rhomboids and middle traps) on stretch. Remember from our previous discussion on posture that if a muscle is chronically lengthened it will tend to be weaker. The rhomboids and middle traps function to keep the scapula (shoulder blade) stable against the rib cage when you raise your arm above your head. If the scapula cannot stay stable against the rib cage during arm elevation you are again at risk for impingement (tendinitis or bursitis).

Not sure if your upper back could be stronger? Take the following test. Lie on the ball and perform the following exercise.

"T" on Ball

With chest on ball lift arms up to make the letter "T". This exercise strengthens the middle trapezius, rhomboid, and rotator cuff muscles which help the shoulder blade move correctly.

Keys: Thumbs up
Elbows straight
Exercise should be felt in upper back, not in front of shoulders
Hold for 5 count at top of movement

Goal: 3 sets of 10 reps – work up to 3 sets of 20 reps with 5 lbs (Make sure to hold for a five-count at the top.

Test 4 – Strength of Lower Trapezius

The function of the lower trapezius muscle is to assist with upward rotation of the shoulder blade when your raise your arm above your head. If the shoulder blade doesn't rotate effectively then once again you can suffer from impingement. To test the strength and endurance of the lower trapezius muscle perform the following test.

"Y" on Ball

With chest on ball lift arms up to make the letter "Y". This exercise strengthens the lower trapezius muscle which helps the shoulder blade move correctly.

Keys: Thumbs up
Elbows straight
Exercise should be felt in upper back, not in front of shoulders
Hold for 5 count at top of movement

Goal: 3 sets of 10 reps – work up to 3 sets of 20 reps with 5 lbs (Make sure to hold for a five count at the top).

Test 5 – Posterior Rotator Cuff Strength

You may not of heard of these muscle but these muscles (teres minor and infraspinatus) make up the back half of the rotator cuff. Their primary function is to externally rotate the arm and this is especially important with overhead movements. To tests these muscles for strength and endurance perform the following test.

"Bent T" on Ball

With chest on ball lift arms up to make a "Bent T". This exercise strengthens the middle trapezius, rhomboids, and rotator cuff muscles which help the shoulder blade move correctly.

Keys: Palms down
Elbows bent
Exercise should be felt in upper back, not in front of shoulders
Hold for 5 count at top of movement

Goal: 3 sets of 10 reps – work up to 3 sets of 20 reps with 5 lbs (Make sure to hold for a five-count at the top). **If you have poor endurance you will not be able to keep your forearms level and they will rotate downward.**

Conclusion

The keys to healthy shoulders are three-fold: 1) being aware of your posture. Do not allow your posture to become rounded with daily activities (driving, working at a computer, watching TV, etc.), 2) maintain proper flexibility (use the prayer and sleeper stretch, and 3) target the upper back (scapular) muscles twice a week to insure proper strength and endurance.

Sidebar – Modifying Your Workout to Prevent Shoulder Problems

If you have trouble with any of these 5 tests you may need to modify your upper body strengthening routine. Here are three suggestions:

1. 3:1 Pull/Push ratio

Because our upper back muscles tend to be weaker than our chest muscles we need to target this area more during our workouts. To do this, you should have a 3:1 pull/push ratio. Simply put, you need to do 3 times as many upper back exercises as chest exercises. For example: If you perform 3-4 sets of bench press then you would need to perform 9-12 sets of upper back exercises. Upper back exercises would include the Y, T, Bent T, one arm row with elbow away from the side, pull down in front, etc.

2. Work chest for endurance along with trunk stability

Work your chest muscles for endurance with some bodyweight exercises. These exercises will also develop some additional core stability if performed with the back in a neutral position (not arched or rounded). Try these three exercises for one minute each with your goal to work up to two minutes

Figures A and B – Start at the top of push-up position. While maintaining one arm on the ground, lift one arm and rotate your body so that your chest is square with the closest wall. Return to the start position and rotate the opposite direction. Repeat for one minute.

Figures C,D,and E – "V-push-up". Again start in the top of a push-up position. Push back to drop your head between your shoulders and form an "inverted V" position. Try to get your heels on the ground but do not move the position of your hands. Hold for 5 count and return to the start position. Repeat for 1 minute.

Figure F - Push up on a gymnic ball. Perform standard pushups on the ball. 3 sets of 10 – work up to 3 sets of 30.

3. Incorporate flexibility into your routines.

Make sure you stretch your shoulders daily and especially after your upper body workouts. Remember it is your posture during the day combined with your upper body strengthening routine that can cause come tightness in your shoulder. Hold your stretches for slightly longer (30 seconds) if you are trying to increase flexibility.

References

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