

# **A NEW COMPONENT TO ROTATOR CUFF CARE**

Mark Reifkind

<http://www.girya.net>

Rotator cuff injuries are some of the most painful and debilitating an athlete can have. In order for our shoulders to do all the myriad things we like them to (throw fastballs, bench press heavy weights, do giant swings on the rings etc.) they require a high degree of mobility. But this mobility requires a **DECREASE** in stability. You just can't have it any other way. If the shoulder were more stable (read: restricted) we could not do all the things athletes (and humans in general) ask it to.

Some injuries allow you to find a decent rest position while you are healing. The shoulder (like the hip) does not seem to. Exposed to gravity while standing or seated and pressurized even when lying down, when your shoulder isn't "sitting right," very few movements or activities are not painful.

The upper arm bone sits very tentatively in the shallow "socket" of the shoulder. It is held stable by muscles, tendon and ligaments, and covered with a ligamentous capsule that allows quite a bit of movement even with healthy joints (there is that mobility thing again).

The big muscles of the pecs, lats, front deltoid, biceps and teres major connect to and pull the upper arm into internal rotation when they contract. In fact, **MOST** sports require movement that creates tons of internal rotation and the iron sports of powerlifting and bodybuilding really exaggerate the size and tension these muscle can generate (Olympic lifting is the exception, requiring quite a good degree of external rotation strength and stability).

This can, and very frequently does, lead to severe muscle tension imbalances, which in turn, lead to rotator cuff and shoulder injuries.

Famed Czechoslovakian Physical therapist Vladimir Janda spoke of the need for balanced length-tension relationships between the muscles that cross the joints. When one has a balance of muscle tension on both sides of the joint capsule the joint can rest in a neutral position. If one side of the joint has a

much higher degree of muscle tension that balance is disturbed, the joint pulled OUT of neutral with one side too tight and the other stretched taut.

If this is maintained over time adaptive shortening can occur and the muscle can permanently lose its proper length.

Both kinds of tension can create pain in the muscles and the joint. Janda described both tonic and phasic muscles and their traits:

A quick glance at the physiology of these muscles tells us that the primary function of postural (tonic) muscles is to maintain upright (trunk) posture, and that phasic muscles are responsible for rapid motions. There are other differences as well. These include the following:

<b>Tonic</b>	<b>Phasic</b>
A. slow-twitch (type I fibers)	A. fast-twitch (type II fibers)
B. oxidative metabolism	B. glycolytic metabolism
C. slow fatigability	C. fast fatigability
D. high capillary density	D. low capillary density
E. high number of spindles	E. low number of spindles
F. a2 motor neuron	F. a1 motor neuron
G. shortening due to dysfunction	G. weakening due to dysfunction

What this means is that the tonic muscles such as the pecs (both major and minor), biceps, teres major and the levator scapula can get short and tight very, very easily and severely limit your ability to achieve full range of motion in the shoulder. Here is a list of which muscles are which:

<b>Tonic</b>	<b>Phasic</b>
<b>Trunk</b>	<b>Trunk</b>
A. cervical and lumbar erectors	A. mid-thoracic erectors
B. quadratus lumborum	
C. scalene muscles	
<b>Shoulder Girdle</b>	<b>Shoulder Girdle</b>
A. pectoralis major	A. rhomboid muscles

- B. levator scapulae
- C. trapezius (descending portion)
- D. biceps brachii (short head)
- E. biceps brachii (long head)

#### **Pelvic Area**

- A. biceps femoris
- B. semitendinosus
- C. semimembranosus
- D. iliopsoas
- E. rectus femoris
- F. tensor fascia lata
- G. adductor longus
- H. adductor brevis
- I. adductor magnus
- J. gracilis
- K. piriformis

#### **Calf and Foot**

- A. gastrocnemius
- B. soleus

- B. trapezius (ascending portion)
- C. trapezius (horizontal portion)
- D. pectoralis major (sternal portion)
- E. triceps brachii

#### **Pelvic Area**

- A. vastus medialis
- B. vastus lateralis
- C. gluteus medius
- D. gluteus maximus
- E. gluteus minimus

#### **Calf and Foot**

- A. tibialis anterior
- B. peroneal group

The typical advice given to someone suffering from a rotator injury is to work the antagonists. External rotation exercises with bands and dumbbells are given for all three planes of movement. Add in lots of rear delt work, rows for the weaker rhomboids and lower traps and you have a typical prescription for rotator repair and prehabilitation.

The problem is, is that without getting the tonic and usually short and tight internal rotators to fully release the external rotators don't have a chance to get strong enough to balance out the shoulder girdle.

Add in poor posture with forward head positions, rounded shoulders , short and tight lats, and almost no overhead work done to strengthen the shoulder stabilizers and keep full joint range of motion and the situation goes from bad to worse, with career ending possibilities.

The solution is to fully stretch out the pecs, biceps, coracobrachialis, front delts, lats and teres major with a variety of methods and modalities BEFORE building the strength of the external rotators.

The most basic stretch is the overhead stick stretch, done with a long dowel rod, towel or dyna band (for the most inflexible). Start with a wide enough grip that will allow you to reach overhead to a point a few inches (or more) behind your head WITH YOUR ARMS STRAIGHT.

If the arms bend as you attempt to stretch you defeat the purpose of the stretch and actually move into internal rotation. Move your grip out until you can keep straight arms. Consciously contract the triceps as you go overhead, but keep the shoulders down.

When you feel the shoulders, pecs and biceps start to tighten, back up a bit to ease the stretch. Then hold your breath for three seconds then breathe out and sigh, relaxing into the stretch. This is the pneumo-muscular reflex Pavel speaks about and really works well for solo stretching. Repeat this 10-20 times and when you feel no resistance at the top bring your grip in and repeat.

Done properly this will target the pecs, delts, biceps, lats and teres, the big players in rotator problems. Do this two times a day every day! Minimum. You should strive for fluid, easy range of motion into the overhead position with the elbows straight and the shoulders down.

The next stretch is the overhead hanging stretch. Find a power cage or pullup bar that BARELY allows you to reach the floor on your toes with a shoulder-width grip on the bar. Use the pneumo-muscular breathing pattern to stretch out until your heels can touch the floor.

This will really release the lats and teres (as well as your lower back). Use blocks or mats to achieve the right height. As your flexibility increases move your grip out to achieve a deeper stretch. Keep perfect posture under the bar as you hang. The head, ribs, pelvis, knees and ankles should be in a straight line under the bar.

So many lifters have extremely tight lats and teres majors from heavy benching, shoulder and biceps work.

Third, use the lying floor stretch. Lay flat on your back with your straight arms close to your ears. Reach back slowly trying to lay your arms flat on the floor behind you until you start to tighten up or the elbows start to bend.

Bring the arms back a bit. Remember, if you are feeling tension in the muscles you are trying to stretch you are contracting them, not stretching them. Most stretch TOO HARD and do not get results. You must let the muscle RELAX while holding the proper position.

Keep reaching back and let gravity do the work of getting the arms down to the floor. You will notice one side is tighter than the other. Focus on that side first and use your breath holding technique to get it to release.

As you are reaching overhead you might notice your traps pulling up. DO NOT LET THEM. Consciously pull them down as you reach and stretch overhead. This is part of what the external rotators should do as your arms go up: they pull the head of the shoulder into the socket to help stabilize it.

Again, do not rush the stretching. It makes you tighter.

## **ROLL IT OUT**

One of the things that has worked very well for me is the use of a round stick to “roll out” tight, spasmed muscles. I use an Aikido Bo stick as the Japanese oak has just the right diameter and feel. Set up the offending muscle to a stretch position (biceps extended, lats stretched) and rollout the tight muscle like you would a ball of dough. Healthy tissue does not have lumps, knots and “speed bumps” in it!

You will be amazed how tight you are and how many knots you find, as well as how much better you move when they are worked out. I also use a hand held percussion massager to do this. It works great for tight biceps, pecs and lats, and you can work on yourself.

Making sure you have FULL RANGE OF MOTION in all planes of movement cannot be overemphasized. If you have restricted overhead motion, with your elbow bending and internally rotating as you get halfway up, are going to be at risk for a rotator injury.

If, when you lift your arm out to the side (as to do laterals) and your traps hike up, same thing. Learn how to keep the traps down as you raise your limbs overhead.

## **ACTIVE RELEASE**

Active release therapy is a massage technique used frequently now by Chiropractors to “strip” the muscle of fascial adhesions and restrictions as the chiro takes the limb through a range of motion. Getting an expert to do this is best but if you cannot get to one you can modify the process for self help. The key is to go through the restricted range of motion slowly and to take note of what muscle is causing the restriction. It will be the muscle that is tightening up first and is the most painful.

I use my thumb to press into the tightest part of the muscle while attempting to go through the full range. Going very slowly you can stretch out the tight muscles as you achieve full range of motion. The pressing seems to inhibit the muscle from prematurely firing and allows it to have its full length. Do not press too hard and remember: a muscle stretching gets softer, not harder.

This is a very slow process and can be fairly painful. Many times you have to do this frequently throughout the day. If left to re-tighten you can lose what gains you have made in range of motion very quickly.

This works very well on the pecs, biceps, front delt and teres major. Again, if you can find a local practitioner you will improve much faster. Check here for listings:

[www://activerelease.com](http://www.activerelease.com)

In conclusion, a key component of getting and keeping your external rotators strong and healthy enough to withstand bench presses, kb snatches and overhead presses is making sure you have the flexibility and mobility the shoulder is capable of. The correct order of training is:

**Flexiblity, Stability, Strength, Power.**

If you can't achieve correct range of motion you won't be able to stabilize. If you can't stabilize you won't be very strong. If you aren't strong you can't be powerful. And, if you are injured, well, nothing works well!

Be proactive and use these ideas to avoid or heal the dreaded rotator cuff injury!

August, 2004