

## SPORTS MEDICINE

### Dealing With Rotator-Cuff Tears

Prevent complications of this common bodybuilding injury

By Shelly Stewart Reich

Any sport requiring repeated, strenuous over-the-head arm motions such as tennis, swimming, baseball - and bodybuilding - can cause inflammation of the shoulder muscles. If left untreated, this condition may lead to a torn rotator cuff - an extremely painful and potentially disabling injury. While tears in the rotator cuff are not uncommon in bodybuilders, they may be difficult to diagnose because of the buildup of supporting muscle.

Rotator-cuff injuries involve the shoulder joint - a complex arrangement of two bones held together by muscles, tendons and ligaments. Four of these muscle-tendon units form the rotator cuff, which controls the rotation of the arm and helps provide stability to the shoulder. When weights are lifted overhead, increased stress is placed on the shoulder joint, predisposing it to injury.

According to Jacob Rozbruch, MD, a sports medicine specialist and chief of orthopedic surgery at New York's Beth Israel Medical Center North, repeated overhead movements can make

the rotator cuff vulnerable to tendon damage or inflammation. "Rotator-cuff injuries do not usually occur suddenly," explains Rozbruch, "but are the result of chronic, repetitive abuse. The problem can be especially acute in beginners with excessive joint laxity (looseness) or in people with an underlying abnormal shoulder bone anatomy."

Repeated abrasion between the upper portion of the humerus (the bone between the shoulder and the elbow) and the acromion (the bony portion of the scapula that covers the shoulder joint) will frequently result in a pinched and irritated rotator cuff. This condition, known as shoulder impingement syndrome, or impingement tendinitis, is the

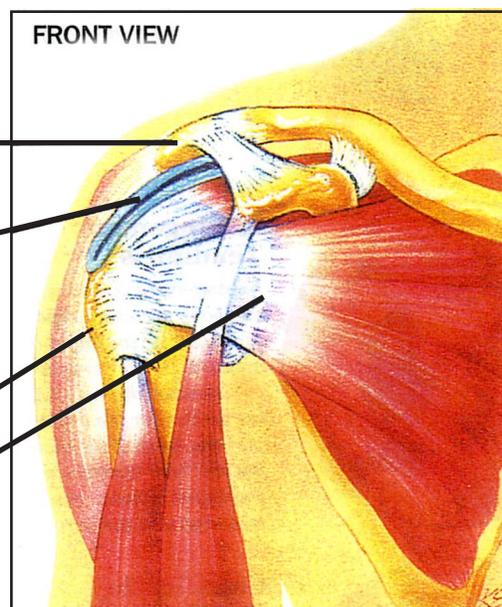
*The acromion, part of the shoulder blade or scapula, is essentially the roof of the shoulder.*

*The bursa is a soft, fluid-filled sac - that forms a cushion and reduces the friction between ligaments and tendons within joints (in this case the junction between the acromion and the clavicle or collarbone).*

*The humerus is the upper arm bone.*

*The gleno-humeral joint is where the humerus meets the shoulder blade. The head of the humerus fits into the glenoid fossa.*

FRONT VIEW

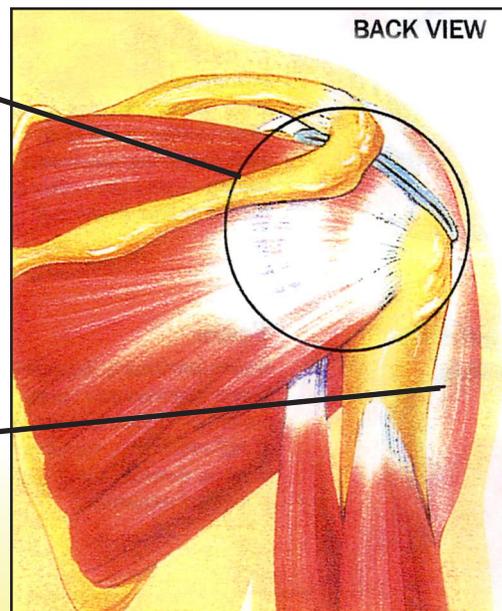


### Healthy Rotator Cuff

*The rotator cuff is made up of four muscles (along with their tendons): the supraspinatus, infraspinatus, teres minor and subscapularis. The supraspinatus basically keeps the humerus from falling downward out of the shoulder socket (it also works with the lateral head of the deltoid to raise the arm to the side). The other three muscles pull down on the humerus to counterbalance the upward pull of the deltoid, keeping the humerus from striking the roof of the shoulder.*

*The deltoid - one of the most coveted muscles by bodybuilders and other fitness enthusiasts - caps the shoulder and lifts the arm forward, sideways and horizontally across the body.*

BACK VIEW



# CUTTING EDGE

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major type of overuse injury leading to rotator-cuff tears in bodybuilders. It is also far more common in individuals as they reach their 30s.

The bench press, in par-

ticular, places pressure on joints designed more for flexibility than for weight-bearing exercise. Over time, in individuals susceptible to impingement syndrome, the mechanics

of raising weights over the head will push the humerus into the acromion. Bone rubs against bone, pain and loss of range of motion ensue, and eventually, the rotator cuff is damaged and torn.

Fortunately, by properly resting and treating the shoulder at the first sign of pain, serious injury can be avoided. Continued strenuous overhead workouts with a painful shoulder, however, may lead to a complete tear and the prospect of surgery.

## WARNING SIGNS

Recognizing bad pain

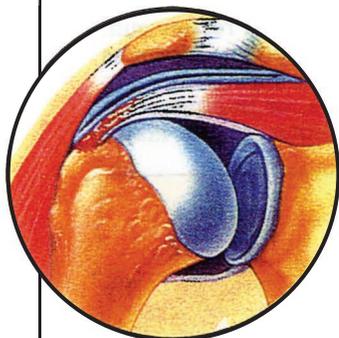
The first warning sign of a rotator-cuff injury is usually bursitis. Bursitis is a painful inflammation of the

lubricating sac, or bursa, located over the rotator cuff. Shoulder weakness and/or limited range of motion are also strong indications of a chronic irritation, if not outright injury, to the shoulder.

Unfortunately for many bodybuilders, however, pain may be associated more with a strenuous workout rather than with a joint injury. This is especially true when the loss of rotator-cuff function is off-set by a building up of the larger deltoid muscles that support the shoulder. Such individuals will feel pain, but may not experience the weakness that usually accompanies a severe shoulder injury.

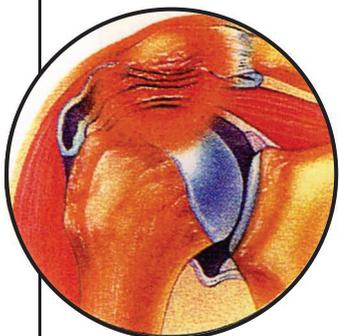
Rozbruch cites the example of a bodybuilder who

## Rotator-Cuff Injuries



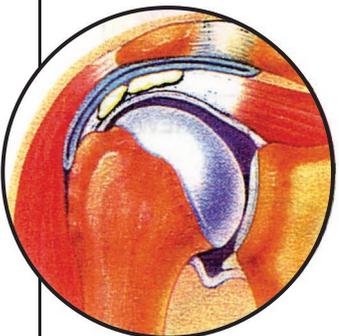
### Overuse Tendinitis

*Shoulder movements, including those used during bench and overhead pressing, golfing, throwing, etc., can lead to inflammation of one or more of the rotator-cuff tendons, usually the supraspinatus tendon.*



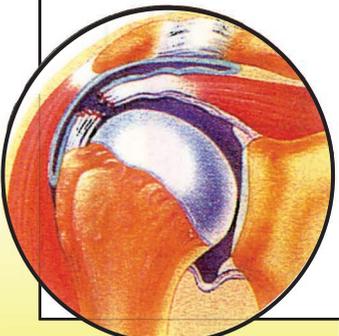
### Impingement Tendinitis

*Impingement occurs when one bony structure repeatedly presses or impinges on another. Under certain circumstances, the supraspinatus tendon (or the tendon of the long head of the biceps or the shoulder bursa) can be impinged between the humerus and the acromion.*



### Calcification Tendinitis

*Calcium deposits - accumulations of calcium in a muscle or tendon - can cause inflammation and pain. They usually develop at high stress points in the body - such as the supraspinatus tendon - and often after a sprain or tear in the cuff.*



### Tears

*Severe tendinitis, degeneration or injuries can cause partial or complete tearing*

## 5 Ways to Avoid a Rotator-Cuff Tear

By Wayne Westcott, Ph.D.

- 1) Don't overwork the shoulder muscle group.
- 2) Adhere to proper lifting techniques and training habits.
- 3) Refrain from exercise that causes shoulder pain.
- 4) Don't ignore or "work through" persistent pain.
- 5) Rest and seek medical advice at the first sign of shoulder pain.

### AVOID:

- Exercise that requires lifting weights repeatedly overhead, such as incline press, behind-the-neck press and upright row.
- Exercise that requires external rotation, such as behind-the-neck pull-downs, chin-ups, behind-the-neck presses and pec-deck machines.
- Exercise that severely stretches the shoulder joint, such as deep bar dips and dumbbell flies.

### CONTINUE:

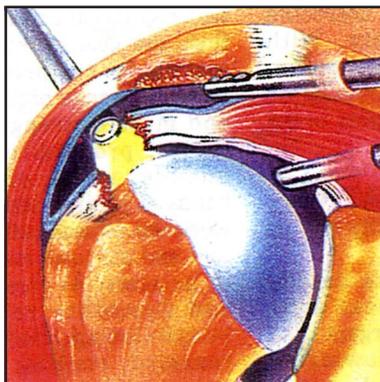
- Below-the-shoulder exercises for the biceps and triceps, such as dumbbell curls and triceps pressdowns (adjust the wrist position if necessary).
- Chest work such as limited-range bench press that doesn't overstretch the anterior deltoid.
- Seated rowing exercises for the latissimus dorsi.
- Lateral raises for the front deltoids that don't bring the weight above shoulder level.
- Trapezius exercises such as shrugs that don't work the shoulder rotators or middle deltoids.

# CUTTING EDGE

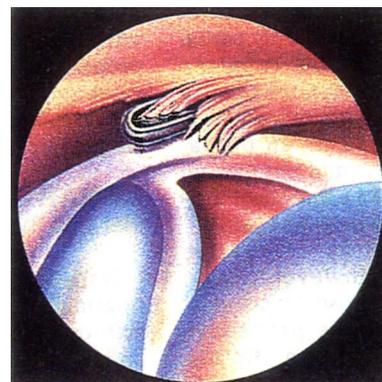
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## Arthrosopic Surgery

An osteopath or orthopedist can get a good look at your rotator cuff using a relatively new device called an arthroscope. Often performed on an outpatient basis, arthroscopy requires only a tiny incision - the size of a button-hole - and many corrective repairs can be made using special complementary miniaturized instruments.



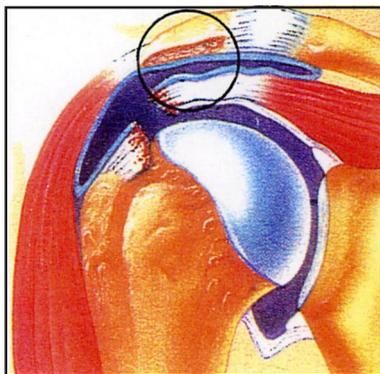
*The acromion can be shaved to create additional space between it and the cuff, which in turn helps prevent impingement and irritation during shoulder movements.*



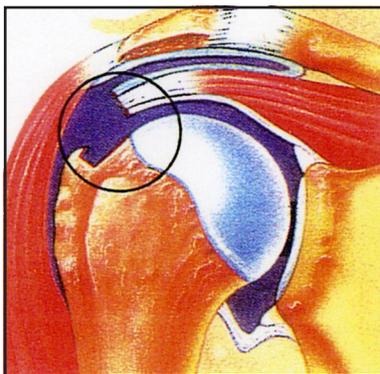
*Damaged tissue can be removed, minor tears repaired and the area around the injured tendon cleaned out.*

## Open Surgery

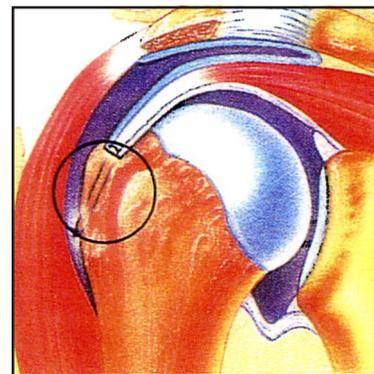
To repair severe damage or serious tears in your rotator cuff, open surgery is typically necessary. As you would expect, the incision is larger and the time for healing and rehabilitation is longer.



*First, the space is increased between the acromion and the damaged tendon.*



*The damaged tendon itself may be trimmed and a small area actually cut out of the humerus.*



*The tendon is re-secured to the humerus with tacks or sutures.*

came to him complaining of chronic shoulder pain. An initial diagnosis suggested impingement syndrome as the patient still had full range of motion. On closer examination, however, Rozbruch discovered a massive tear that required surgery.

"This patient was using his deltoid and pectoral muscles to compensate for his rotator-cuff injury," said Rozbruch. "His deltoids were so developed they camouflaged the tear in the rotator cuff."

Instead of seeking professional help for his problem, the patient had chosen to work through the pain and continue to lift weights four times a week, leading to the surgery.

### DIAGNOSIS & TREATMENT

How to avoid the knife

The first step in detecting the existence of a rotator-cuff injury is a comprehensive physical examination of

the shoulder by an orthopedist. Movement and resistance tests are used to evaluate range of motion, pain, weakness and instability. If a tear is suspected, MRI (magnetic resonance imaging) may be used to obtain highly detailed cross-sectional images of the muscles and shoulder joints.

The standard treatment for the pain and swelling of impingement syndrome is rest until the pain subsides. This can be alternated

with gentle stretching and strengthening exercises. Total inactivity, however, is not recommended since it can cause the joints to stiffen. Cold packs and nonsteroidal anti-inflammatory medication are also prescribed. If these remedies fail to bring relief, cortisone injections may be indicated to reduce inflammation and pain.

If after 3-4 months of conservative treatment the pain still persists - and/or the bursitis returns - it is likely

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that the rotator cuff is torn. In these cases, the decision whether to operate - or what type of surgery is indicated - will depend on the extent of the tear. Smaller or partial tears can be repaired through arthroscopic surgery. This procedure is performed on an outpatient basis and requires no more than a few small incisions. There is no scar.

For large or massive tears, however, open surgery is usually the only option. This procedure involves cutting

into the muscle, resulting in a scar and requiring a longer recovery period. Fortunately, most rotator-cuff injuries can be corrected without surgery. With proper rest and treatment, most shoulder injuries do not have to progress to the surgical stage.

## REHABILITATION

Get with the program

Rehabilitation usually begins 1-2 weeks after arthroscopic surgery, and 2-3 weeks following an open

rotator-cuff repair. At this point, it is critical to follow the program prescribed by the physician and physical therapist. At first, the goal of rehabilitation is to promote increased range of motion and muscle strength. A typical program might include using elastic bands or rubber tubing to work the rotator cuff, deltoid and scapular stabilizer muscles. As strength and flexibility return, bodybuilding may be resumed, starting with progressive-resistance ex-

ercises that do not bring the weights above the shoulder.

With open surgery, however, it may take six months before normal strength is recovered. In some individuals, the rotator-cuff muscles may never recover fully. If a torn rotator cuff is left untreated for too long, the muscles will atrophy and become permanently weak. To avoid permanent injury, therefore, listen to your body. At the first sign of shoulder pain, rest and seek medical advice.

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## JACOB D. ROZBRUCH, M.D., P.C.

Orthopaedic Surgery  
420 East 72nd Street  
New York, NY 10021  
(212) 744-9857

FOR MORE INFORMATION ON DR. ROZBRUCH

VISIT ONLINE AT:

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