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SHOULDER - TORN ROTATOR CUFF

ANATOMY AND FUNCTION

The shoulder joint is a ball and socket joint that connects the bone of the upper arm (humerus) with the shoulder blade (scapula). The capsule is a broad ligament that surrounds and stabilizes the joint. The shoulder joint is moved and also stabilized by the **rotator cuff**. The rotator cuff is comprised of four muscles and their tendons that attach from the scapula to the humerus. The rotator cuff tendons (supraspinatus, infraspinatus, teres minor and subscapularis) are just outside the shoulder joint and its capsule. The muscles of the rotator cuff help stabilize the shoulder and allow you to lift your arm, reach overhead, and take part in activities such as throwing, swimming and tennis.



ROTATOR CUFF INJURY AND TREATMENT OPTIONS

The rotator cuff can tear as an acute injury such as when lifting a heavy weight or falling on the shoulder or elbow. The shoulder is immediately weak and there is pain when trying to lift the arm. A torn rotator cuff due to an injury is usually best treated by immediate surgical repair. The rotator cuff can also wear out as a result of degenerative changes. This type of rotator cuff tear can usually be repaired but sometimes the tear may not need to be repaired and sometimes cannot be repaired. However, if the tear is causing significant pain and disability, surgery may be the best treatment to relieve pain and improve shoulder function. If a torn rotator cuff is not repaired, the shoulder often develops degenerative changes and arthritis many years later. This type of arthritis is very difficult to treat in young patients and the longstanding tear in the rotator cuff may be irreparable.

DIAGNOSIS OF TORN ROTATOR CUFF

Symptoms of shoulder pain that awaken you at night, and weakness raising the arm are suggestive of a torn rotator cuff. Examination of the shoulder usually reveals weakness. The diagnosis can be confirmed by magnetic resonance imaging (MRI). A more sensitive test such as arthrogram MRI or arthroscopy may be needed to diagnose a small tear or a partial tear of the rotator cuff.



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ROTATOR CUFF REPAIR

Most rotator cuff tears can be repaired surgically by reattaching the torn tendon(s) to the humerus. It is not a big operation to repair a torn rotator cuff, but the rehabilitation time can be long depending on the size of the tear and the quality of the tendons/muscles. The surgery is outpatient surgery, done through small poke holes. Anchors are placed into the humerus bone and the torn tendon/s are reattached to the bone with sutures. The tendons heal back to the bone, reestablishing the normal tendon-to-bone connection. It takes several months for the tendon to heal back to the bone. During this time, forceful use of the shoulder such as weight lifting and raising the arm out to the side or overhead must be avoided.



After surgery, you will probably use a sling for 4 to 6 weeks. You can remove the sling 4 to 5 times a day for gentle pendulum motion exercises. Typically a large pillow holds your arm out to the side of your body is needed for 4-6 weeks.

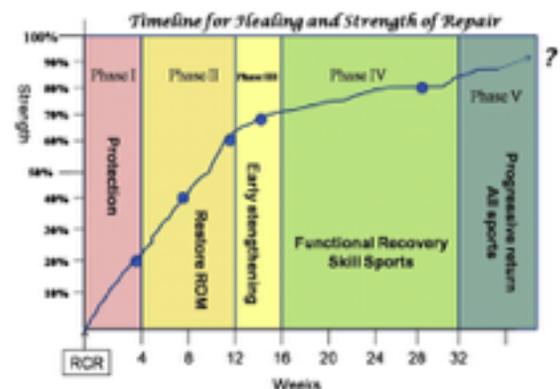
RESULTS OF SURGERY AND RISKS

The success of surgery to repair the rotator cuff depends upon the **size** of the tear and **how long ago** the tear occurred.. Usually, a small tear has a good chance for full recovery. If the tear is large, the extent of recovery cannot be accurately predicted until the repair and rehabilitation is completed. If the tear occurred a long time ago (several months or longer) it can be difficult or sometimes impossible to repair. Most patients achieve good pain relief following repair regardless of the size of the tear unless the tear is massive.

Shoulder pain is usually worse than before surgery for the first 2-3 weeks, but then gradually the pain lessens. This is especially true while trying to sleep at night. Dr. Nelson recommends sleeping in a reclining chair during this time to help lessen the night pain. It can take up to a full year to regain motion and function in the shoulder. Shoulder stiffness and loss of motion are potential problems after rotator cuff repair. Re-rupture of the repaired rotator cuff is possible if too much force is placed on the repaired tendon before it is fully healed. Nerve and muscle injury and infection are infrequent complications.

Complications

- Persistent pain
- Stiffness 10%
- wound infection 0.16 to 1.9%



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- bleeding <0.5%
- nerve injury <0.5%

SHOULDER - ROTATOR CUFF REPAIR POSTOPERATIVE INSTRUCTIONS

Phase zero: the first week after surgery

GOALS:

1. Control pain and swelling
2. Protect the rotator cuff repair
3. Protect wound healing
4. Begin early shoulder motion

ACTIVITIES:

Immediately After Surgery

1. After surgery you will be taken to the recovery room room, where your family can meet you. You will have a **sling** on your operated arm with an **abduction pillow**.
2. You should get out of bed and move around as much as you can.
3. When lying in bed, elevate the head of your bed and put a small pillow under your arm to hold it away from your body.
4. Apply cold packs to the operated shoulder to reduce pain and swelling.
5. Move your fingers, hand and elbow to increase circulation.
6. The novocaine in your shoulder wears off in about 6 hours. Use your pain medication as needed.
7. You will receive a prescription for pain medication for when you go home (it will make you constipated if you take it for a long time).

The Next Day After Surgery

1. You can remove the bandages but leave the small pieces of tape (steristrips) in place.
2. You may shower and get the incision wet. To wash under the operated arm, bend over at the waist and let the arm passively come away from the body. It is safe to wash under the arm in this position. This is the same position as the pendulum exercise.
3. Apply cold to the shoulder for 20 minutes at a time as needed to reduce pain and swelling.
4. Remove the sling several times a day: move the elbow wrist and hand. Lean over and do pendulum exercises for 3 to 5 minutes every 1 to 2 hours.
5. **DO NOT** lift your arm at the shoulder using your muscles.
6. Because of the need for your comfort and the protection of the repaired tendon, a sling is usually necessary for 4 to 6 weeks, unless otherwise instructed by your surgeon.

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.OFFICE VISIT:

Please arrange to return to Dr. Nelson's office 7-10 days after surgery

Rehabilitation after Rotator Cuff Repair

Phase One: 0 to 6 weeks after surgery

Goals:

1. Protect the rotator cuff repair (At 4 weeks post op the strength of the tendon repair is about 20% of a "normal" tendon attachment. Hence, prior to 6 weeks post op no active motion of the arm is permitted, as it may pull on the repair and disrupt the attachment of the tendon to the bone.)
2. Ensure wound healing
3. Prevent shoulder stiffness
4. Regain range of motion

Activities:

1. Sling

Use your sling most of the time. Remove the sling 4 or 5 times a day to do pendulum exercises.

2. Use of the affected arm

You may use your hand on the affected arm in front of your body but **DO NOT** raise your arm or elbow away from your body. It is all right for you to flex your arm at the elbow. Also:

*No Lifting of Objects

*No Excessive Shoulder Extension

*No Excessive Stretching or Sudden Movements

*No Supporting of Body Weight by Hands

3. Showering

You may shower or bath and wash the incision area. To wash under the affected arm, bend over at the waist and let the arm passively come away from the body. It is safe to wash under the arm in this position. This is the same position as the pendulum exercise.

Exercise Program

Days per week: 7 Times per day

Program:

- Pendulum exercises
- Supine Passive External rotation
- Supine passive arm elevation
- Passive scapular retraction
- Shoulder shrug
- Ball Squeeze exercises

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Rehabilitation after Rotator Cuff Repair

Phase two: 6 to 12 weeks after surgery

Goals:

1. Protect the rotator cuff repair
2. Improve range of motion of the shoulder
3. Continue strengthening

Activities

1. Sling

Your sling is no longer necessary unless your doctor instructs you to continue using it.

2. Use of the operated arm

You should continue to avoid lifting your arm away from your body, since this is the action of the tendon that was repaired. You can lift your arm forward in front of your body but **not** to the side. You may raise your arm to the side, if you use the good arm to assist the operated arm.

3. Bathing and showering

Continue to follow the instructions from phase one and the instructions above.

Exercise Program

The exercises listed below may be gradually integrated into the rehabilitation program under the supervision of your doctor and/or physical therapist.

Days per week: 5-7 Times per day: 1-3

Stretches

- Pendulum exercises
- Supine External rotation
- Standing External Rotation
- Supine passive elevation
- Active-Assisted elevation
- Behind the back internal rotation
- External rotation @90 degrees abduction
- Supine cross-chest stretch
- Wall slide stretch

Active Motion

- Side-lying External rotation
- Prone Horizontal arm raises “T”
- Prone Scaption “Y”
- Prone row

- Prone extension

Active motion continued

- Prone extension
- Standing forward flexion with scapulohumeral rhythm
- Resisted forearm supination-pronation
- Resisted wrist flexion-extension
- Isometric: internal and external rotation at neutral

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Rehabilitation after Rotator Cuff Repair

Phase Three: 12-18 weeks after surgery

1. Protect the rotator cuff repair
2. Regain full range of motion
3. Continue gentle strengthening

Activities:

Use of the operated arm

You may now safely use the arm for normal daily activities involved with dressing, bathing and self-care. You may raise the arm away from the body; however, you should not raise the arm when carrying objects greater than one pound. Any forceful pushing or pulling activities could disrupt the healing of your surgical repair.

Exercise Program

The exercises below form a list that may be gradually integrated into the rehabilitation program under the supervision of your doctor and/or physical therapist. Resistance for the dynamic strengthening exercises can gradually be added starting with 1 lb and should not exceed 3 lb at this time.

STRETCHING / ACTIVE MOTION / STRENGTHENING

Days per week: 3 Times per day: 1

Stretching

- As above as needed

Theraband

- External Rotation
- Internal rotation
- Standing forward punch
- Shoulder shrug
- Dynamic hug
- “W’s”
- Seated Rows
- Biceps curls

Dynamic strengthening

- Side-lying External Rotation
- Prone Horizontal Arm Raises “T”
- Prone Scaption “Y”
- Prone Row
- Prone Extension

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- Scapulohumeral proprioception and rhythm exercises

Rehabilitation After Rotator Cuff Repair

Phase 4: 18 to 26 weeks after surgery

Goals:

1. Continue to protect the repair by avoiding excessive forceful use of the arm or lifting excessively heavy weights.
2. Restore full shoulder motion
3. Restore full shoulder strength
4. Gradually begin to return to normal activity

Activities:

1. Sports that involve throwing and the use of the arm in the overhead position are the most demanding on the rotator cuff..
2. For people who wish to return to training with weights, Dr. Nelson or your therapist will give you guidelines regarding the timing and advice when returning to a weight-training program.
3. The following timetable can be considered as a minimum for return to most activities:

Ski	6 Months
Golf	6 Months
Weight Training	6 Months
Tennis	6-8 months
Swimming	6-8 months
Throwing	6-8 months

Before returning safely to your activity, you must have full range of motion, full strength and no swelling or pain.

Dr. Nelson or your physical therapist will provide you with a specific interval-training program to follow when it is time to return the above activities.

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Dr. Nelson's Rotator Cuff Repair Rehabilitation Protocol														
Diagnosis:														
Procedure date:	S/P:													
	WEEK										MONTH			
	1	2	3	4	5	6	7	8	9	10	3	4	5	6
PHASE 0 EXERCISES (week 0-6)														
Continue Shoulder immobilizer	•	•	•	•	•	•								
Pendulum	•	•	•	•	•	•	•	•	•	•				
Supine passive ER, forward elevation limit 120 shoulder shrug, scapular retraction	•	•	•	•	•	•	•	•	•	•				
Ball Squeeze	•	•	•	•	•	•	•	•	•	•	•	•	•	•
PHASE 2 EXERCISES (week 6-12)														
Continue stretches from prior	•	•	•	•	•	•	•	•	•	•				
Active-assisted elevation						•	•	•	•	•				
Behind Back IR						•	•	•	•	•				
Supine external with abduction						•	•	•	•	•				
supine cross chest stretch						•	•	•	•	•				
Side-lying ER						•	•	•	•	•				
Prone (T, Y, row, extension)						•	•	•	•	•				
forearm supination-pronation, and wrist (F/E)						•	•	•	•	•				
Isometric (IR and ER)						•	•	•	•	•				
PHASE 3 (weeks 12-18) Continue previous plus														
Theraband, ER, IR, fwd punch, shrug, dynamic hug, Ws												•	•	•
seated row												•	•	•
biceps curl												•	•	•
Side lying ER												•	•	•
Prone (T, Y, Row, Extension)												•	•	•
Rhythmic stabilization and proprioceptive												•	•	•
PHASE 4 (weeks 18-20) continue previous plus														
Side lying internal rotation (sleeper)														•
Weight training program														
Initiate plyometrics/interval sports program													•	•
May initiate pre injury level activities with clearance by Dr. Nelson														•
Return to play typically 5-6 months														
Call or email Dr. Nelson with any concern														
Additional Instructions:														