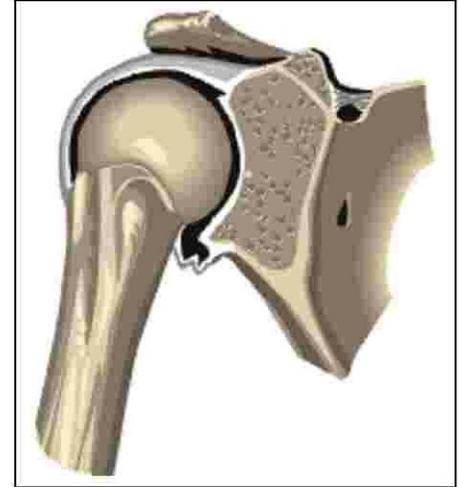


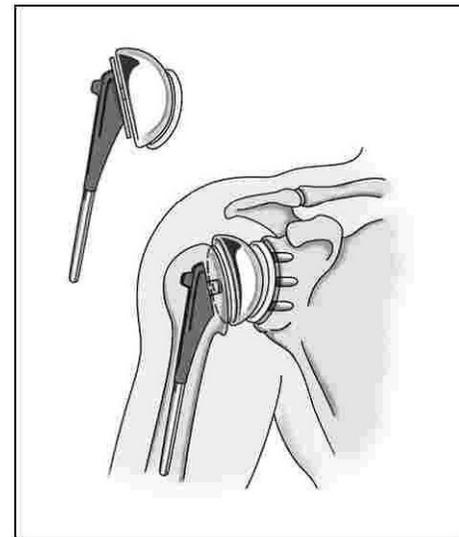
SHOULDER ARTHROPLASTY

The shoulder is a ball-and-socket joint that enables you to raise, twist, bend, and move your arms forward, to the sides and behind you. The head of the upper arm bone (humerus) is the ball and a circular depression (glenoid) in the shoulder bone (scapula) is the socket. A soft-tissue rim (labrum) surrounds and deepens the socket. The head of the upper arm bone is coated with a smooth, durable covering (articular cartilage) and the joint has a thin, inner lining (synovium) for smooth movement. The surrounding muscles and tendons provide stability and support.



Many people know someone with an artificial knee or hip joint. Less common, but just as successful in relieving joint pain, is a shoulder replacement (arthroplasty). This procedure may be recommended if arthritis or degenerative joint disease makes your shoulder stiff and painful or if the upper arm bone is fractured so badly that it is not likely to result in good function if repaired.

Shoulder replacement surgery replaces damaged joint surfaces with artificial pieces (prostheses). Usually, there are two components: The humeral component replaces the head of the upper arm bone. It is made of metal (usually cobalt/chromium-based alloys) and has a rounded ball attached to a stem that fits into the bone. This component comes in various sizes and can be a single piece or a modular unit.



The glenoid component replaces the socket (the glenoid depression). It is made of ultrahigh density polyethylene. Some versions have a metal tray, but totally plastic versions are more common.

Depending on the damage to your shoulder, your doctor may replace just the humeral head (a hemiarthroplasty) or more commonly, both the humeral head and the glenoid (total shoulder replacement). The components come in various sizes and shapes and are held in place with either acrylic bone cement (cemented) or bone ingrowth (cementless). As in the natural joint, the surrounding muscles and tendons provide stability for the prosthesis.



Shoulder Arthroplasty Post-Operative Orders

Dr. Abigail Hamilton, MD

You will wake up in the operating room. A sling will be in place. You will go to the recovery room in the PACU and then to your room on the floor after one or two hours. You can get out of bed when you wish but should ask for assistance to prevent falls. Apply ice to the shoulder to reduce pain and swelling.

You may remove the sling whenever you wish and gently move the elbow, wrist and fingers. Follow the doctor's instructions regarding use of the sling and moving your shoulder after surgery.

GOALS:

1. Control pain and swelling
2. Protect the repair
3. Begin early shoulder motion

ACTIVITIES WHEN YOU GO HOME:

1. Apply ice to the shoulder as tolerated to reduce pain and swelling. You can change the dressing to a smaller one to allow the cold to get to the shoulder.
2. Remove the sling on the first day after surgery. Move your elbow, fingers and hand several times a day. Begin the pendulum exercise several times a day:
3. Surgical dressing will remain in place until post-operative follow-up. You can get the dressing wet, but do not soak in a tub. To wash under the operated arm, bend over at the waist and let the arm passively swing away from the body. It is safe to wash under the arm in this position.
4. Keep your elbow slightly in front of your body; do not reach behind your body. When putting on clothing, lean forward and pull the shirt up and over the operated arm first. Then put the other arm into the opposite sleeve. To remove the shirt, take the unoperated arm out of the sleeve first, and then slip the shirt off of the operated arm.
5. Start the exercise program described and illustrated under Phase One in the following section

OFFICE VISIT: Please follow-up as scheduled 10-14 days post-op for wound evaluation and post-op progress check.

Rehabilitation after Shoulder Arthroplasty

Phase One: 0 to 6 weeks after surgery

GOALS:

1. Protect the shoulder arthroplasty
2. Ensure wound healing
3. Prevent shoulder stiffness

ACTIVITIES

1. Sling

Use your sling as instructed by your doctor. You may remove it whenever you wish if you are careful and keep the shoulder safe. Put the sling on when you are outside or in a crowd. Keep the sling on when sleeping at night for the first three or four weeks.

2. Use of the operated arm

You may use your hand on the operated arm as long as you do not rotate the arm externally or away from your body. You should bend your arm at the elbow and use your fingers and hand, such as to reach up and touch your face. Keep your elbow in front of you.

3. Bathing and showering

You may shower and let water run over the incision/dressing area. To wash under the operated arm, bend over at the waist and let the arm passively swing away from the body. It is safe to wash under the arm in this position. This is the same position as the pendulum exercise.

Do not submerge the incisions under water until cleared to do so. This is generally around post-op week #4.

4. Exercise Program

Begin the Phase One exercises described and illustrated in the following section

EXERCISE PROGRAM

ICE

Days per Week: 7 As necessary 15- 20 minutes
Times per Day: 4-5

STRETCHING / PASSIVE MOTION

Days per Week: 7
Times per day : 4-5

Program:

Pendulum exercises	1-2 sets	20- 30 reps
Supine External Rotation	1-2 sets	10-15 reps
Weeks 1to 6: Limit to 30 degrees		
Supine folward arm elevation	1-2 sets	5-10 reps
Weeks 1 and 2: limit to 90 degrees (straight <i>up</i>)		
Week 3: Full (as tolerated)		
Behind the back internal rotation	1-2 sets	5-10 reps

Shoulder stretching is divided into two phases. Phase 1, or passive range of motion, is always performed with the uninjured arm assisting or helping the operated arm. Phase 2, or active range of motion with a terminal stretch, is performed by the operated arm with the uninjured arm assisting for a "terminal stretch". In most instances wean off passive range of motion by using the uninjured arm in isolated incidents to assist the operated arm. The other major difference between passive and active stretching is the "terminal stretch". During active stretching and upon reaching your "endpoint" of pain or movement, push the operated arm with the uninjured hand another 5-10 degrees for additional movement. This final movement is labeled "terminal stretch". Maximum motion for each person remains the goal and terminal stretching will assist in achieving that goal.

All stretching exercises should be done slowly to maximize muscle and soft connective tissue involvement. When stretching, your goal is to reach the maximum range of motion for you. There is a reason for multiple sets and repetitions. This reason stems from "warming up" the shoulder so it can actually stretch further in the last few repetitions that you will do. The first few repetitious prepare the stiffened or swollen shoulder for initial movement.

Since there is more than one repetition per set, allow the first one or two repetitions to be **warm-up** reps, with very little pain. Gradually work into more and more range of motion. It is also important to allow pain to be your guide. Move the arm to an "endpoint" (that endpoint is dictated by the amount of pain). Your goal is to increase the endpoint as often as possible until you have reached the full range of motion. As far as pain, you want to avoid excruciating pain, but "discomfort" is tolerated as long as the pain does not remain for a prolonged period of time. A basic rule to follow when stretching is, **if** the pain does not linger, you did not stretch too far.

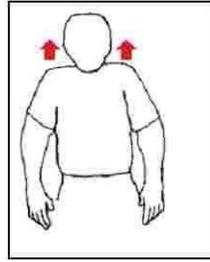
1. Pendulum exercise

Bend over at the waist and let the arm hang down. Using your body to initiate movement, swing the arm gently forward and backward and in a circular motion.



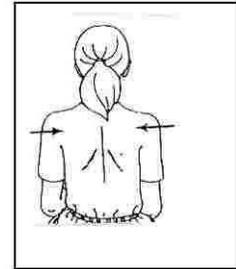
2. Shoulder shrug

Shrug shoulders upward as illustrated .



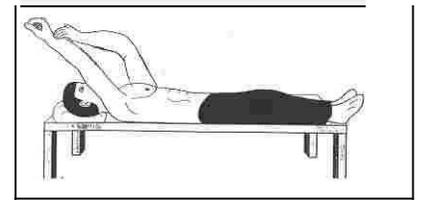
3. Shoulder blade pinches

Pinch shoulder blades backward and together, as illustrated.



4. Supine forward arm elevation

Lie on your back. Hold the affected arm at the elbow with the opposite hand. Assisting with the opposite arm, lift the affected arm upward, as if to bring the arm overhead, slowly lower the arm back to the bed.



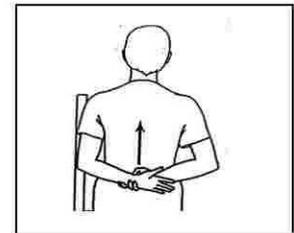
5. Supine external rotation

Lie on your back. Keep the elbow of the affected arm against your side with the elbow bent at 90 degrees. Using a cane or long stick in the opposite hand push against the hand of the affected arm so that the affected arm rotates outward. Hold 10 seconds, relax and repeat. Limit rotation away from the side to 30 degrees for the first 6 weeks after surgery



6. Behind-the-back internal rotation

Sitting in a chair or standing, place the hand of the operated arm behind your back at the waistline. Use your opposite hand, as illustrated, to help the other hand higher toward the shoulder blade. Hold 10 seconds, relax and repeat.



Office Visit

Please follow-up as scheduled 4 weeks following your first post-operative visit (6 weeks after surgery). If you have questions, call Sarah, Dr. Hamilton's care coordinator at 763-302-2107.

Rehabilitation after Shoulder Arthroplasty

Phase Two: 6 to 8 weeks after surgery

GOALS:

1. Protect the shoulder and avoid overstressing the arthroplasty
2. Improve range of motion of the shoulder
3. Begin strengthening exercises

ACTIVITIES :

1. Sling

The sling is no longer necessary.

2. Use of the operated arm

You may now use your arm. Avoid having the arm forcefully pulled in any direction. Continue to avoid heavy weight lifting or manual labor. Follow any further instructions given to you by your doctor.

3. Precautions

Do not lift heavy weights overhead with the weight going behind the head. In other words, keep the weights in front of you where you can see them. You may lift as a general rule 15-20 lbs ground to waist level. 10 lbs up to shoulder level and only 2 lbs. above shoulder level at this time.

EXERCISE PROGRAM

ICE

Days per week: 7

Times per day : 4-5 As necessary 15-20 minutes

STRETCHING / ACTIVE MOTION

Days per week: 7

Times per day : 3-4

Program: 1-2 sets 20-30 reps

Pendulum exercises

Supine External Rotation 1set 10-15 reps

Standing External Rotation 1set 10-15 reps

Week 3: limit to 30 degrees

Week 4: limit to 45 degrees

Supine passive arm elevation 1set 5-10 reps

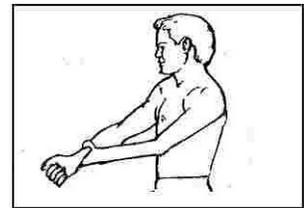
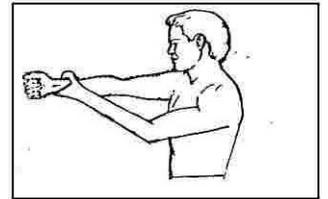
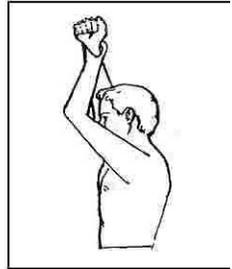
Seated-Standing Arm Elevation 1 set 5-10 reps

Behind the back internal rotation 1-2 sets 5-10 reps

Exercises

1. Standing Forward Elevation (Overhead Elbow Lift)

This exercise allows the patient to begin arm elevation actively, against gravity, with the assistance of the unaffected arm. Over several days or weeks, you will need less and less assistance with the unaffected arm, until you can raise the arm up overhead under its own strength. The starting position for this exercise is standing and looking straight ahead. The use of a mirror to watch your mechanics as you perform the exercise is helpful. Start with your hands in front of either the thighs with the operated thumb facing forward. Again, in the beginning of phase 2, this exercise is not performed solely with the operated arm, but uses the unaffected hand for assistance going up and coming down. Keep your elbow straight and extended. The operated arm is lifted forward as high as possible, or to your endpoint of pain. Try to allow the arm to rotate at the shoulder by not allowing the shoulder blade to elevate or 'hike'. Pause and hold at the top overhead position for 3 to 5 seconds. Slowly lower the arm to the starting position and slowly repeat as shown in the illustration. As a precaution to avoid placing excessive tension on the surgical repair, avoid pain while doing this exercise, especially when lowering the arm. Use more assistance from the unaffected arm to help the affected arm through the painful arcs of motion.



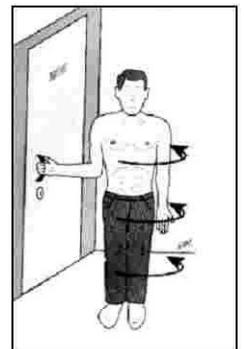
2. Supine cross-chest stretch

Lying on your back, hold the elbow of the operated arm with the opposite hand. Gently stretch the elbow toward the opposite shoulder. Hold for 10 seconds.



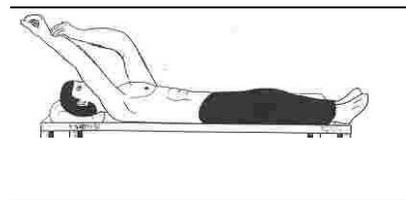
3. Standing external rotation

Stand with the operated shoulder toward a door as illustrated. While keeping the operated arm firmly against your side and the elbow at a right (90 degree) angle, rotate your body away from the door to produce outward rotation at the shoulder.



4. Supine passive arm elevation

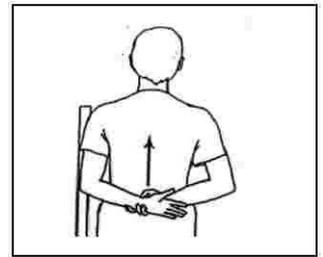
Continue this exercise from phase two, stretching the arm overhead. Hold for 10 seconds.



5. Behind the back stretching

While standing with the affected arm hanging loosely at your side, swing the hand of the affected arm behind your back as shown in the illustration. Be sure not to lift the arm actively away from the body as you try to get the hand behind the back, but let it hang loosely and swing behind the back gently as shown

Try to grasp the hand of the affected arm with the hand of the unaffected arm and try to begin attempting to get the hand and forearm to the waistline as shown. Use the hand of your unaffected arm to guide the hand of your affected arm as shown in the illustration. Later as the exercise becomes more comfortable, you can try to stretch the hand up the back toward the opposite shoulder blade.



Rehabilitation after Shoulder Arthroplasty

Phase Three: 8 to 10 weeks after surgery

Goals:

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

Activities:

1. Sling

The sling is no longer necessary.

2. Use of the operated arm

You may now use your arm in a more normal fashion. You may move the arm into all positions including external rotation and behind the back if it is comfortable. Avoid having the arm forcefully pulled in any direction. Continue to avoid heavy weight lifting or manual labor. Follow any further instructions given to you by the doctor.

3. Precautions

Do not lift heavy weights overhead with the weight going behind the head. In other words, keep the weights in front of you where you can see them.

Exercise Program

STRETCHING / ACTIVE MOTION

Days per week: 7

Times per day : 1-2

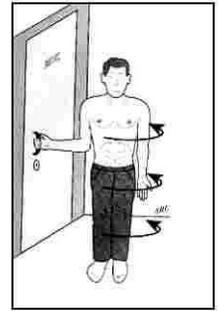
Pendulum exercises	1-2 sets	20- 30 reps
Standing External Rotation / Doorway	1set	5-10 reps
Wall Climb Stretch	1set	5-10 reps
Standing Forward Flexion	2 sets	10-20 reps
Behind the back internal rotation	1-2 sets	5-10 reps
Supine External Rotation with Abduction	1set	5-10 reps
Supine Cross Chest Stretch	1set	5-10 reps
Side-lying External Rotation	1set	10-20 reps
Prone Horizontal Arm Raises	1set	10-20 reps

STRENGTHENING / THERABAND

External Rotation	1-2 sets	15-20 reps
Internal Rotation	1-2 sets	15-20 reps
Standing Forward Punch	1-2 sets	15-20 reps
Shoulder Shrng	1-2 sets	15-20 reps
Seated Row	1-2 sets	15-20 reps
Biceps Curl	1-2 sets	15-20 reps

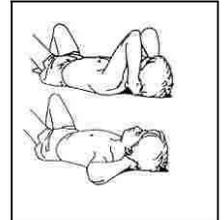
1. Standing external rotation

Stand with the operated shoulder toward a door as illustrated. While keeping the operated arm firmly against your side and the elbow at a right (90 degree) angle, rotate your body away from the door to produce outward rotation at the shoulder. Hold 10 seconds.



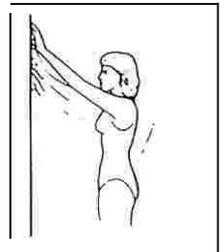
2. Supine external rotation with abduction

Lie on your back. Place your hands behind your head as shown in the top illustration. Slowly lower your elbows to stretch the shoulders toward the position shown in the lower illustration. Hold for ten seconds, then return to the starting position. Do this exercise ten times, three times a day.



3. Wall climb

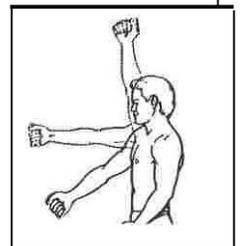
Stand facing a wall, place the fingers of the affected arm on the wall. Using the fingers as "feet", climb the hand and arm upward. As you are able to stretch the hand and arm higher, you should move your body closer to the wall. Hold 10 seconds, lower the arm by pressing the hand into the wall and letting it slide slowly down.



4. Standing forward flexion

Stand facing a mirror with the hands rotated so that the thumbs face forward. Raise the arm upward keeping the elbow straight. Try to raise the arm by hinging at the shoulder as opposed to raising the arm with the shoulder blade. Do 10 repetitions to 90 degrees.

If you can do this without hiking the shoulder blade, do ten repetitions fully overhead.



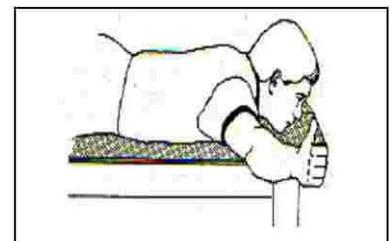
5. Side-Lying external rotation

Lying on the non-operated side, bend the elbow to a 90 degree angle and keep the operated arm firmly against your side with your hand resting on your abdomen. By externally rotating the shoulder, raise the hand upward toward the ceiling through a comfortable range of motion. Hold this position for 1 to 2 seconds, then slowly lower the hand.



6. Prone or bent-over horizontal arm raise

Lie face down on your bed with the operated arm hanging freely off of the side (or bend over at the waist as if doing pendulum exercises). Rotate your hand so that the thumb faces away from you. Slowly raise the arm away from your body through a pain-free range of motion. Hold that position for 1 to 2 seconds and slowly lower.

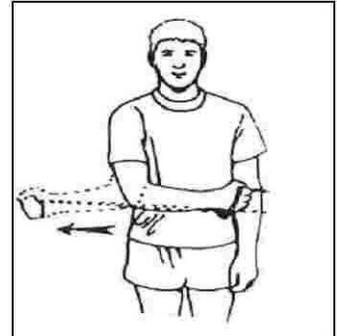


Theraband Strengthening

These resistance exercises should be done very slowly in both directions. Your goal is to achieve a maximum amount of strengthening while listening to your endpoint of pain. Obviously, we want to strengthen you throughout the full range of motion. It is very important that these exercises be done very slowly, not only when you complete the exercise (concentric), but also as you come back to the start position (eccentric). The slower the motion, the more maximal the contraction throughout a full range of motion.

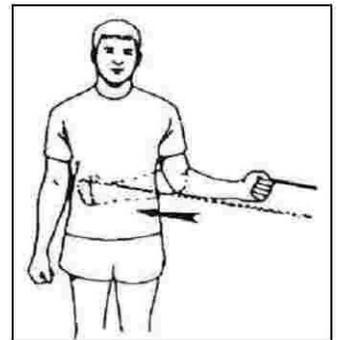
1. External Rotation

Attach the theraband at waist level in a door jamb or other. While standing sideways to the door and looking straight ahead, grasp one end of the band and pull the band all the way through until it is taut. Feet are shoulder width apart and the knees are slightly flexed. The operative side elbow is placed next to the, side with the operative side hand as close to your chest as possible (think of this elbow as being a hinge on a gate). Taking the cord in the operative side hand, move the hand away from the body as far as it feels comfortable (at least 90 degrees is our goal), or to where the, endpoint of pain limits you. Return to the start position; if you would like, during future repetitions go a few more degrees to work more of a range of motion.



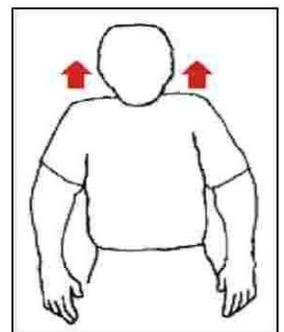
2. Internal Rotation

Attach the Theraband at waist level in a doorjamb or other. While standing sideways to the door and looking straight ahead, grasp one end of the handle and pull the cord all the way through until it is taut. Feet are shoulder width apart and the knees are slightly flexed. The operative side elbow is placed next to the side and is flexed at 90 degrees (think of this elbow as being a hinge on a gate). Taking the cord in the operative side hand, move the hand toward the chest as far as it feels comfortable, or to where the endpoint of pain limits you. Return to the start position



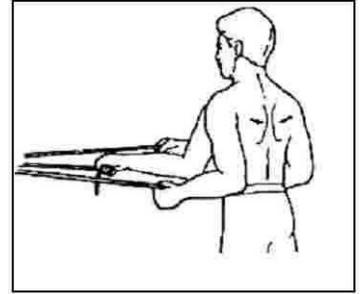
3. Shoulder Shrug

Stand on the theraband with your feet at should width apart and look straight ahead. Next, straighten up keeping the knees slightly flexed, with your arms straight down at the sides (palms in). Slowly raise the, shoulders in a shrug (toward the ears), then rotate the shoulders backward in a circular motion, and finally down to the original position. This movement is completed while keeping constant tension on the cord.



4. Seated/ Standing Row

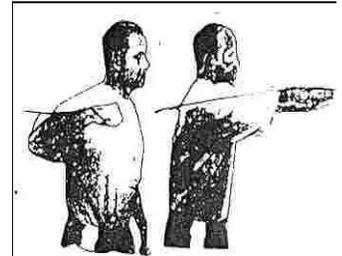
Attach the theraband in a door jamb or other. Sit or stand facing the door. Use a wide flat footed stance and keep your back straight. Begin with the arms slightly flexed, hands together at waist level in front of your body, thumbs pointing upward and with the cord taut. You are producing a rowing motion. Pull the cord all the way toward the chest. While pulling the cord, the elbows should be drawn along the side of the body until the hands touch the lower ribs. Always return slowly to the start position.



5. Standing Forward Punch

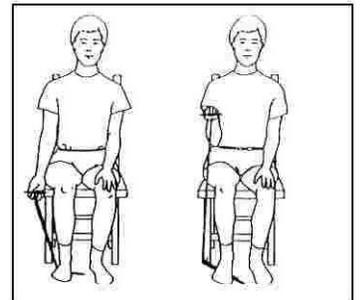
Attach the theraband at waist level in the doorjam. Facing away from the door, stand in a boxing position with one leg ahead of the other (stride position). Do not bend at the waist and remain in an upright position. If the right shoulder is the operative extremity, you will want to grasp the handle in the right hand and step out until the cord is taut. If you use the right hand, the left foot should be forward in the stride position.

Begin with your right arm at waist level and bend the elbow at a 90 degree angle, with the elbow remaining near your side. Slowly punch forward while slightly raising the right arm in a forward, upward punching motion. The hand should reach approximately neck level with the right arm almost straight.



6. Biceps Curls

Place your feet on the cord, shoulder width apart, knees slightly bent. Keeping your elbows close to the sides of your body, slowly bend the arm at the elbow and curl towards the shoulder. Alternate arms while performing this exercise.



Rehabilitation after Shoulder Arthroplasty
Procedures:

Post-op phase	Sling	Range of Motion	Stretching Exercises	Strengthening exercises	Precautions
Phase 1 0-6 weeks after surgery	Per MD instructions	Supine FF as tolerated ER limit to 30 IR behind back starting week 3	Gentle stretching only per Phase 1	No	Avoid ER in abduction. ER beyond 30 Extension .
Phase 2 5-8 weeks after surgery	<i>D/C</i>	Begin active-assisted and active ROM per phase 2	Horizontal adduction, ER, IR, Flexion.	No	Continue to avoid ER in abduction. Cautiously improve ER.
Phase 3 8-12 weeks after surgery	<i>No</i>	Gradually improve ROM in all planes	All planes. Avoid excessive extension, and ER	Theraband exercises Scapulohumeral Rhythm exercises PRE 1-3 lb.	Continue same as above

Post-op Phase	Stretching Exercises	Strengthening exercises	Return to Sports	Precautions
Phase 4 12- 24 weeks after surgery	Gradually stretch to full ROM	Light weight training can begin	Per MD	See weight training precautions. Continue to avoid excessive or forceful extension and ER
Phase 5 24 weeks after surgery	Full ROM	Full return Continue to observe precautions	Golf, tennis, swimming	Weight training precautions.