



**CLEVELAND
SHOULDER
INSTITUTE**

In Partnership with



**CLEVELAND
ORTHOPEDIC & SPINE
INSTITUTE**

*Patient guide to
understanding*
**REVERSE TOTAL
SHOULDER
REPLACEMENT**

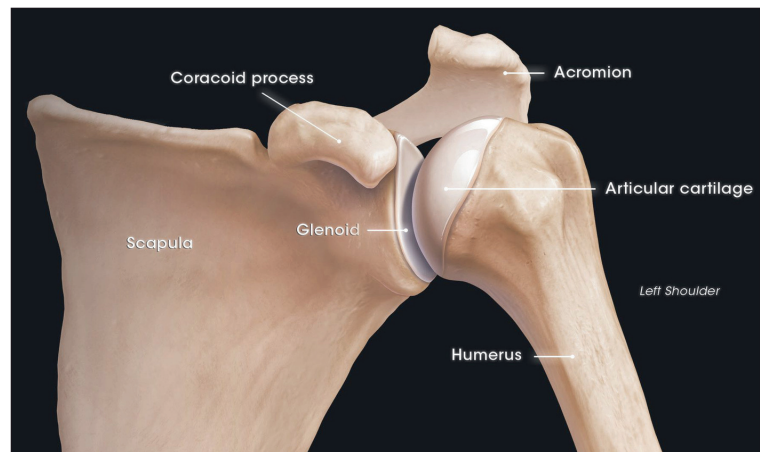
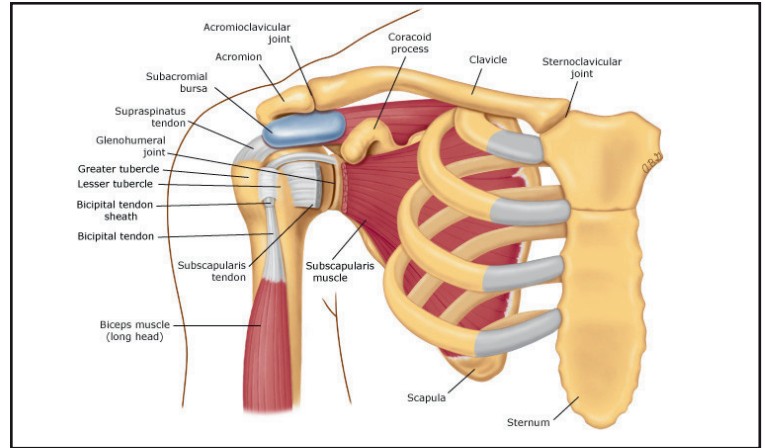
**300 Allen Bradley Drive
Mayfield Heights, OH 44124
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Anatomy and Function of the Shoulder

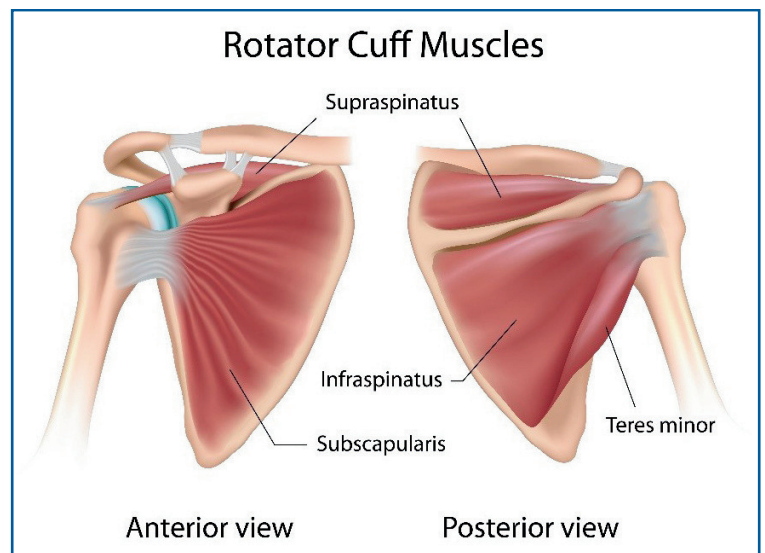
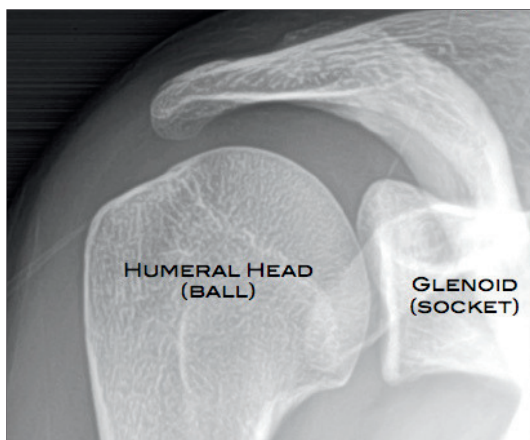
Shoulder Anatomy

The shoulder functions by means of four bony joints: the glenohumeral joint, acromioclavicular joint, sternoclavicular joint and the scapulothoracic joint. The main group of muscles that helps to control the shoulder's movement and keep it stable are called the rotator cuff muscles. The rotator cuff consists of the supraspinatus, infraspinatus, subscapularis and teres minor.

The main shoulder joint is the glenohumeral joint and is described as a ball and socket joint. The ball portion is comprised of the upper arm bone (humerus) and the socket is a part of the shoulder blade (scapula). In a healthy joint, there is cartilage covering the surfaces of the humeral head and the glenoid. These surfaces are smooth and allow for minimal wear and friction on the underlying bones.

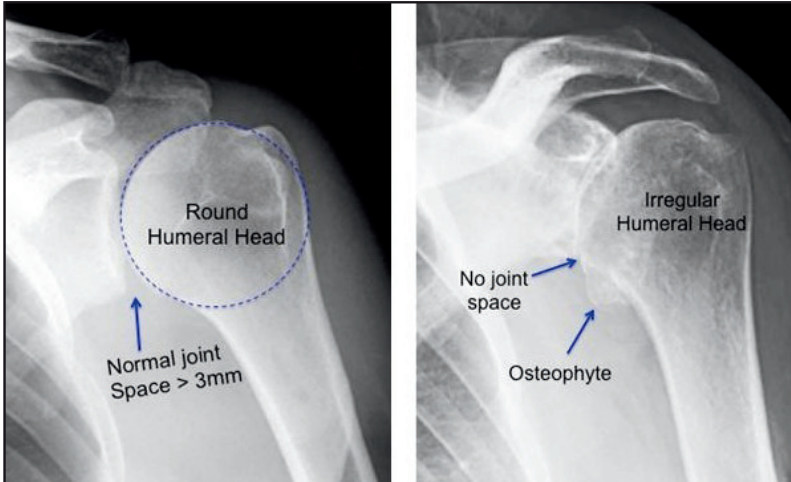


Normal Shoulder X-ray



Osteoarthritis in the Shoulder

Arthritic Shoulder



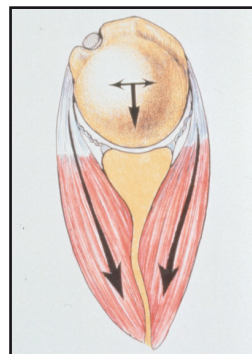
In an arthritic shoulder, the normal cartilage (smooth surface of joint) is worn away, and there may be bone-on-bone without the normal smooth gliding surfaces. The joint may also become irregular from bony growth (osteophytes), which is the body's attempt to heal the cartilage injury.

Pain is usually due to the irregular joint surfaces rubbing on one another and from the inflammation of this wear and tear.

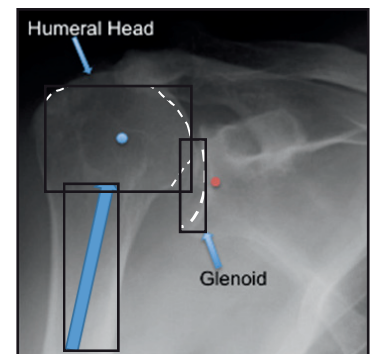
In the case of certain types of arthritis, there can also be damage to the rotator cuff tendons. These are tendons that encircle the humeral head (ball) and help to keep the humeral head in the glenoid (socket) when the arm is elevated. These tendons also help to rotate the humerus on the glenoid so the arm can be raised.

Without normal function of the rotator cuff, the humeral head may move upward out of the glenoid socket, making it difficult or impossible to raise up the arm. If a total shoulder replacement is used in this situation, the humeral head usually remains upward out of the socket and elevation of the arm is impossible

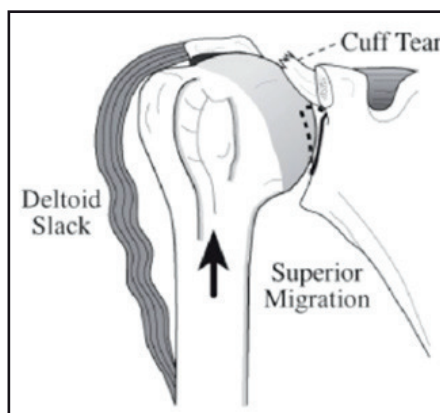
Stabilizing effect of joint compression



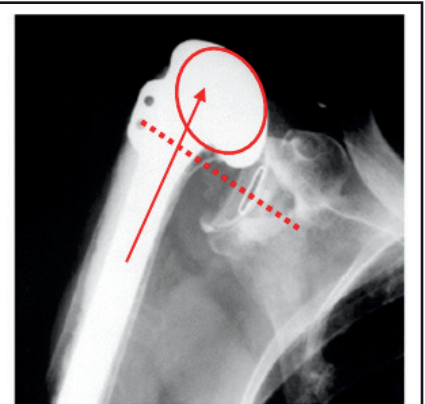
Humeral Head moving out of socket



Humeral prosthesis is dislocated upward out of the joint.



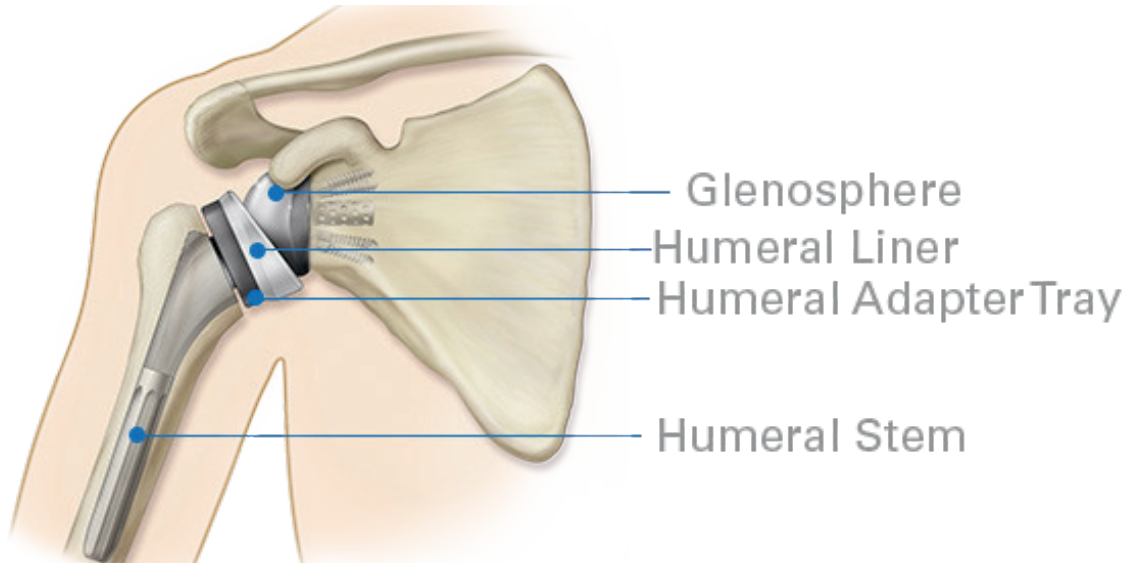
Patient unable to raise arm.



Reverse Total Shoulder Replacement Surgery

The reverse total shoulder replacement changes the orientation of the shoulder so that the normal socket (glenoid) now is replaced with an artificial ball, and the normal ball (humeral head) is replaced with an implant that has a socket into which the artificial ball rests.

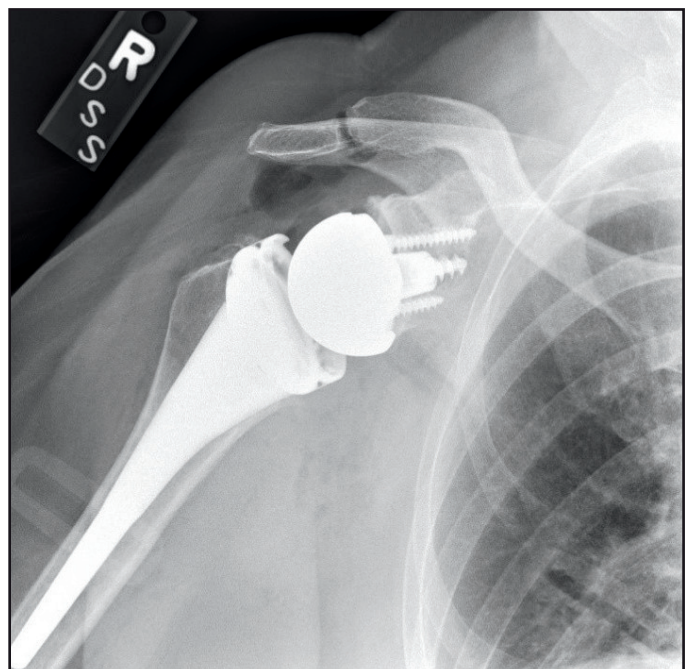
This type of design completely changes the mechanics of the shoulder and enables the artificial joint to function when the rotator cuff is either absent or when there is significant bone loss.



The reverse total shoulder replacement is recommended for patients with one or more of the following:

1. Painful rotator cuff tear arthropathy in older patient
2. Failed fracture repair with loss of rotator cuff older patient
3. Failed prior shoulder replacement surgery

X-ray of Reverse Total Shoulder Replacement



Reverse Total Shoulder Replacement Surgery

The benefit of the reversal of the shoulder joint is that it allows the deltoid muscle to lift the shoulder instead of the rotator cuff, which cannot lift due to irreparable tear. Reversing the ball and socket changes the mechanics of the shoulder to improve active range of motion and strength. The result is that the patient can raise his/her arm higher and even sometimes overhead.

What to expect from shoulder replacement surgery

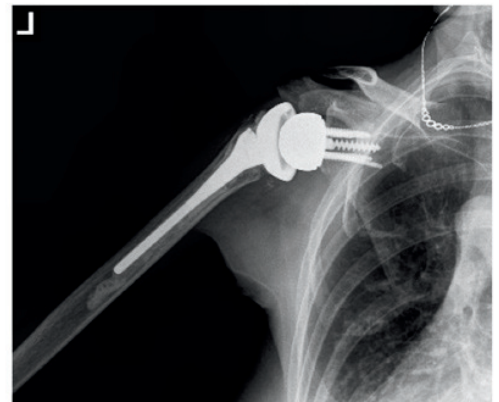
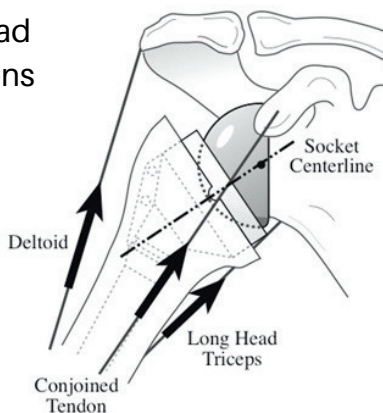
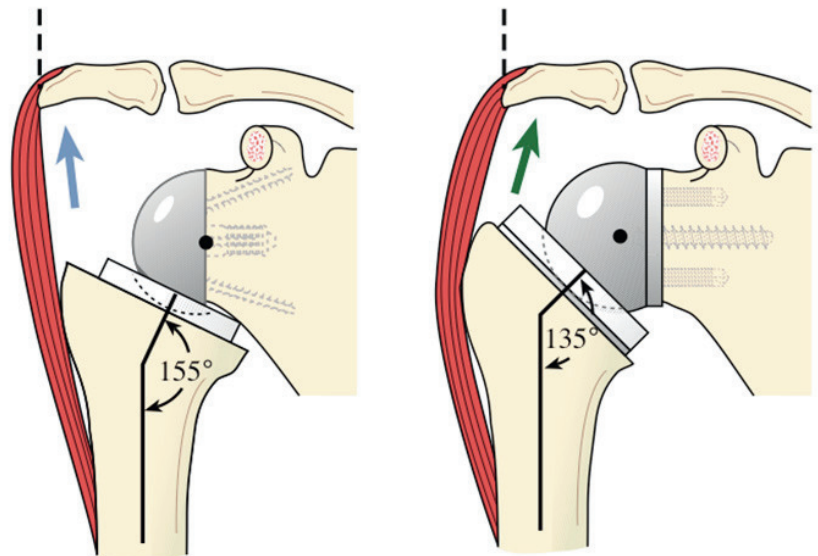
Most patients report minimal or no pain after surgery, and most can raise the arm much higher than before surgery. During shoulder replacement surgery, the damaged portions of the bone are removed and smooth metal and plastic implants are placed over the surface.

How does the prosthesis work?

A reverse total shoulder replaces the humeral head and glenoid, but with the spherical component at the prior glenoid position and the plastic humeral cup at the prior humeral head position - opposite or reverse positions to that of the total shoulder replacement.

Your artificial joint, or prosthesis, will function very similarly to a regular, healthy joint. A joint replacement provides pain relief for an overwhelming majority of patients. Most patients can also expect to regain near normal movements. Your artificial joint will enable you to resume most of your normal activities.

Mechanics of reverse shoulder replacement



Reverse Total Shoulder Replacement Surgery

Before Surgery

Several steps are necessary before surgery:

- You may need special x-rays, a CT Scan or an MRI.
- You may need to have a consultation with an anesthesiologist if you have a history of medical problems (i.e. heart disease, diabetes, asthma).
- Your primary care physician or any specialist (cardiologist, etc.) whose care you may be under should send our office a summary of your medical conditions and an assessment of your readiness for surgery.
- In some cases, you may need to obtain an EMG (electromyography) study to determine if the nerves which make the muscles work properly in your shoulder are indeed functioning normally.
- The following are reasons NOT to proceed with surgery:
 - Active infection
 - Nerve injury affecting deltoid function
 - Young patient with expectations for heavy use of shoulder

The Day of Surgery

It is important to follow the instructions given for the night prior to surgery. You should not have anything to eat or drink after midnight on the night before surgery. Your primary care physician, or the anesthesiologist you see before surgery, will tell you whether to take usual medications before surgery.

On the day of surgery, you will arrive at the surgery center two hours prior to your scheduled surgery to check in and be prepared by the anesthesiologist and nursing staff. Visitors are limited to two people, 12 years or older. A staff member will escort all visitors to pre-op.

After completing the pre-op process, the patient will be taken to the operating room. During the procedure, the staff can provide updates on the progress of the surgery and estimated time of completion.

The surgery usually takes 30 minutes, but revision surgeries may take longer. The time spent in the recovery room (PACU) is usually an additional two to three hours. The PACU is a specialized care area for patients only (no visitation), where you are closely monitored following your procedure. Please note that it will be about one hour before the nurse will provide any updates from the PACU. However, visitors may inquire any time about the patient's progress by speaking with a surgical waiting area staff member.

Most reverse replacements are outpatient procedures, allowing the patient to go home the day of surgery.

Based on your discussion with the anesthesiologist prior to surgery, you may also have a nerve block. This is given to you before surgery, and the pain relief may last well into the evening after surgery.

While a blood transfusion is rare, it may occasionally be necessary, so you may discuss donating your own blood in advance of surgery so it can be transfused if you need it after surgery.

When you are discharged from the surgery center you will need someone to take you home. Some patients will need assistance at home, so family should be aware that you will need help with simple daily living chores such as dressing, cooking and eating. In some circumstances, it may be necessary to discuss going to a supervised rehabilitation facility for a period after surgery until you can begin actively using your operated arm.



Total Shoulder Replacement Surgery

What to Expect After Surgery

Your arm will be placed in a sling. The shoulder will be a bit stiff and sore, but these symptoms will get better quickly. The incision on your shoulder will be held closed by staples. Covering the shoulder will be a simple gauze dressing held in place with tape.

Follow Up Visits

Ideally, our medical staff will want to see you within the first week after your surgery to assess that your wounds and surgical repair are healing properly and all is going well. The gauze bandaging will be removed at this visit. Additional follow up visits will be scheduled at two weeks post operatively to remove the staples if applicable, and then every four weeks to monitor your progress. If you have traveled from a distance, it would be possible to visit a local physician and then see us back in the office at the 6 to 8-week mark. Several x-rays will be ordered at this follow up visit. Additional follow-up will be as needed.

Potential Complications

While this surgery is widely successful, some complications have been reported. When this surgery is performed for difficult cases or co-existing conditions, the complications rate may be higher than standard shoulder replacement. Potential complications include:

- Infection and/or instability of the joint replacement
- Fracture of either the humerus or glenoid bone
- Nerve injury



Risks of Any Surgery

As with any surgery, shoulder replacement carries some risk, however, it has been shown to be safe with few complications.

Risks from arthroplasty

- Bleeding
- Infection
- Nerve Damage
- Blood clots

Risks from anesthesia

- Allergic reaction to medication
- Problems breathing

Additional Risks

- Stiffness or limitations of movement
- Failure of the surgery to relieve symptoms
- Failure of the repair to heal
- Loosening of prosthesis
- Weakness of the shoulder
- Re-injury



Total Shoulder Replacement Surgery

When to Call The Doctor

Complications following surgery are rare, however, it's important to be on the lookout for signs of infection. Should any of the following occur, contact your surgeon's office immediately.

- Yellow/green drainage from the wound for more than 24 hours
- Redness or a foul odor develops around the wounds
- Pain cannot be controlled with medication
- Chills, fever above 101 F
- Vomiting, diarrhea

Prolonged nausea and vomiting may be a sign of adverse reaction to medication, anesthesia or pain medication. Your physician should be contacted in this case.

How do I relieve pain?

- Wear your sling as directed and follow all precautions given by your surgeon.
- Take prescribed medications as directed. Don't wait for the pain to get bad before you take them.
- Ice at least 3 times/day for 15-20 minutes at a time. A crushed ice pack, commercial cold pack or bag of frozen vegetables all work well as sources of cold. Put a thin cloth between your skin and the ice source. Cold/ice can be used in cases of acute inflammation (hot, red and swollen) for relief of pain and muscle spasm, and after an exercise session.



Self Care for the Shoulder

You may take your arm out of the sling for daily living activities, such as eating, drinking, showering, shaving and dressing. Otherwise, you should stay in the sling for one week and not re-bandage the wound.

Bathing: You may remove gauze pad bandage once you arrive home. You may shower one day after surgery. Do not soak the shoulder under water. Do not remove steri-strips; they will fall off after 2 weeks.

Sling: Wear the sling for one week for comfort only. Take the arm out daily to move elbow, wrist, and hand. Use your arm to eat, drink, shower, and shave.

Driving: You are permitted to drive once you are off pain medication and feel comfortable doing so.

Please Note: You will need to take prophylactic antibiotics before dental procedures, colonoscopies or other invasive procedures. This consists of Amoxicillin (2 grams) one hour prior to procedure. If you have a penicillin allergy, you should take Clindamycin 600 mg one hour prior to procedure. Your dentist or our office can prescribe this. You can call the office if you have questions about antibiotic therapy following your surgery.



Total Shoulder Replacement Surgery

How long until full recovery?

The time it takes to return to unlimited activity following surgery will depend on:

- The nature of the original problem
- The type of surgery that was performed
- The amount of repair that was done
- The individual patient

Usually, at least six weeks of recovery time is required. General light activity will be limited but this gradually improves as the range of motion and strength becomes more equal to the other arm.

When will I begin physical therapy?

The initial focus of physical therapy will be on pain management as well as range of motion of the shoulder and surrounding joints to avoid stiffness.

Physical therapy is often the most important part of treatment. Chances of a full recovery increase when the exercises are done regularly. After one week in the sling, you may begin therapy.

This therapy program is usually divided into phases:

Phase I **Duration: 1 week**

Pendulum exercises, passive (assisted) motion performed by you or a therapist. No strengthening or resistance exercises.

Lay on your back, start with 10 reps in morning, 10 in afternoon, 10 in evening. Increase to 15/15/15 in 4-5 days, then again to 20/20/20 towards end of week.



Phase II **Duration: 1 week**

Lay on your back, perform same motion as Phase I only this time doing it on your own and without assistance (active).

Between 3-4 weeks post-surgery, once you are able to start moving your arm over and back without assistance, you can start moving your arm up the wall with a washcloth. Use your other arm for assistance to start.

Phase III

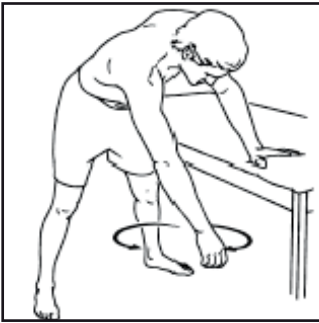
Once you have mastered the wall climb without assistance, you can start using your arm for normal function and activities.

**** PLEASE NOTE ****

We do not recommend using bands or weights for the first three months after surgery. Using weights can lead to bone fracture in the shoulder. Please avoid use of weights until your doctor give you permission.

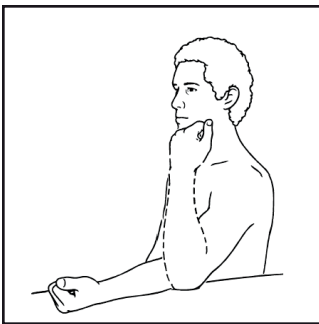


Home Exercise Program: Shoulder



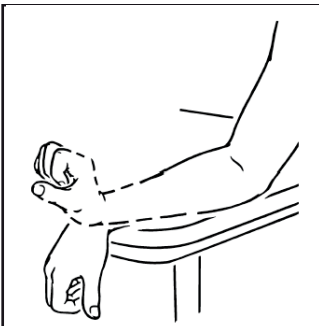
Pendulum Sway

1. Sway your whole body slowly to move arm forward and backward. Do not let the arm tense up. Use only your body movement to begin the motion - not your arm muscles.
2. Repeat, with the arm moving side to side.
3. Repeat, with the arm moving in circular patterns, clockwise and counter clockwise.
4. 15 repetitions, 2 sets, 3-5 times/day.



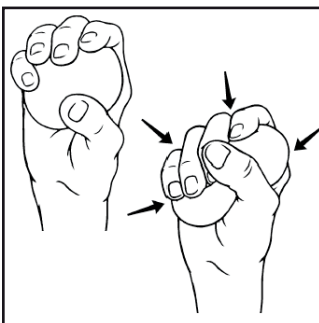
Elbow Flexion/Extension

1. Stand with arm straight, palm of hand facing forward.
2. Bend elbow, raising hand up towards shoulder
3. Hold for 3-5 seconds
4. 15 repetitions, 2 sets, 3-5 times/day.



Wrist Extension

1. Bend wrist as shown.
2. Hold for 3-5 seconds
3. 15 repetitions, 2 sets, 3-5 times/day.

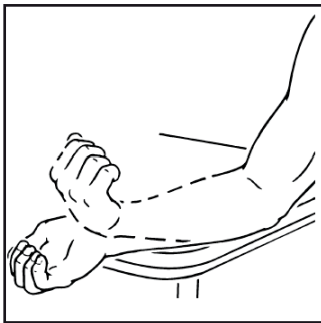


Ball Squeeze

1. Hold ball as shown.
2. Squeeze ball as firmly as you can.
3. Hold for 3-5 seconds
4. 15 repetitions, 2 sets, 3-5 times/day.

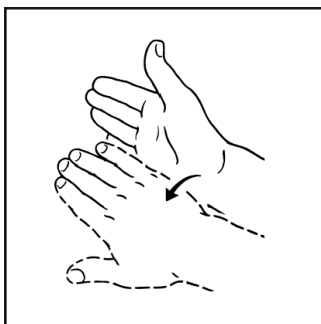


Home Exercise Program: Shoulder



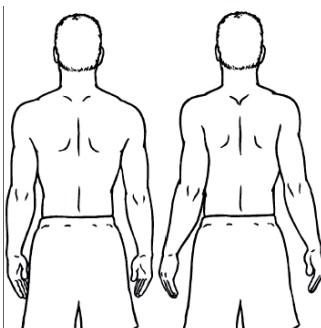
Wrist Flexion

1. Bend wrist as shown.
2. Hold for 3-5 seconds.
3. 15 repetitions, 2 sets, 3-5 times/day.



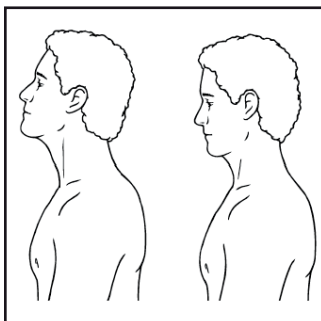
Pronation/Supine

1. Begin with palm facing down.
2. Turn palm upward.
3. Hold for 3-5 seconds.
4. 15 repetitions, 2 sets, 3-5 times/day.



Scapula Sets

1. Assume upright posture with shoulders relaxed.
2. Pinch shoulder blades together as shown.
3. Hold for 3-5 seconds.
4. 15 repetitions, 2 sets, 3-5 times/day.



Cervical Retraction

1. Sit or stand with good posture.
2. Tuck chin backward without tilting head up.
3. Use hand on chin for extra stretch as needed.
4. Hold for 5 seconds
5. 15 repetitions, 2 sets, 3-5 times/day.





CLEVELAND SHOULDER INSTITUTE

The Cleveland Shoulder Institute treats patients with all types of shoulder and elbow disorders resulting from traumatic injuries, arthritis, instabilities, rotator cuff and sports-related injuries. Led by internationally recognized Orthopedic Surgeon Reuben Gobezie, MD, the institute provides both surgical and non-operative treatments.

About the Cleveland Orthopedic and Spine Institute

The Cleveland Orthopedic & Spine Institute is fortunate to host some of the area's finest surgeons to care for your needs. Led and independently owned by renowned orthopedic surgeons, the advanced orthopedic specialists at Cleveland Orthopedic and Spine Institute are highly trained and specialized in pain management, orthopedic and joint replacement care and surgeries.

The combination of these specialized approaches along with the group's philosophy on multimodal pain management and efficient check-in and check-out protocols make the outpatient surgery experience exceptional for all patients. The state-of-the-art 33,000 square foot facility is a modern concept in low-cost, high-quality care and rehabilitation.

The group is comprised of board-certified orthopedic specialists: Nicholas Callahan, D.O., Reuben Gobezie, M.D., Mark Grubb, M.D., Adam Hedaya, M.D., Atul Kamath, M.D. and Louis Keppler, M.D..



Dr. Louis Keppler and Associates

Kamath Orthopedics

Reuben Gobezie, MD and Nicholas Callahan, DO

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