



**TWIN CITIES ORTHOPEDICS**

# **TOTAL SHOULDER REPLACEMENT**



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## HOW THE SHOULDER WORKS

The shoulder is the most mobile joint in the human body providing extensive range of motion allowing you to place your arm in many different positions. With increased mobility, there is always a decrease in stability making the shoulder susceptible to injury.

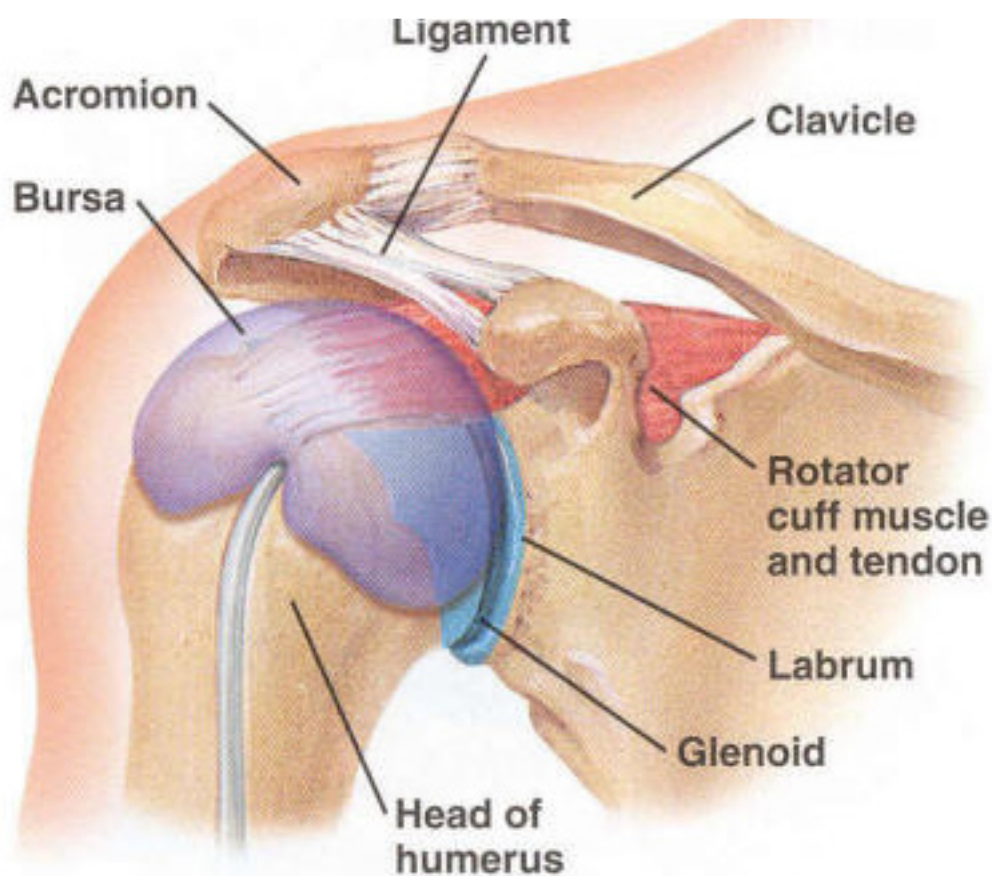
The shoulder is a ball and socket joint and is made up of three bones: the upper arm bone (humerus), shoulder blade (scapula) and collar bone (clavicle).

The ball at the top end of the arm bone fits into the small socket (glenoid) of the shoulder blade to form the shoulder joint (glenohumeral joint). A common comparison is that of a golf ball sitting on a golf tee. The socket of the glenoid is surrounded by a soft-tissue rim (labrum). The labrum increases the stability of the shoulder deepening the socket and creating negative pressure similar to a suction cup. To help with smooth articulation of the shoulder joint, there is a smooth, durable surface (articular cartilage) on the head of the arm bone along with a thin lining of the joint (synovium).

The upper part of the shoulder blade (acromion) projects over the shoulder joint. One end of the collarbone is joined with the shoulder blade by the acromioclavicular (AC) joint; the other end of the collar bone is joined with the breast bone (sternum) by the sternoclavicular joint (SC).

A sac-like membrane (bursa), similar to an empty plastic bag, sits between the rotator cuff muscles and the upper shoulder bone (acromion) cushioning and decreasing friction between muscle and bone.

There are 4 rotator cuff muscles that attach to the shoulder blade and end on the humeral head (supraspinatus, infraspinatus, teres minor, subscapularis). These 4 muscles become tendons which form the cuff. Due to the shoulder's inherent instability, the muscles of the rotator cuff must provide stability to allow the humeral head to stay centered and articulate properly in the socket. Without the function of the rotator cuff, the humeral head moves upward in the joint increasing contact pressure/time with the acromion. In time this will lead to arthritis.



## SHOULDER ARTHRITIS

The normal motion and function of the shoulder can be lost with the development of arthritis. This can develop as part of normal aging. Other less common causes are Rheumatoid arthritis or other chronic diseases. Shoulder arthritis is also seen as a late result of shoulder dislocations and shoulder fractures.

Shoulder arthritis is the loss of the normal joint surface and progressive deformity of the ball and socket. (see Figure A and B) This typically will have a gradual onset and progress over time. Most people will have pain with repetitive activities and at the limits of motion.



## SHOULDER REPLACEMENT

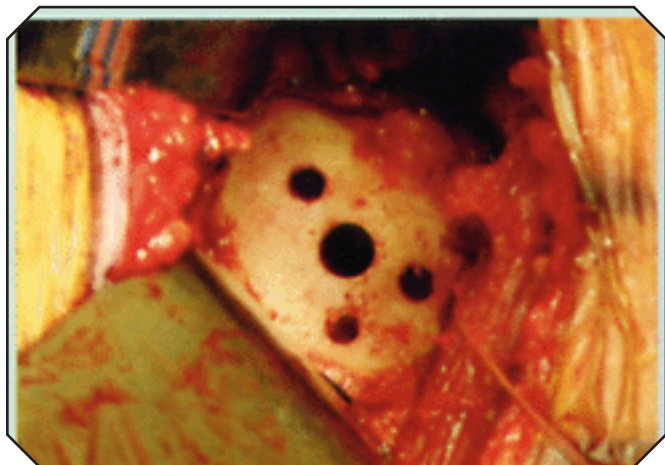
Charles S. Neer MD developed the modern shoulder replacement over 40 years ago. This has been proven effective for the treatment of shoulder arthritis in older patients with functioning rotator cuffs.

People under the age of 50 are generally considered poor candidates for shoulder replacement. These people are much more likely to have early failure of a total shoulder replacement due to their higher activity levels. New implants and techniques have been introduced for the management of arthritis in this younger age group.

Shoulder replacement surgery may involve only the replacement of the ball (the head of the humerus, see figure 1A and B) called hemiarthroplasty. In hemiarthroplasty the socket may be recontoured or resurfaced but a plastic socket replacement is not used. Total shoulder arthroplasty (TSA) involves both replacement of the ball (head of the humerus, see 2A and B) and the socket (glenoid).



The humeral component consists of cobalt chrome steel and is a modular construct with multiple sizes angles and offsets. This allows Dr. Norberg to closely match your normal anatomy. The glenoid component commonly used is fixed to the socket (figure 3) with bone cement. It is made from advanced polyethylene with multiple pegs, cortiloc (figure 4). The design currently used by Dr. Norberg has a large central peg with fins. The center peg is designed to allow bone growth around it. This is intended to provide lifelong stability to the component.



**FIGURE 3**

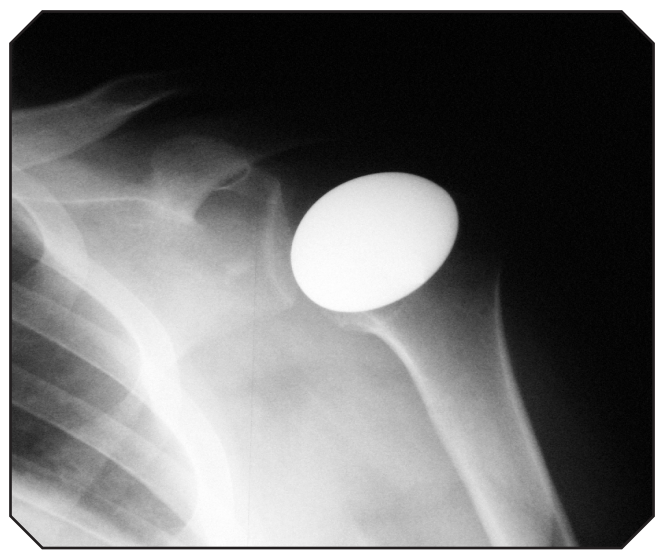


**FIGURE 4**

Younger or active patients place higher demands on their shoulders and have longer life expectancies. This increases the likelihood of failure of any shoulder replacement. This has led to development of bone sparing humeral head replacements called cap hemiarthroplasty (figure 5A and B). Since the common area of failure in shoulder replacement is the socket (glenoid) component this is not usually used in younger patients.



**FIGURE 5A**



**FIGURE 5B**



## **RISKS OF SURGERY:**

With any surgery there are potential risks involved. These include but are not limited to infection, continued pain, damage to blood vessels or nerves, decreased motion, failure to heal, and anesthetic complications. Call Dr. Norberg if you have any signs of infection: redness, warmth, fever, or discolored drainage.

## **QUITTING SMOKING**

Studies have shown the failure rate of cuff repairs is tripled in people who smoke. Smoking or using any form of nicotine or tobacco products (including cessation products with nicotine), can delay your body's healing process. Smoking makes your blood vessels constrict (become smaller), which reduces the amount of oxygen-rich blood delivered to healing tissues. Smoking can cause your blood to clot faster, which can lead to heart and blood flow problems. If you are going to stop smoking around the time of your surgery, you should not use a nicotine based program or cessation products.

## **BEFORE SURGERY:**

You shouldn't take anti-inflammatories (i.e. Ibuprofen or Aleve) or aspirin for 4-7 days prior to surgery. Arrange for a ride to and from the hospital. Let all medical providers know of any allergies you may have and medications you are taking. Please bring a list of current medications. You will need a pre-op physical 30-14 days prior to procedure.

## **AFTER SURGERY:**

You will have a 1-night hospital stay. You will not be going to a transitional care unit. You should plan to have assistance from family/friends for the first few days after surgery. Please arrange a ride to be at the hospital by 8am with the plan to leave by 11am.

You will be placed in a sling to be worn at all times for 4-6 weeks. You may remove your sling for a shower or bath. You should wear the sling to sleep. You will be given pain medication. You will have 4 follow up visits. All visits can be schedule prior to surgery if needed. Your first appointment will be approximately 7 - 10 days after surgery with Kayla Mork, a Physician Assistant working with Dr. Norberg.

## **INCISION CARE:**

- Instructions for dressing care will be given when you leave the hospital. Prineo (mesh) dressing will not be removed and will stay on for about 3 weeks. ABD dressings will be removed on post-op day 1. You may shower over the prineo dressing
- Do not poke anything into your dressings.
- Do not apply lotion, cream or powder to your incision.
- You can shower safely 24 hours after surgery, without covering the incision. The incision may get wet, but should not be submerged in water for at least 2 weeks after the surgery.
- Do not soak or scrub the incisions until fully healed.
- Watch for signs of infection. Increased redness or drainage from the incision, fever and or chills
- Wash twice a day under your affected arm and dry that area well. Do not raise your arm after surgery. Place your hand on a counter and take a small side step away to give access to your underarm without lifting your operative arm.
- Put a washcloth under your arm to help with sweating and to keep your skin from getting irritated.
- When you get dressed, put your shirt on the arm that had the surgery first.
- No sutures will need to be removed at your first post-operative visit. They will dissolve in 2-3 weeks and remain under the skin.

## RECOVERY TIME:

**TSA:** You will be in a sling for 4-6 weeks. It will take about 3 months before you feel comfortable moving your arm to shoulder level. Patients can continue to make progress up to one year before reaching their end result of the surgery.

## RESTRICTIONS FOLLOWING SURGERY:

Following a total shoulder replacement we recommend all patients take at least 2 weeks off of work to rest and manage pain efficiently. All patients will be released to work with restrictions following the 2 weeks. The restrictions will include no lifting overhead for 3 months. While in the sling you will only be able to lift 1-2lbs with the elbow at your side. If your job does not require lifting and is mainly office work (keyboard,paperwork,mouse) then it is likely you can return to work in 1-2 weeks. Jobs that require lifting will determine if they have the appropriate accommodations

## TSA ACTIVITY TIMELINE:

0-6 weeks- Elbow remains at side in sling/immobilizer lifting only 1-2lbs.

1-2 months- Discontinue sling/immobilizer, no lifting overhead, working on range of motion with physical therapy

3-4 months- Can usually do personal care, light activity overhead

5-6 months- Return to baseline lifting overhead

12 months- To see end result

## PAIN RELIEF:

- Most patients will have a nerve block that will last approximately 12 hours. The block involves an injection of a local anesthetic (Ropivacaine) similar to novocaine. It is injected where the shoulder and neck meet. The block allows the surgery to be preformed using much less anesthetic drugs. The block also provides excellent pain relief after surgery. You may experience a numbness, tingling sensation while block is wearing off up to 18 hours after surgery. This sensation is normal.
- You should take some pain medication approximately 8-10 hours after your block is performed, even if you have no pain.
- Narcotic medications will be prescribed to help manage your pain after surgery. We only prescribe short acting narcotic medications following surgery. Recent studies have shown poorer outcomes and increased addiction and death with long acting narcotics.
- The pain medications will make your pain manageable but will not necessarily take away all of your pain.
- Typically, Oxycodone 5 mg will be prescribed. You may take 1-2 tablets every 4-6 hours as needed. Dr. Norberg recommends taking them as written the first day and then gradually spacing them out and taking them only if needed.
- Tylenol (acetaminophen) should be taken after surgery. Dr. Norberg recommends arthritis-strength/8-hour 650 mg tablets of Tylenol. You may take 2 tablets every 8 hours for pain management. Be careful not to exceed 4,000 mg of acetaminophen in a 24 hour period.
- Do not take Advil (ibuprofen) or Aleve (naproxen) for the first week after surgery. This may slow healing and weaken healing tissue. However, after 1 week (Advil, Aleve) did not show decreased healing are shown to be more effective in managing pain than narcotic medication. Do not take these medications if on blood thinners (warfarin, lovenox) or have hx of reflux disease.
- If the pain is still not controlled increase frequency of icing shoulder, squeeze stress ball that comes with sling, and do gentle ROM of elbow, wrist, hand.
- Exceeding the recommended dose or taking medication with alcohol may result in liver damage. If you see that you are running out of pain medication, you must call the office number 952-456-7107 during regular clinic hours (8:30-4:00). Pain medications are not filled after hours or on weekends.

- Take pain medication with food. They may also cause cognitive impairment so you are not to drive or operate heavy machinery. Another common side effect is constipation. You may use over the counter stool softeners (i.e. Colace or Dulcolax) to help with this. See packages for recommended dosages.
- For the first several weeks, many patients find it more comfortable to sleep in a recliner or propped with pillows in a semi-sitting position.
- Put an ice pack on your shoulder continuously. Use ice as much as you needed to control pain and swelling. Don't sleep with ice on your shoulder. Do not put ice packs directly on the skin.

### **CALL 952-456-7000 IF:**

- Your temperature is 101.5 degrees Fahrenheit or more that does not go down with medication like Tylenol or Advil.
- You see a large amount of new bleeding or drainage from the incision area. Some drainage the first day after surgery is expected.
- Notice increased or unusual redness, swelling of warmth in the surgery area.
- Have a lot of discomfort that doesn't get better with pain medicine, ice and rest.
- Notice a big change in color, movement or feeling to the fingers or hand
- Have any questions or concerns

### **DIET:**

You will need to eat healthy meals to give your body the energy, vitamins and minerals needed to recover from surgery. Return to your usual diet as soon as you are able. Drink six to eight glasses of water each day. Eat more food that has fiber (fruits, vegetables and whole grains) to avoid constipation from the pain medications. Avoid alcohol while taking prescription pain medicine.

### **FREQUENTLY ASKED QUESTION:**

#### **Do I have to go to physical therapy?**

Yes! You will have to do the exercises that we and the physical therapist instruct you to do to get the best result of your surgery. Dr. Norberg and his staff will adjust your therapy as you continue to heal your shoulder.

#### **How long is recovery time?**

Patients continue to make progress up to 18 months after their surgery depending on the type of surgery they are having.

#### **Work Status?**

You will be off of work until your follow-up appointment in about 7-14 days and then will adjust your work restrictions accordingly.

#### **Are there possible complications from surgery?**

Yes, but they are very rare. Some include but are not limited to: your repair not healing, infection, stiffness, loss of motion, and nerve injury

#### **What are the signs of an infection?**

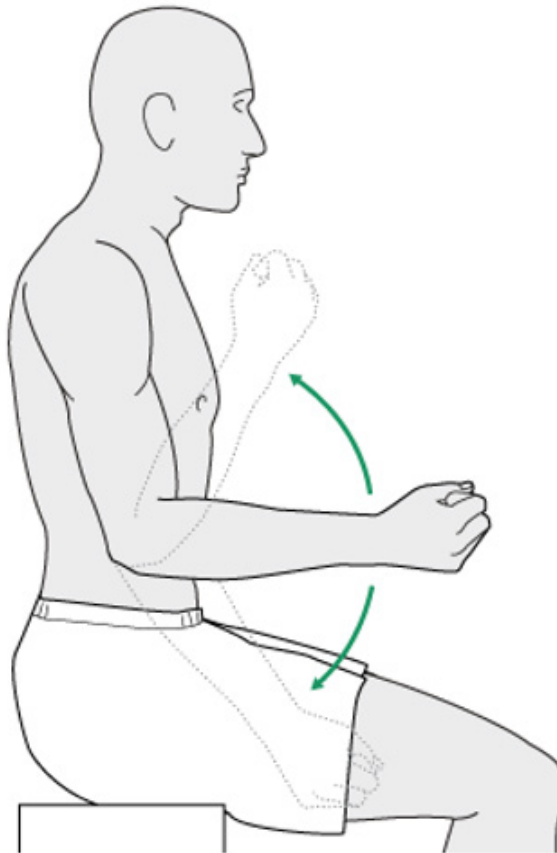
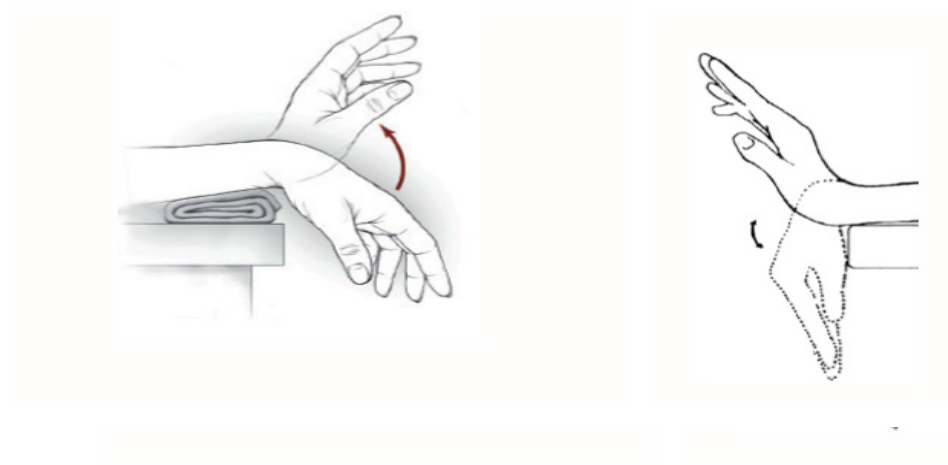
Fever over 101.5 degrees, the incision becomes red or swollen, or any foul drainage. If these symptoms occur, call Dr. Norberg's office right away. (952-456-7107).

#### **Can I shower?**

Yes. You may shower 2 days after your surgery. Do not scrub your incisions. Do not submerge your incision for 2 weeks.

## IMMEDIATE POST OPERATIVE EXERCISES - START THE DAY AFTER SURGERY

- Wrist range of motion. Bend your wrist forward and backwards as far as your can. Repeat 10 times. Do 3 sets for 2-3 times per day.
- Elbow range of motion. Gently bring your palm up towards your shoulder and bend your elbow as far as you can. Then straighten your elbow out as far as you can. Repeat 10-15 times for 2-3 times per day.





## START EXERCISES AFTER FIRST POST OPERATIVE CLINIC VISIT (7-10 DAYS AFTER SURGERY)



The starting position for this exercise will be with your hands resting in front of you on a counter top. Put your weight on your legs, not on your hands or upper body. Keep your hands in the same position on the counter top. While moving your feet slowly backwards, bend slightly at your waist, stick your buttocks back past the base of your feet. (see picture above) Once you feel a stretch, hold our position for 5-10 seconds. **DO NOT STRETCH TO THE POINT OF PAIN.** Always walk yourself back up.



Start this exercise in a standing position. You may be more comfortable resting against a wall. Bend your affected arm at the elbow. Place your opposite hand on your wrist and gently rotate your wrist outward while keeping your elbow at your side. If you have trouble keeping your elbow at your side, hold a rolled up sock between your elbow and waist. If the sock falls to the floor, you are not keeping your elbow close enough to your body. While gently rotating your wrist outward, continue until you feel a good stretch Hold for 5-10 seconds. **DO NOT STRETCH TO THE POINT OF PAIN.**

## PAIN MEDICATION AGREEMENT FOR POST-OPERATIVE PAIN TREATMENT

The official policy of our practice is as follows:

1. Patients will not be provided with narcotic pain medication prior to surgery.
2. After surgery, appropriate prescription pain medications will be prescribed for adequate pain control. The amount of medication prescribed will be based on typical pain control needs for the surgery performed. This is at the discretion of Dr. Norberg.
3. We will not prescribe pain medications longer than **TWO WEEKS** after surgery.
4. Prescription pain medications do not help with healing after surgery. Take prescription pain medications only if pain cannot be controlled with over the counter medications such as Tylenol.
5. If a patient takes prescription pain medication prior to surgery (prescribed by another provider) we will establish a specific pain mediation plan for that patient.
6. Patients should avoid NSAID's (Ibuprofen, naproxen, aspirin, etc.) for at least two weeks after surgery if they have a superior capsular reconstruction, rotator cuff repair, labral repair, biceps tenodesis, or fracture. NSAID's have been associated with decreased healing rates.
7. Taking prescription Opiates/Opoids (such as oxycodone, hydrocodone, morphine, hydromorphone) are well known to cause death and addiction/dependency and should never be taken while driving. Prescription opiates/opioids are the leading cause of prescription related deaths.

Patient Name \_\_\_\_\_

Patient Signature \_\_\_\_\_

Date: \_\_\_\_\_

### References:

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O'Neill. (2014). Less is More: Limiting Narcotic Prescription Quantities for Common Orthopedic Procedures. The Physician and Sportsmedicine, 42(4), 100-105.

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