

# The Shoulder Replacement Book



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## HOW THE NORMAL SHOULDER WORKS

Your shoulder is the most flexible joint in your body. It allows you to place and rotate your arm in many positions in front, above, to the side and behind your body. This flexibility also makes your shoulder susceptible to instability and injury.

The shoulder is a ball and socket joint. It 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). The socket of the glenoid is surrounded by a soft-tissue rim (labrum). A smooth, durable surface (articular cartilage) on the head of the arm bone, and a thin inner lining (synovium) of the joint allows the smooth motion of the shoulder joint.

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 collarbone is joined with the breastbone (sternum) by the sternoclavicular joint.

The joint capsule is a thin sheet of fibers that surrounds the shoulder joint. The capsule allows a wide range of motion yet provides stability. The rotator cuff is a group of muscles and tendons that attach your upper arm to your shoulder blade. The rotator cuff covers the shoulder joint and joint capsule. The muscles attached to the rotator cuff enable you to lift your arm, reach overhead, and take part in activities such as throwing or swimming.

A sac-like membrane (bursa) between the rotator cuff and the shoulder blade cushions and helps lubricate the motion between these two structures.

**The Rotator cuff** is made up of muscles and tendons that attach your upper arm to your shoulder. The tendons attach your muscles to the bone.

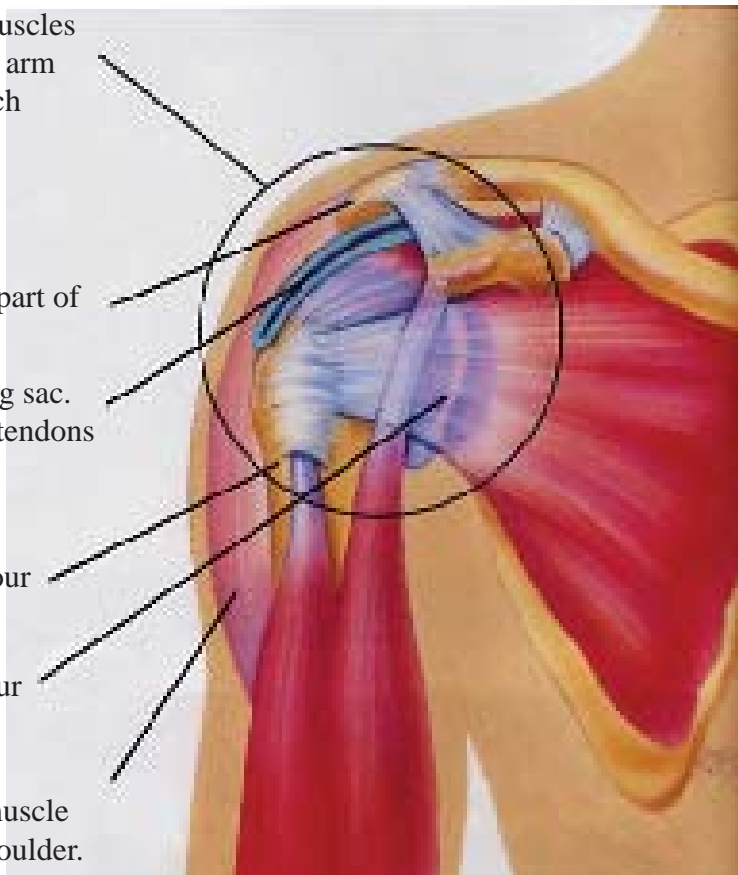
**The Acromion** is in the top part of your shoulder blade.

**The Bursa** is a lubricating sac. It helps your rotator cuff tendons slide under the acromion.

**The Humerus** is your upper arm bone.

**The Glenoid** is your shoulder socket.

**The Deltoid** muscle covers your shoulder.



## 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

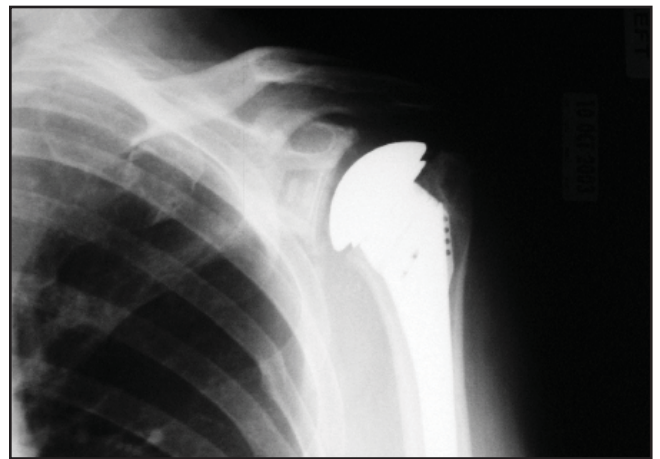
Charles S. Neer MD developed the modern shoulder replacement over 40 years ago. This has been proven effective for the treatment of shoulder arthritis in older patients with functioning rotator cuffs.

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).



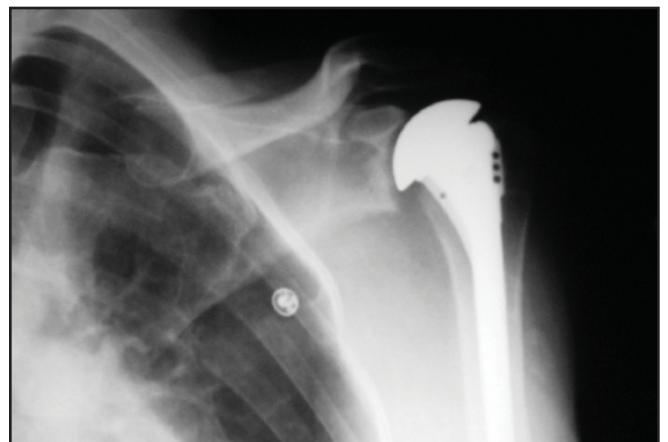
Figure 1A



1B



Figure 2A



2B

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 (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.

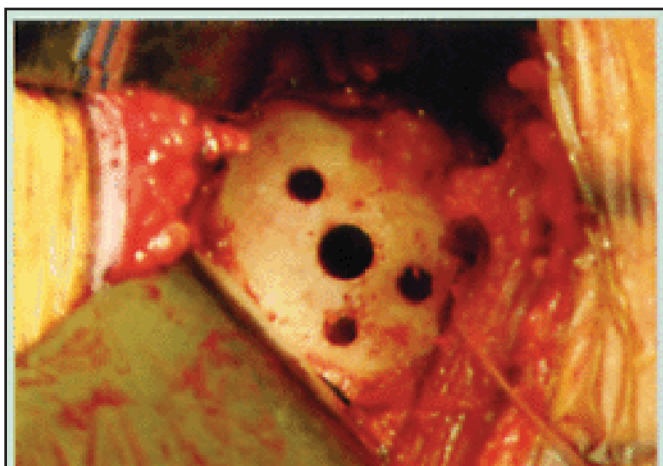


Figure 3

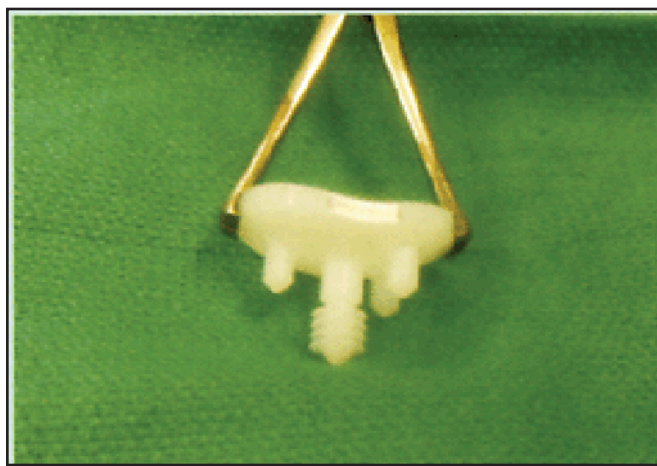


Figure 4

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 5 A



Figure 5 B

Shoulder replacement surgery continues to evolve over time. Current techniques have resulted in good to excellent outcomes in the majority of patients. Almost all patients have marked pain relief. The majority of patients will also have significant improvement in the function of their shoulder, but this is less predictable. The shoulder replacement is a mechanical device and is expected to have wear and tear with time and use. Most total shoulder replacements are expected to last 12-15 years after which revision surgery may be necessary.

## **RISKS OF SURGERY**

All surgeries have associated risks. These include but are not limited to anesthetic complications, infection, artery or nerve injury. Rarely a shoulder replacement may be unstable or dislocate. The surgery generally resolves pain at rest and improves function, but a “normal shoulder” is not expected. Full pain relief may not be achieved. Late loosening of the prosthesis is also a risk.

## **QUITTING SMOKING**

Smoking or using any form of nicotine or tobacco products (including Nicotine based cessation products), 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**

A preoperative physical exam will be performed by your primary physician to assure that you are ready for surgery. This can be done up to 1 month prior to surgery.

You will need to stop anti-inflammatory medications (Advil, Ibuprofen, Motrin, Aleve, and aspirin) 5 days prior to surgery unless cleared with Dr. Norberg.

Plavix needs to be stopped 10 days prior to surgery. Coumadin (warfarin) use needs to be stopped as well. Discuss this with your primary physician and Dr. Norberg. Stopping Coumadin requires the direct supervision of your primary care physician.

Take your usual medications on the morning of surgery with a small sip of water.

Bring a current list of your medications to the hospital.

A visit with your dentist is recommended. Poor dental health or cavities greatly increase the risk for infection of the shoulder replacement with catastrophic results.

## **AFTER SURGERY**

You will be placed in a sling after surgery. This is to be worn the first 4 weeks. The sling is to be removed for dressing, bathing and exercises. It should also be removed when eating, grooming and for table top activities. It is safe to use the operative arm with your elbow at your side beginning the day after your surgery.

Limit the weight in your hand to less than 2 pounds.

The dressing on your shoulder can be removed 2 days after surgery. If you are having drainage you may replace with a new dressing.

Most people will be in the hospital 1-2 days following their surgery. This may vary depending on your specific situation. Select patients may go home the day of surgery.



You can shower safely 3 days after surgery without covering the incision. The incision may get wet but should not be submerged for 2 weeks after the surgery.

You will be given pain medication.

You should Ice 20 minutes every couple of hours for swelling and pain control.

Your initial follow up appointment is with Dani Hare PA-C, Dr. Norberg's Physician Assistant 7 - 10 days after surgery.

Small tape strips (steri-strips) will be in place over the incisions. Leave these in place until they fall off. Usually this is 10-14 days.

Be very careful on stairs and with activities as a fall or overuse in the early postoperative period may irreversibly damage your shoulder reconstruction.

## **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 should take some pain medication approximately 8-10 hours after your block is performed, even if you have no pain. Strong narcotic medications will be prescribed to help manage your pain after surgery. Typically a short acting (every four hours) medication and a longer acting (every 12 hours) medication is prescribed. Dr. Norberg recommends taking them as written the first day and then gradually spacing them out to see how much is needed. The pain medications will make your pain manageable but will not necessarily take away all of your pain.

Do not take Tylenol (acetaminophen) if you are taking Percocet. You may take Tylenol instead of Percocet.

Whether you are taking Percocet (oxycodone), Vicodin (hydrocodone), Norco or Tylenol (acetaminophen), be careful not to exceed 4000mg of acetaminophen in a 24 hour period.

Do not take Advil (ibuprofen) or Aleve (naproxen) for the first month if you have had a rotator cuff repair, biceps tenodesis, anterior reconstruction, posterior reconstruction, or SLAP (labral) repair.

If the pain is still not controlled, please call the clinic (952) 920-0970.

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 (952-920-0970) 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 functional 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 for 20 minutes, three times a day minimum. Use ice as much as you need to control pain and swelling. Don't sleep with ice on your shoulder. Do not put ice directly on the skin.

## **RECOVERY TIME**

Many people find the pain they had before surgery is markedly improved after the procedure.

Most people will be able to use their arm at their side the day after surgery. Use of the arm at shoulder height will likely take 6-8 weeks. Use of the arm above shoulder height will likely take 3 months and some patients will never regain use above the shoulder height level. Limit yourself to 1-2 pounds in the operative hand for 6 weeks.

Achieving the final result of your shoulder replacement commonly requires 1 year.

## REHABILITATION:

Your pain should lessen every day. Plan to alternate activity and rest periods throughout the day. To keep strength and motion in your arm, you must exercise.

You should do these exercises 5 times each and approximately 3-5 times a day



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.



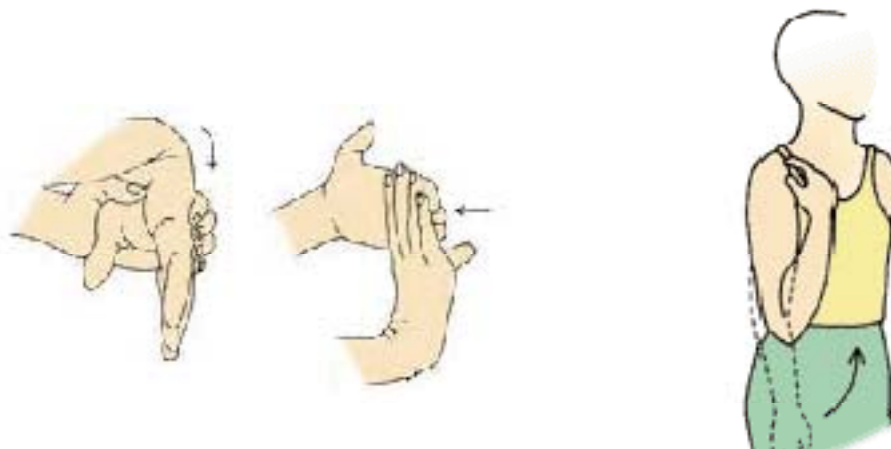
Start this exercise in a standing position. You may be more comfortable resting against a wall. Bend your affected arm at the elbow. Place your opposite hand on your wrist and gently rotate your wrist outward while keeping your elbow at your side. If you have trouble keeping your elbow at your side, 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.**

## ADDITIONAL REHABILITATION

Beginning the day after surgery you will also begin elbow, wrist, and hand range of motion. Do these 3-4 times a day.

Wrist: Bend your wrist forward and backward as far as you can. Repeat 10 times Do 3 sets

Elbow: Gently bring your palm up toward your shoulder and bend your elbow. Then straighten out your elbow as far as you can.



Additional exercises will be given at the first post-op visit. Physical therapy is started 4 weeks after surgery. The rehab program is limited for the first 6 weeks after surgery to allow the subscapularis tendon, which was taken down at the time of surgery, to heal. Aggressive stretching or activities beyond the restrictions may result in the disruption of the repair and failure of the shoulder replacement.

## PERMANENT RESTRICTIONS:

Total shoulder replacements are mechanical devices susceptible to wear. Lifting heavy objects creates high force at the glenoid (socket) and is associated with loosening and early failure. For this reason, **NO lifting greater than 50lbs** floor to waist is allowed. **NO lifting greater than 25lbs** should be done at chest height or above.

Inability to stay within these restrictions is likely to cause failure of your total shoulder replacement in a short period of time.

People who require the ability to do heavy lifting should consider hemiarthroplasty.

Hemiarthroplasty (replacement of the ball without replacing the socket) has no restrictions on lifting or activities but may give less predictable or less complete pain relief. Hemiarthroplasty can be converted to a total should at a later date if needed.

## CONCLUSION:

A Shoulder Replacement is an excellent option for the management of shoulder arthritis. The vast majority of patients are pleased with the results of surgery. Be assured Dr. Norberg and his team will do everything possible for you to achieve the very best results.