

## Shoulder Anatomy

The shoulder joint is essentially a ball and socket joint. However, unlike the ball and socket joint of the hip, the shoulder has much greater mobility. This mobility is dependent upon an elaborate array of muscles, tendons and ligaments which make the shoulder one of the most complex joints in the body.

The socket of the shoulder, or glenoid, is part of the scapula (shoulder blade). The ball is on the top end of the arm bone (humerus). With the help of the muscles of the shoulder (the deltoid and rotator cuff muscles), the humerus moves and rotates within the socket raising and twisting your arm.



## Arthritis

The most common source of shoulder pain is arthritis. In fact, more than 40 million people in the United States suffer from some sort of arthritis. There are four main types of arthritis.

### Osteoarthritis

Osteoarthritis (or "wear and tear" arthritis) occurs when the smooth tissues on the joint surfaces (cartilage) breaks down leaving the underlying bone to grind on bone. Not only does this lead to popping and catching sensations and loss of shoulder motion but also can be quite painful.

### Rheumatoid Arthritis

Rheumatoid arthritis is a systemic (whole body) disease in which all joints are susceptible. More commonly seen in women, rheumatoid arthritis is a result of the

body's immune system creating chemicals which attack and destroy the joint surfaces.

### **Traumatic Arthritis**

Traumatic arthritis may occur when the joint is injured from a fracture, ligament tear, or dislocation which may lead to disruption of the normally smooth joint surface. This joint is then more susceptible to arthritis.

### **Rotator Cuff Tear Arthroplasty**

Rotator cuff tear arthroplasty is a small, special category of arthritis which occurs in the presence of a massive, irreparable rotator cuff tear. Special considerations are required to best treat this form of shoulder arthritis.

### **How to Manage Shoulder Arthritis**

The initial management for shoulder arthritis consists of non-operative treatments. These include options such as medications, physical therapy and activity modification. When these fail to provide substantial relief, a shoulder replacement may be considered. Today, more than 25,000 shoulder replacements are performed in the United States annually. With your X-rays, you and your surgeon will decide if your pain and loss of mobility are enough to justify consideration of a shoulder replacement surgery.

Shoulder replacement surgery essentially involves replacement of the worn out joint surfaces. There are several shoulder replacement implant types which are designed to address different patient needs, anatomy, and arthritis type. Also, there are a myriad of factors that your surgeon will weigh in order to select the correct type of replacement which is best for your shoulder. What works well for one patient may not be the best choice for your shoulder.

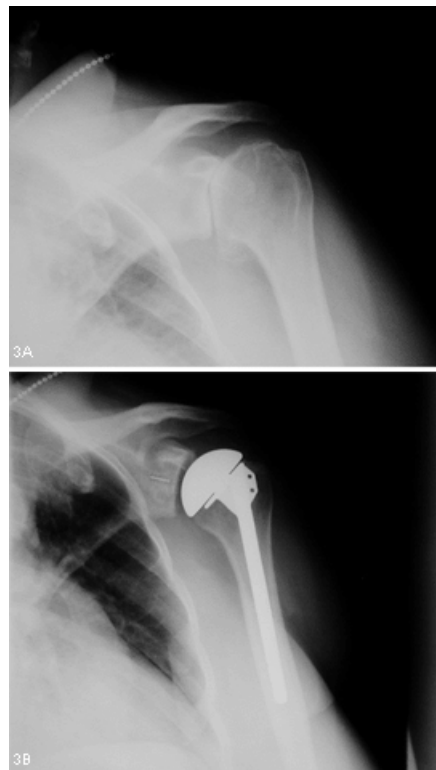


Figure 3. X-rays before and after conventional total shoulder replacement surgery for osteoarthritis.

## Preparations for Surgery

One to two weeks prior to surgery, patients should see their family doctor for a medical evaluation. The purpose of this “medical clearance” evaluation is to ensure any medical conditions such as a urinary tract infection, high blood pressure, or heart disease can be detected and treated appropriately prior to your surgery. This will minimize the chance of your surgery needing to be postponed or rescheduled. Your surgeon will provide you a list of items for your family doctor to review and report on. Typically part of this process will be blood work, a chest X-ray and an EKG. Your orthopedic surgeon will need to obtain a copy of the “medical clearance report” from your family doctor or internist as well as any laboratory, x-ray and EKG results prior to your surgery.

NOTE: If you take aspirin, coumadin (Warfarin) or Plavix, or certain arthritis medications you must inform your doctor. You may need to stop these medication two weeks prior to your surgery. In some instances, special steps may need to be taken to help you safely stop these medications before your surgery.

Do not schedule minor procedures such as dental procedures (e.g. teeth cleaning, crowns, repairs) urologic or gastrointestinal procedures within two weeks of your shoulder surgery. These procedures increase the risk of developing a shoulder infection when performed near the time of your shoulder surgery. If you have any questions, ask your orthopaedic surgeon.

If you develop a sore throat, significant cough or the flu within a week of your planned shoulder surgery, please inform your orthopaedic surgeon. These conditions may make your anesthesia more complicated and increase your operative and anesthesia risks and as such, require your surgery to be rescheduled.

If you develop a urinary tract infection within two weeks of your surgery, contact your family physician for treatment and please inform your surgeon. Your surgeon may want additional urine tests prior to your surgery to make sure the infection has cleared.

Dentures and contact lenses can not be worn in the operating room. Please make sure to bring your container and solutions with you to the hospital so that they may be kept safe until the completion of your surgery.

Comfortable and loose fitting clothing which can be easily put on (e.g. comfortable button down shirt or sweat shirt) will be helpful to bring for the post-operative period.

It is recommended that you wash your involved arm and armpit with common antibacterial soap for three days prior to your surgery.

The length of your hospital stay varies greatly upon the type of surgery you are having. For shoulder replacement surgery, two to three days is a common time frame. However, this may be longer or shorter depending on your individual case.

## **Day of Surgery**

Your orthopedic surgeon's office will inform you what time you should arrive to the hospital. It is essential that your orthopedic surgeon be aware of ALL the medications and supplements you are taking. Please bring with you to the hospital a list of these medications and their dosages.

After you check in with the hospital's admissions staff, you will be taken to the preoperative area where you will change clothes. You will meet the preoperative nurses as well as a member of the anesthesia team. They will ask you several questions, review your medical history and examine you. The anesthesia personnel will also discuss and explain your anesthesia.

An IV will be started to provide you with fluids and medications. Special elastic stockings will also typically be applied to your legs at this time to help with your circulation during the surgery.

A member of your orthopedic surgeon's team will also meet you in the preoperative area to review the surgical plan, answer any questions and make sure everything is going according to plan.

Family members will have time to be with you in the preoperative area prior to your surgery.

Prior to going to the operating room, you will be asked to empty your bladder.

You will be taken to the operating room where you will be transferred to a special operating table. You will meet the operating room nurses and staff who will help you get comfortable on the operating table and explain the details of your procedure.

## **After Surgery**

After your surgery, you will arrive in the recovery room where you will be given pain medicine to keep you comfortable. You will remain in the recovery room until you have recovered completely from the anesthesia, which typically takes about an hour. Your arm will typically be in a sling or shoulder brace. You will then be taken to your hospital room and be introduced to your hospital floor nursing team.

Depending on the time of day at which you arrive to your room, you may be visited by a member of the physical therapy team to review and initiate your shoulder exercises. In some cases, this will begin on the following morning.

To help prevent nausea, your diet will be advanced from ice chips to liquids and then to regular meals. The IV will remain in place for one or two days after surgery to administer fluids, pain medicines and antibiotics. Although it is normal to feel some pain after surgery, be sure to tell your nurse of your pain. In many ways, the nursing staff relies upon you informing them of your comfort level. It is important to be comfortable enough to adequately work with the therapist on your exercises.

To help re-expand your lungs after your anesthesia and surgery, you will be given a simple breathing apparatus (incentive spirometer). Your nurse will show you how to use it effectively.

You may have a drainage tube coming out of the bandages which helps to drain any last remnants of blood that may accumulate within the wound. This tube will typically be removed on the first or second postoperative day. Your bandages will often be changed on the first or second postoperative day.

Your orthopedic surgeon will provide information on when the bandages can be removed and when your wound may get wet with bathing.

The nurses will help you get out of bed and sit in a chair as well as help you with walking.

On the first postoperative day, your surgeon and nurses will encourage you to use your arm for simple activities of daily such as bathing, dressing and eating.

### **Physical Therapy in the Hospital**

The postoperative exercise program typically begins the day after surgery. Your surgeon and therapist will demonstrate your stretching exercises and how to move your shoulder safely. It is important that you cooperate and follow the instructions and work hard. This will help minimize stiffness in your shoulder after surgery. In most cases, you will be encouraged to move you hand, wrist and elbow to help prevent swelling and stiffness in these joints. Typically you will need the assistance of family or friends to perform your stretching exercises correctly.

### **At Home**

Depending upon your progress, you will be independent in about one week. At home it is important to continue with the recommended exercises and adhere to the precautions spelled out by your surgeon and therapist.

When at home, plan to take it easy as you become increasingly independent and begin to resume your activities. You may walk as much as you like. You may drive a car when authorized by your surgeon; typically after six weeks. When to return to work will depend largely upon your employment duties. Check with your surgeon.

You should advise your surgeon of any changes around your incision. Contact your surgeon if any of the following develop:

- Drainage and/or foul odor from the incision
- Fever of 100.5 degrees for two or more days
- Increased swelling, redness and or pain

Your stitches or staples will be removed in one to two weeks. Your complete recovery period may take six months or more depending upon your progress.

### **Do's and Don'ts**

- **Do** ask for assistance. Your physician may be able to recommend an agency or facility if you do not have home support.
- **Do** follow the program of home exercises prescribed for you. You may need to do the exercises four to five times a day for a month or more.
- **Do** contact your surgeon if you develop: problems with your wound, a fever, sore throat, breathing problems, cardiac or circulation problems or any other problems that give you concern. Also, remember to contact your surgeon if you have any questions regarding your exercises.
- **Don't** use the arm to push yourself up in bed or from a chair because this requires forceful contraction of muscles.
- **Don't** overdo it! If your shoulder pain was severe before the surgery, the experience of pain-free motion may lull you into thinking that you can do more than is prescribed. Early overuse of the shoulder may result in severe limitations in motion.
- **Don't** lift anything heavier than a glass of water for the first six weeks after surgery.
- **Don't** participate in contact sports or do any repetitive heavy lifting after your shoulder replacement.
- **Don't** put your arm in any extreme position, such as straight out to the side or behind your body for the first six weeks after surgery.

### **Postoperative Visits**

Your first postoperative visit with your surgeon will typically be in one to two weeks. At this point, your stitches or staples will be removed, your wound examined, x-rays obtained, your progress evaluated and plans for the next time interval made.

Thousands of patients have experienced an improved quality of life after shoulder joint replacement surgery. They experience less pain, improved motion and strength, and better function. An understanding of the steps involved both before and after your surgery will help you avoid any pitfalls and maximize your recovery.