Total Shoulder Arthropasty – Anatomic Replacement

The following information is a general overview of the process of a shoulder replacement. We hope you find this informative and educational, as the patient, about the process you are about to undergo. Shoulder Replacement surgery is not a "minor" surgery, and it is our belief the patient should be well educated and welcomed to ask questions. We hope this overview will help ease any anxiety in regards to surgery and serve as a guide to getting all your questions answered before and after surgery.

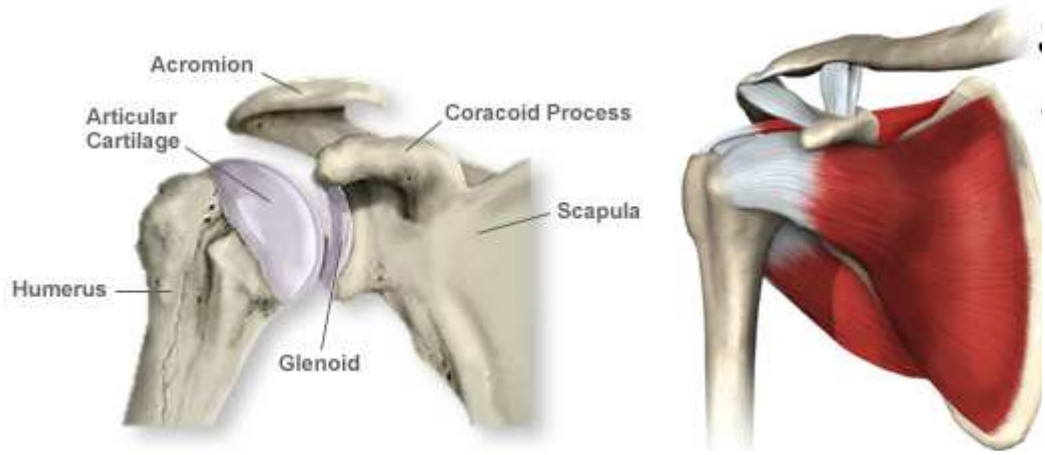
Remember, the following are only GENERAL guidelines and suggestions. Your surgeon will give you specific instructions that should be followed at all times.

INTRODUCTION

"Total Shoulder Replacement", also known as "Total Shoulder Arthroplasty" (TSA), has become a more common procedure over the past 15-20 years. TSA is most commonly performed for shoulder arthritis, but can also be used to assist with fracture (broken bone) fixation of the shoulder. During a TSA the "worn out" (or broken) parts are replaced with artificial parts, called components or prostheses. In a TSA the prosthesis is designed to match the normal shape of the parts being replaced. This is considered an "Anatomic TSA."

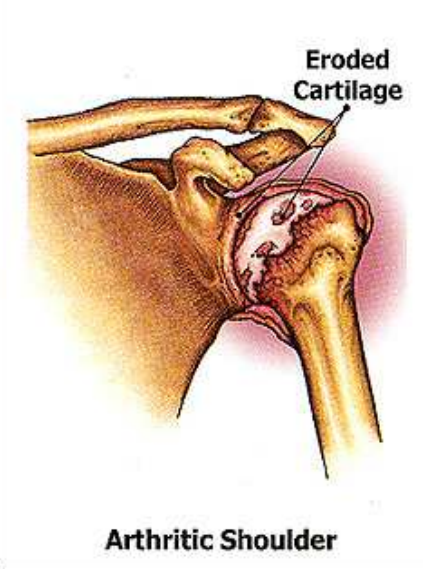
THE NORMAL SHOULDER

The normal shoulder is made up of the humeral head (top part of the arm bone) and the glenoid (the socket part of the shoulder blade). In a normal shoulder, the humeral head and glenoid are covered with "articular cartilage" on the surface which allows for smooth gliding of the joint with motion. The cartilage creates the space between the bones seen on X-rays. The rotator cuff muscles connect to the humeral head and assist with motion. These muscles are usually fuly intact when an Anatomic TSA is performed.



THE ARTHRITIC SHOULDER

With normal aging, the cartilage surfaces of all joints wear out. Sometimes this happens to the point there is no cartilage remaining and causes pain, dysfunction, and possibly deformity. Other processes, including rheumatoid arthritis, osteonecrosis, and fractures, can cause this process to be accelerated. As the cartilage thins out, the joint space seen on radiographs decrease to the point of "bone on bone" (see pictures below). For some patients, arthritis is painful, and for others this does not cause too much of an issue. When your arthritic pain begins to cause a decrease in the "quality of life", that is when it is time to consider shoulder replacement surgery and discuss it with your physician.



SHOULDER REPLACEMENT OPTIONS

There are three types of shoulder replacement.

1. Hemiarthroplasty (partial shoulder replacement): with this procedure only the humeral head is replaced. This is commonly done for younger patients, and to treat fractures of the shoulder.
2. Total Shoulder Arthroplasty (total shoulder replacement): with this procedure BOTH the humeral head and the glenoid (socket) are replaced
3. Reverse Shoulder Arthroplasty ("reverse" arthroplasty): with this procedure the humeral head and socket are replaced, but reversed. This type of replacement is reserved for certain patients, and the details are beyond the scope of this handout. Your physician will give you a different handout if this prosthesis may be used for you.

THE SURGERY

During surgery, your surgeon will expose your shoulder very carefully. After the exposure, the rotator cuff muscles are inspected to ensure they are intact. The surgeon then must release the rotator cuff muscle in the front of the shoulder, called the subscapularis. This muscle will be repaired at the end of your replacement surgery. (see next section "Subscapularis Healing").

At this time, the humeral head is removed, and the humerus (arm bone) is hollowed out to allow the prosthesis to fit inside your arm bone. The humeral component is made out of metal. This can either be held in place with or without bone cement. Your surgeon will decide this based on the "fit" of the prosthesis.

The bony socket is then smoothed out and a new socket made from "fancy" plastic, called polyethylene, is used to replace the diseased area. This is typically held in place with bone cement.

Next the ball is fitted with the socket to ensure a good fit and smooth motion. The Subscapularis muscle is then repaired with suture. Your skin incision is then sewn closed and a sterile dressing is placed. A shoulder immobilizer is applied and you are awoken from anesthesia and taken to the Recovery Room.

Xrays and diagram of a typical shoulder replacement

LENGTH OF SURGERY

The surgery usually lasts between 1 and 3 hours. This is a common question we are asked but every shoulder is different and your surgeon will take as long as needed to complete the surgery. The surgical nurse should keep your family informed of our overall progress during the surgery. Once the surgery is completed, your surgeon will find your family and discuss with them the results of surgery.

SUBSCAPULARIS HEALING

The subscapularis muscle is one of your very important rotator cuff tendons which allows you to move your shoulder. This muscle is the "door" to the shoulder during surgery and must be carefully released. This tendon is very meticulously repaired at the end of surgery.

An example of a postop shoulder immobilizer

For your TSA to function properly after surgery it is VERY IMPORTANT that the repaired subscapularis muscle heal. This is why you are placed in a shoulder immobilizer and gentle protective exercises are the only exercises allowed after surgery. It takes 6 weeks (or longer) for your subscapularis tendon to heal before it can be "tested".

It has been shown smoking and uncontrolled diabetes can delay or inhibit healing. It is HIGHLY encouraged to stop smoking and control your blood sugars before AND after surgey.

RISKS OF SHOULDER REPLACEMENT SURGERY

As with anything, there are risks. Your surgeon will take precautions to attempt to prevent complications, but one still may occur.

Common Risks of Shoulder Surgery are:

- Infection
- Dislocation
- Fracture (broken bone)
- Blood Vessel or Nerve injury
- Tendon not healing
- Wound complications
- Stiffness
- Weakness
- Continued pain
- Component Failure

This is not a complete list of possible complications, but does list the some of the most common complications

In addition, the prosthesis may come loose in the future and may need to be revised. Loosening can be caused by wear and tear on the prosthesis, or from a traumatic injury (ie: fall, car accident). This is most likely not due to your initial surgery.

PREPARING FOR YOUR SURGERY

There is a lot that both your surgeon, their office, and you need to complete prior to your surgery. All of this is done with your safety as the primary goal!

One of the main requirements, is all patients receive a medical evaluation by their primary care physician. In addition, you will have to have a blood draw to ensure your lab work is adequate. Your doctors' office will assist you in scheduling your "clearance" appointments and lab work prior to surgery.

Before surgery we ask, in assistance/guidance with your primary care physician (or other specialist), certain medications be changed or stopped. These medications include (but are not limited to):

- Blood thinning medications: warfarin (Coumadin), clopidogrel (Plavix), Cilostazol (Pletal), Dabigatran (Pradaxa), Rivaroxaban (Xarelto), heparin, enoxaparin (lovenox), dalteparin (fragmin), fondaparinux (arixtra), asprin (asprin containing products), Aggrenox, Nonsteroidal Anti-inflammatory medications (NSAIDS), etc
- Rheumatoid Arthritis: minocycline, sulfasalazine, methotrexate, azathioprine, Imuran, chlorambucil, leflunomide, cellcept, etc

Your primary care provider who manages these medications will help you decide when to stop and restart these medications in regards to your surgical date.

A list of medications will be given to you as a reminder.

If you have diabetes: Before your procedure, the physician who manages your diabetic medication should be contacted and asked for specific instructions on adjusting, or stopping, your insulin or other diabetic medications for surgery.

If you develop an infection before surgery: If you develop an infection on any area of your body prior to surgery, please seek medical attention from your PCP as soon as possible. Please notify your surgeon as soon as possible also. Your surgery may be rescheduled to allow your infection to resolve completely. This will help prevent an infection in your shoulder after surgery.

Find a "caregiver" to go with you: Find someone who will be able to take you to the hospital and can wait in the surgical waiting room for you during surgery. This person is usually a family member, spouse, friend or other loved one. They will not need to stay overnight in the hospital with you.

PREPARING FOR YOUR RECOVERY

Most patients return to their own home after shoulder surgery. Usually a "caregiver" is around during the day to assist with the needs of the patient.

Below are some things to think about, starting several weeks before surgery, to help with a comfortable transition home:

- Clean your home a week before surgery as it will be difficult to do so afterwards
- Remove clutter and loose rugs from the walkways to prevent falls
- Rearrange your bedroom (and other rooms) to allow extra room to maneuver as you will only have the use of one arm

- If your bedroom is on a second story, consider moving a bed to the first floor for easy access
- Place your remotes, magazines, books, computer, telephone and other items in an easily accessible location
- Rearrange your kitchen so that commonly used items are easily accessed
- Prepare and freeze meals which can be easily re-heated for meals
- If you wish, contact your religious or spiritual leader to visit you during your recovery

Many patients find it helpful to "practice" only having the use of one arm to assist with their understanding of the limitations after surgery. This can easily be done by placing the arm that will have surgery in an immobilizer for a day or two.

THE DAY BEFORE SURGERY

****EAT AND DRINK AS YOU HAVE BEEN INSTRUCTED****

It is imperative that your stomach be empty before you receive anesthesia. This helps decrease the chances that any nausea, vomiting, and other anesthesia related problems arise.

This typically means **NOTHING TO EAT OR DRINK FOR 8 HOURS PRIOR to your surgery.** It is typically asked that you stop eating and drinking at MIDNIGHT the night before your surgery, even if your surgery is not planned until the afternoon. This seems harsh but allows the surgeon to do your surgery earlier if there is a cancellation before you. We understand that this is not a pleasant experience, but we appreciate your understanding.

****Take a shower (or bath) the night before AND the morning of surgery****

Bathing will help decrease the bacteria on your skin and helps reduce the chance of infections. You will be given a special soap by the office to use the night before and day of your surgery.

****PACK FOR SURGERY****

Some items you may find useful while you are in the hospital are:

- Comfortable, non-skid shoes (remember shoe laces are difficult with only one hand to use!)
- Personal pajamas
- Loose fitting clothes with pockets
- Button down shirts
- Toiletries
- Books, magazines, cell phone/chargers
- A List of medications (prescription and over the counter), including vitamins or herbal medications you take. Include the entire dose and times you take them
- Money, credit cards
- ID Cards, Drivers' License
- Continuous Positive Airway Pressure (CPAP) machine or other special equipment

THE MORNING OF SURGERY

- Shower/Bath, as instructed, with the special soap
- Do **NOT** apply lotion, makeup, deodorant or perfumes after taking your shower/bath
- Do **NOT** shave your armpit or any hair on your shoulder
- Remove all nail polish if possible
- Do **NOT** bring jewelry to the hospital
- Give your wallet/purse to your "caregiver" who is with you at the hospital
- Wear eyeglasses instead of contacts
- Take ONLY the medications you are instructed to before surgery
- Arrive at the hospital **ON TIME**!
- **Remember**: you may be arriving 2-3 hours before your schedule surgery time so that the hospital and surgical staff can get you checked in and ready for surgery

AFTER YOU RETURN TO YOUR HOSPITAL ROOM

After your surgery is completed and you have recovered, you will be transferred to your hospital room.

We ask that you refrain from getting out of bed the day of surgery on your own. A nurse, therapist, or assistant may assist you to get out of bed on day 1. The helps reduce your risk of falling and sustaining an injury to your shoulder, head, or other areas! When your surgeon, nurse, or therapist gives permission to get out of bed, you will be shown the proper way to do this using only your unaffected arm and other assistive devices.

Below is a list of items that may occur when you return to your room:

- The bed rails may be up to prevent you from rolling off the bed while asleep
- Your heart rate, blood pressure, and operative side will be check frequently
- You will be given fluids through your IV until you are able eat a full meal
- Antibiotics will be given through your IV for 24-48 hours to reduce the infection risk
- Pain medication may be give through your IV until you can take medication by mouth
- A drain may be in place around the surgical site, and a nurse may need to empty the collected fluid periodically
- You will be encouraged to drink fluids slowly, then progress to more solid foods as you tolerate
- You may or may not have a bladder catheter in place. If one is in place, it will most likely be removed the day after your surgery. After it is removed, your bladder may be checked ("scanned") to make sure you are emptying your bladder fully when you urinate. Completely emptying your bladder helps prevent infections.
- You may continue to get oxygen through a tube around your nose for a day or 2.
- A family member (caregiver) will help with your personal care while in the hospital. This included brushing your teeth, bathing, clothing changes, etc. The nursing staff will help teach them proper care.
- You will be encouraged to cough and take deep breath. This helps keep your lungs open and clear to prevent pneumonia.

- An “incentive spirometer” (breathing machine) will be at your bedside to help you keep your lungs clear
- Support Stockings (hose) and/or Sequential Compression Devices (SCDs or squeezers) will be placed on your legs to help with circulation and reduce your risk of blood clots
- You will be instructed on exercises that also help promote circulations (ankle pumps and fist squeezes)
- A therapist may visit you to teach you exercises, and ensure your immobilizer is fitting properly.

YOUR IMMOBILIZER

When you wake up your shoulder will be in an immobilizer. The helps protect your arm and helps prevent movement that can damage your new shoulder joint and the repaired subscapularis. You should use this to support the weight of your arm, and NOT your own muscles. The immobilizer will be worn DAY & NIGHT for 6 weeks to allow it to heal.

YOUR HOSPITAL STAY

Most Shoulder Replacement patients stay in the hospital 1-2 nights. Each person is different and your needs are assessed daily. Once your pain is controlled, and you are comfortable with your therapy, you may be discharged home.

The day after your surgery is a big day! Today you will begin your exercises under the direction of the medical team and therapist. It is nice to have a family member, or other caregiver, who will be with you when you return home to watch and assist with the exercises. You will be given handouts about the exercises along with any needed equipment. Even though the kit may contain different instructions and/or extra equipment, ONLY DO THE EXERCISES YOUR PHYSICIAN AND/OR THERAPIST SHOW YOU!!! As you progress, more exercises will be added and “extra” equipment may be utilized. It may be helpful to take a dose of pain medication right before the therapist comes to help with some discomfort which may occur.

If still in place, your bladder catheter will be removed on the first day by the nursing staff. Also, your IV lines and oxygen tubes will be removed when they are no longer needed. Blood may be drawn to have checked by the laboratory and physicians so you can be managed appropriately.

Once your catheter is removed, you are comfortable with your exercises, and pain is under control you are ready for discharge. Make sure you have learned how to get in and out of bed/chair/toilet/car before you leave. Make sure you have learned the exercises and take your handouts as reminders.

One thing to remember is to make sure you continue to take a stool softener and drink plenty of water after surgery. The medications given to help with pain control may cause constipation. It is normal not to have a bowel movement for a few days.

NOW YOU ARE HOME

Activity and Physical Therapy : Remember everyone is different and the following are guidelines. Make sure to follow the instructions given to you by your physician, nurses and therapists.

- Use your shoulder immobilizer at all times DAY & NIGHT until told not to. The only time this may be removed is for exercises and hygiene purposes (shower/bath, changing clothes, etc)
- Set aside time to do your exercises
- Exercises should be done 3-5 times per day. Each individual exercise should be done 10 times
- Active movement of your elbow, wrist and hand are safe as long as your shoulder is not moving. It is important to move your elbow, wrist and hand to prevent stiffness in these joints.
- DO NOT LIFT OR HOLD HEAVY OBJECTS UNTIL YOU ARE GIVEN PERMISSION TO DO SO.
    - Examples of approved objects to hold are:
        - Coffee cup
        - Dinner plate
- AVOID HEAVY HOUSEWORK WHILE RECOVERING (light housework may be ok depending on the activity)

Antibiotics : Your shoulder has now been replaced and needs to be protected. For the rest of your life, any time you may need any of the following procedures you need to take antibiotics before and after the procedure. The Orthopaedic Clinic will be happy to prescribe these to you if you give advanced warning.

- At Risk Procedures:
    - Dental Work (other than routine Cleaning)
    - Colonoscopy
    - Pelvic Exams
    - Urinary Catheterization
    - Any other procedure where a tube or instrument is inserted into your body
- It is advised that any of these procedures be delayed for at least 3 months AFTER your surgery, if medically possible
- It is recommended that any of these procedures be completed 6 weeks prior to your planned surgery if possible.

Bathing/Showering : You may shower if your wound is covered with the Aquacell dressing in place. **Your surgeons will give you more specific information** in your discharge paperwork on this item. When you do shower, DO NOT scrub the wound!! GENTLY pat the wound/dressing dry.
NEVER PUT ANY LOTIONS OR OITMENTS ON THE WOUND!!!!

DO NOT SOAK YOUR WOUNDS FOR 6 WEEKS AFTER SURGERY! This means no baths, hottubs, or swimming! If your wound is submerged this may increase your chances of obtaining an infection.

You may need assistance getting in/out of the shower, in addition to showering, drying off, and getting dressed afterwards. Remember this is what your caregiver is for!

ONLY USE STICK OR ROLL-ON DEODORANT! Spray deodorants, powders, and perfumes may get into the incision by accident and slow the healing!

DRIVING

- IF YOU ARE USING NARCOTIC MEDICATIONS YOU MAY NOT DRIVE AT ALL!!!
- YOU MAY BEGIN TO DRIVE WHEN YOU NO LONGER NEED YOUR SHOULDER IMMOBILIZER
    - YOUR SURGEON WILL HELP YOU WITH THIS TIMING
    - IN GENERAL:
        - MUST HAVE AUTOMATIC TRANSMISSION
        - DO NOT START TO DRIVE UNTIL 2 WEEKS AFTER SLING IS DISCONTINUED
        - START SLOW! DO NOT START ON HIGHWAYS AND RUSH HOUR!!!!

YOU SHOULD DISCUSS DRIVING WITH YOUR PHYSICIAN BEFORE YOU RETURN TO DRIVING

CALL YOUR SURGEON OR HEALTH CARE PROVIDER IF ANY OF THE FOLLOWING OCCUR:

- Fever (temperature above 101.5 for 2 days)
- Increasing pain that does not improve after taking medications
- Drainage with pus, odor, redness, swelling, heat or opening of the incision
- Urinary/bladder infection
- Lung infection
- Change in motion ability or arm length
- Calf/thigh pain, tenderness or swelling in either leg
- Shortness of breath
- Chest pain
- New/increased numbness or tingling in your arm
- A fall or injury

CONCLUSION

Congratulations on your new shoulder replacement!! As you can tell it is not an overnight process and a good outcome involves cooperation between the entire healthcare team **and YOU**!
We hope you find this packet informative and useful. Please feel free to ask questions of your healthcare team as they occur. The more informed you are, the more likely you are to have a better result!!!

References:

Mayo Clinic. Shoulder Replacement Surgery: Antatomic Prosthesis. 2010.
Google Images
Patient Input
Personal Experience
AAOS