



**AVATAR**  
*Same Day Surgery*

**Patient Guide to  
Total Shoulder  
Replacement**

**THE  
KNEE • HIP • SHOULDER  
CENTER**

**Portsmouth, NH**

# WELCOME

- Thank you for entrusting your care to us for your shoulder replacement. As a practice that specializes in joint replacement surgery, we have built a comprehensive program called **AVATAR** that is designed facilitate the recovery process and improve outcomes.
- Our team of physicians, physician assistants, nurse practitioners and office staff are all highly dedicated to the AVATAR process and to our patients' end result.
- This manual is your guide to the AVATAR shoulder replacement program and is meant to help you prepare for surgery and maximize your recovery.
- If you have any questions are require further information, please contact us anytime at:
  - Phone: 603-431-5858
  - Email: [avatar@kneehipsho.com](mailto:avatar@kneehipsho.com)



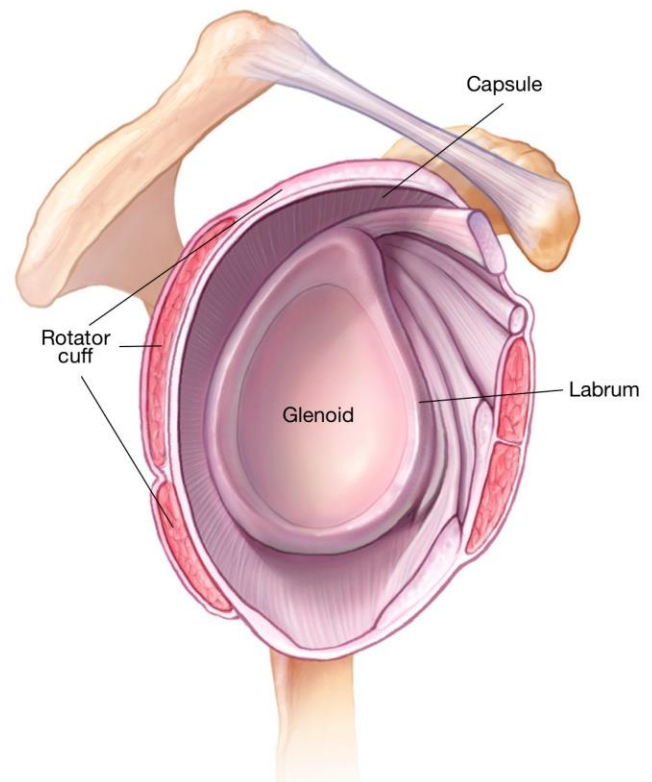
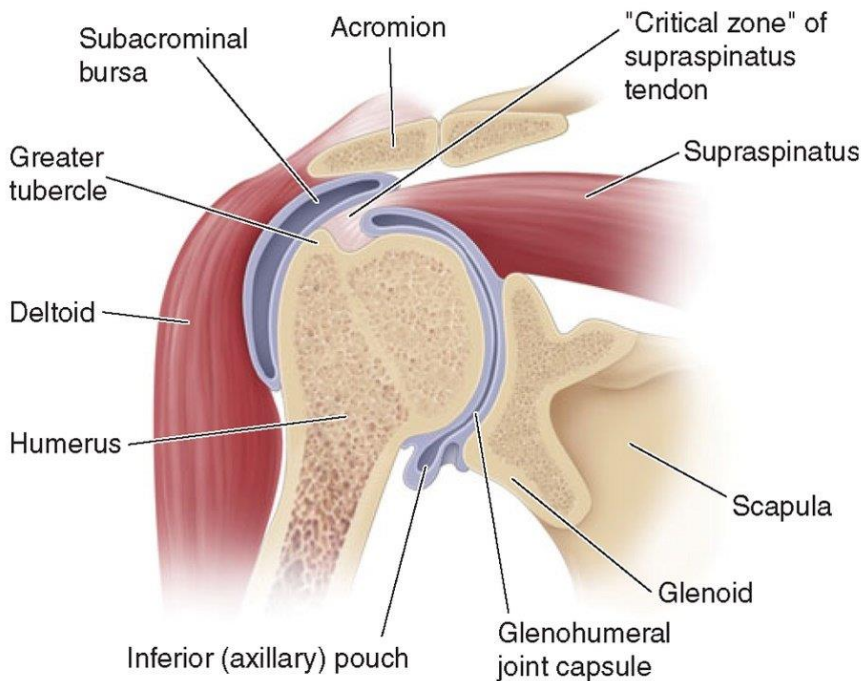
## ABOUT DR. PARSONS

- Fellowship-trained shoulder surgeon with subspecialty interest in shoulder replacement
- Member of the American Shoulder and Elbow Surgeons
- Founding member of the New England Shoulder and Elbow Surgeons
- Design surgeon for the Exactech GPS preoperative planning the surgical navigation system
- Specialist in outpatient joint replacement surgery



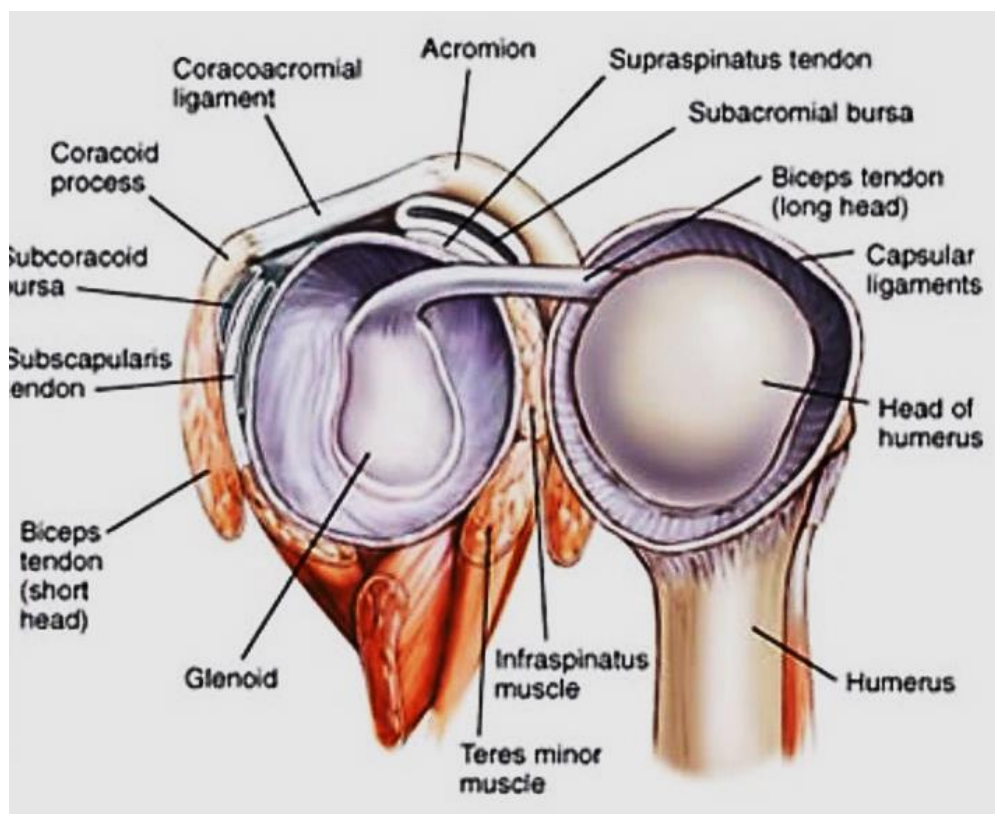
# About Shoulder Anatomy?

- The shoulder is a ball and socket joint.
  - The ball sits on top of the humerus bone
  - The socket is part of the shoulder blade (scapula)
- Cartilage covers these surfaces to provide a smooth gliding surface
- In addition, there are key tendons and ligaments that move and stabilize the shoulder during everyday function



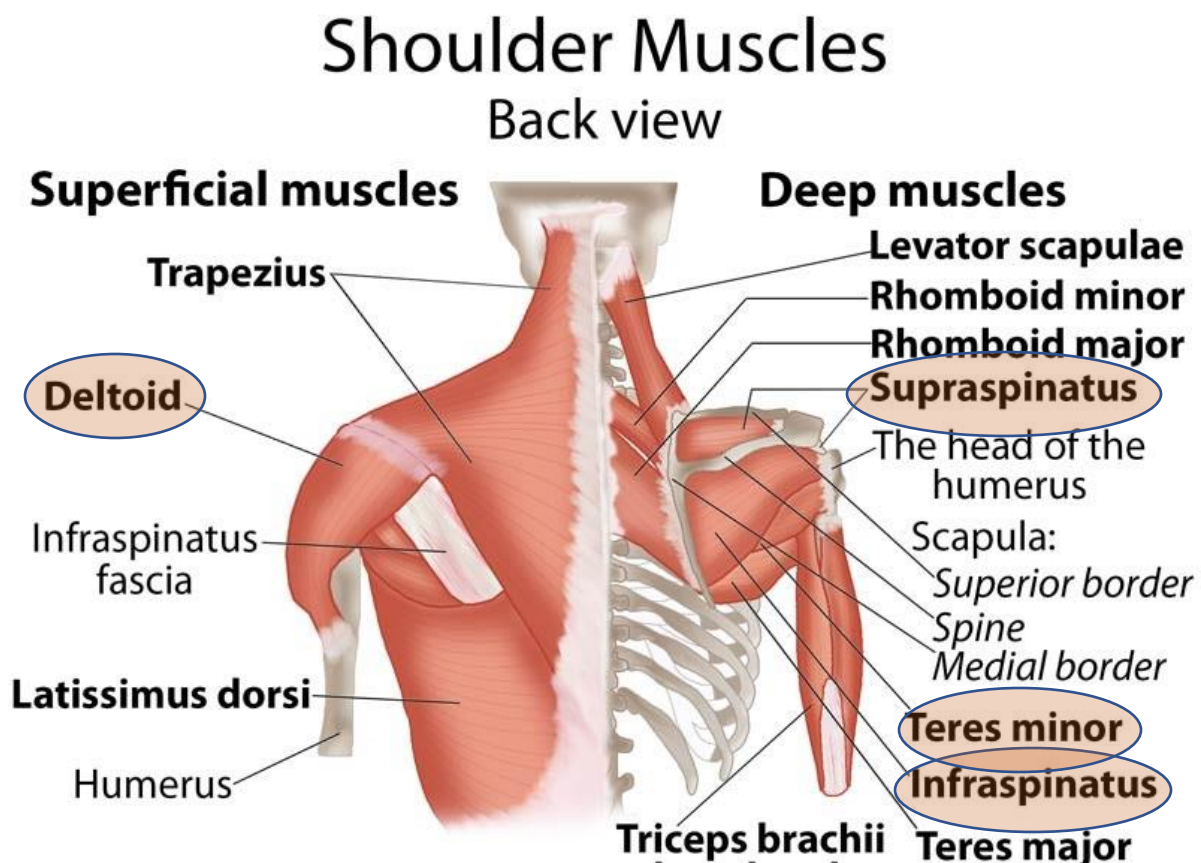
# Glossary of Terms

- **Glenoid:** shoulder socket
- **Humeral head:** ball
- **Labrum:** ring of fibrocartilage tissue that surrounds the glenoid
- **Capsule:** connective tissue that surrounds the joint and is reinforced by ligaments
- **Rotator Cuff:** a group of 4 tendons that surround the humeral head and provide motion and stability to the joint



# About Shoulder Anatomy?

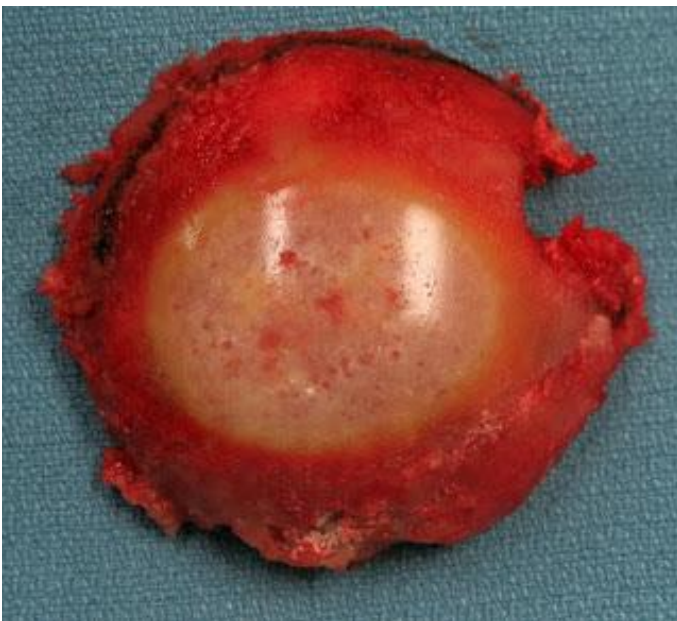
- The rotator cuff acts to stabilize the humeral head in the glenoid concavity and to power internal and external rotation of the arm
- The deltoid is the prime mover in elevation of the arm
- Optimal deltoid function relies on a functioning rotator cuff to keep the head centered in the socket during arm elevation



# Shoulder Arthritis

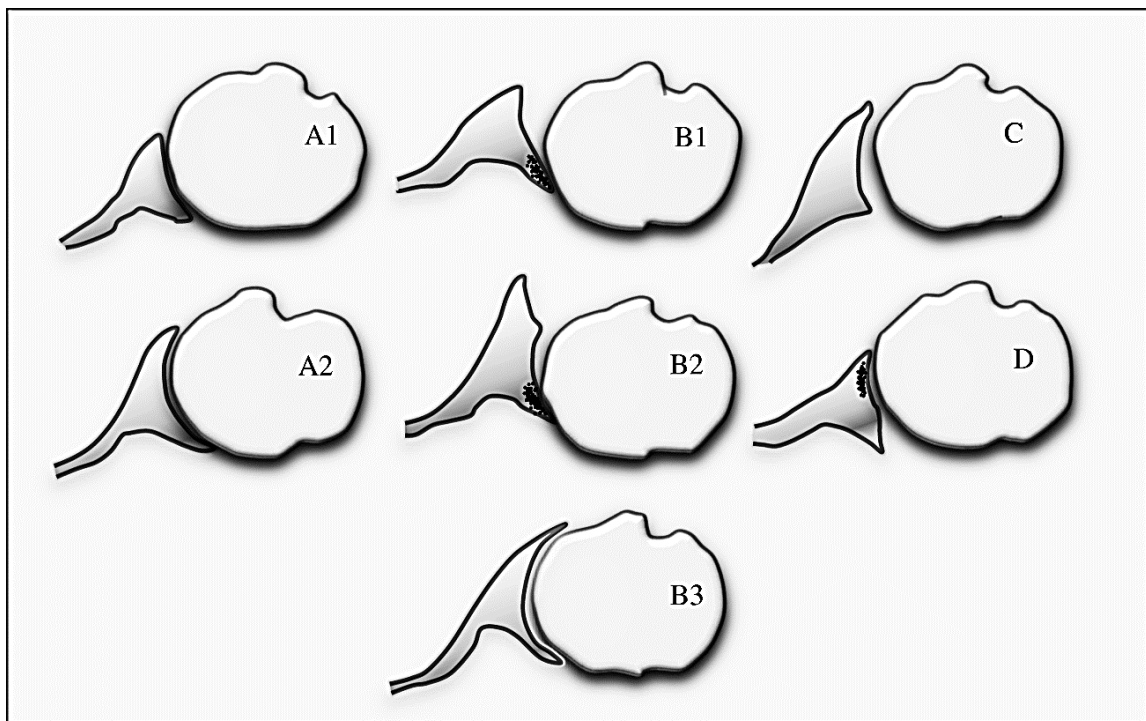
- Arthritis occurs when the cartilage that forms the smooth gliding surface of the joint wears away exposing the underlying bone
- Other adaptive changes occur as a result
  - Osteophytes (bone spurs)
  - Flattening of the humeral head
  - Bone cysts
  - Socket sided wear

## Bone on Bone



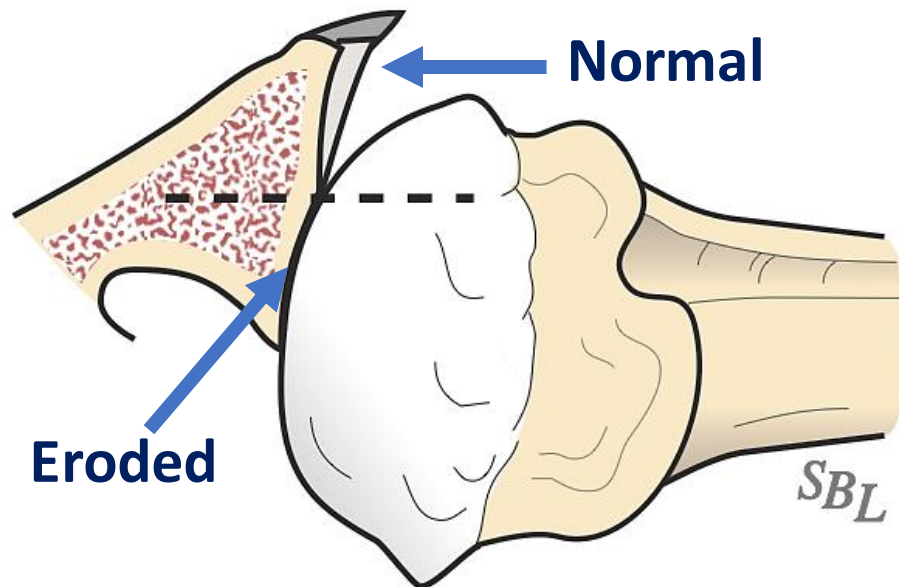
# Glenoid (socket) Wear and Erosion

- Arthritis results in different patterns of glenoid erosion
- The pattern and severity of the wear may dictate which type of shoulder replacement is best and which implants will best restore anatomy toward normal





# An Example of a B2 Glenoid



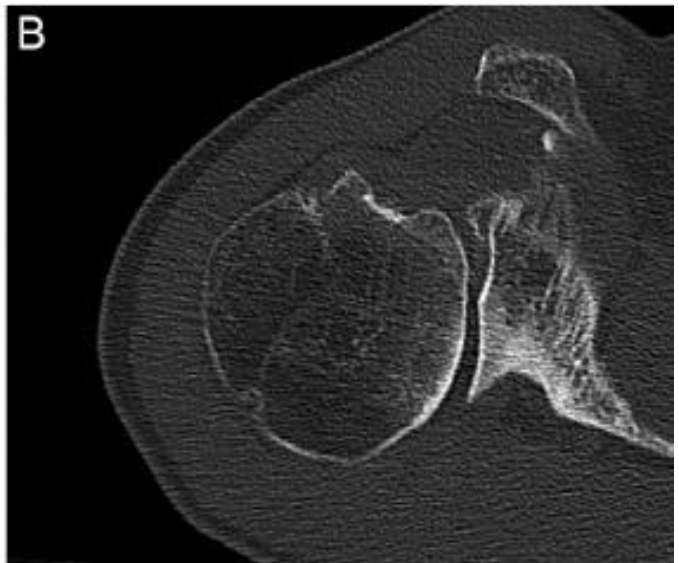
- **Retroversion:** increased angle between the face of the glenoid and the body of the scapula that results from arthritic wear
- **Posterior Decentering:** (also known as subluxation) when the humeral head rests on the back of the glenoid rather than the center of the glenoid
- **Biconcavity:** when the decentering causes posterior glenoid wear, carving a second concavity or socket

# Xray Example of Shoulder Arthritis



These xrays show all of the hallmarks of shoulder arthritis

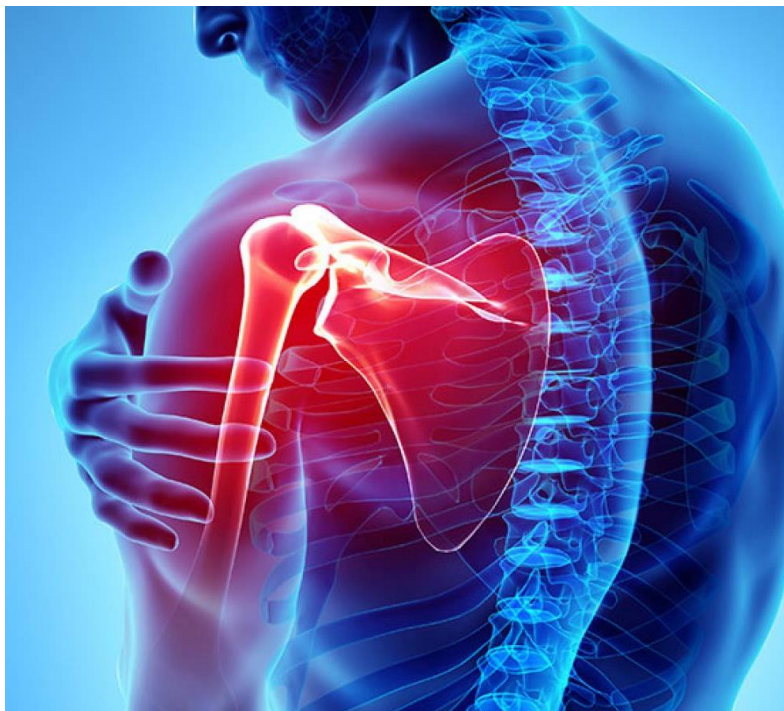
- Bone on bone
- Bone spurs
- Socket erosion (retroversion)
- Posterior decentering (subluxation)
- Biconcavity



# Who Should Consider A Shoulder Replacement?

The following are general guidelines for when a shoulder replacement is appropriate

1. The level of pain is moderate to severe and significantly impairs your activity level
2. You find yourself avoiding certain activities that you would otherwise do because of pain
3. You have maximized conservative measures like medications, injections, exercise therapy etc...
4. Your quality of life is sufficiently impaired to warrant the surgery and recovery



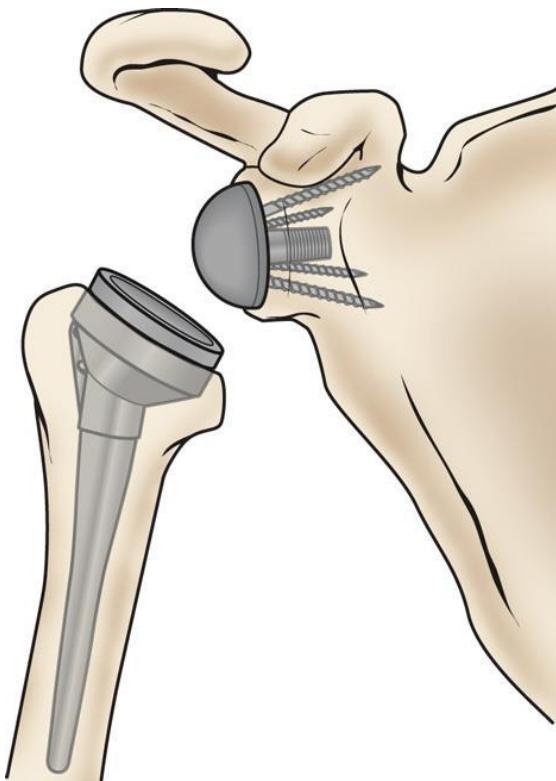
# Anatomic Shoulder Replacement

- Replaces both the ball and socket in the same orientation as a normal shoulder
  - Ball is made of cobalt-chrome a highly polished and smooth metal
  - Socket is made of polyethylene a very wear resistant plastic



# Reverse Shoulder Replacement

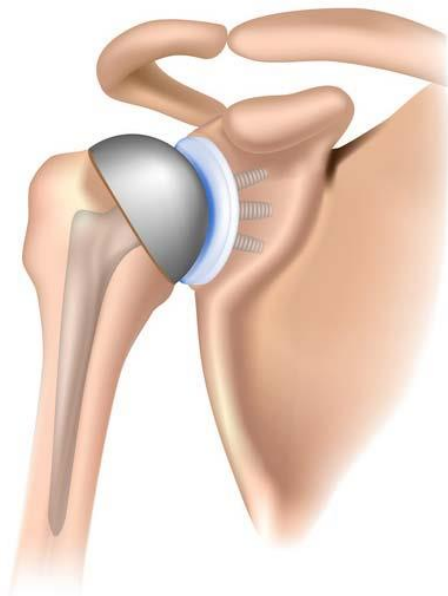
- In a reverse shoulder replacement, the orientation of the ball and socket are reversed
  - The artificial ball is attached to the normal shoulder socket
  - The artificial socket is attached where the normal humeral head is



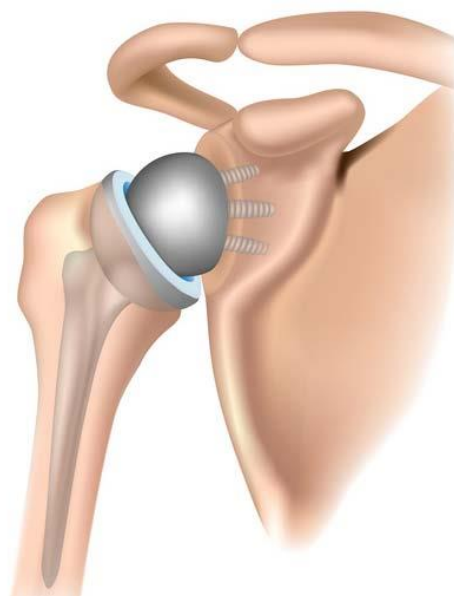
# Which Kind of Shoulder Replacement Do I Need

- Currently 70% of shoulder replacements worldwide are reverse
- This is because reverse shoulder replacement has a wider list of indications compared to anatomic shoulder replacement
- If you have osteoarthritis with a normal rotator cuff, no history of prior rotator cuff or instability surgery, and mild to moderate glenoid wear, anatomic shoulder replacement is likely the best option
- In cases of osteoarthritis with severe glenoid wear, reverse shoulder replacement has been shown to have better results and fewer complications

Conventional



Reversed



# Indications for Reverse Shoulder Replacement

- ✓ Rotator cuff tear with arthritis
- ✓ Irreparable cuff tear
- ✓ Osteoarthritis with severe glenoid wear
- ✓ Patients over age 75-80
- ✓ Proximal humerus fractures
- ✓ Fracture malunion
- ✓ Chronic dislocations
- ✓ Failed anatomic shoulder replacement
- ✓ Tumor reconstruction
- ✓ Inflammatory arthritis

# Is there any difference in outcome between Anatomic and Reverse Shoulder Replacement?

For patients with osteoarthritis and an intact rotator cuff who may be a candidate for either type of replacement there are pros and cons to the reverse as compared to the anatomic.

## Pros

- Less risk of failure due to later potential for rotator cuff disease
- Potentially greater durability of glenoid implant fixation long-term

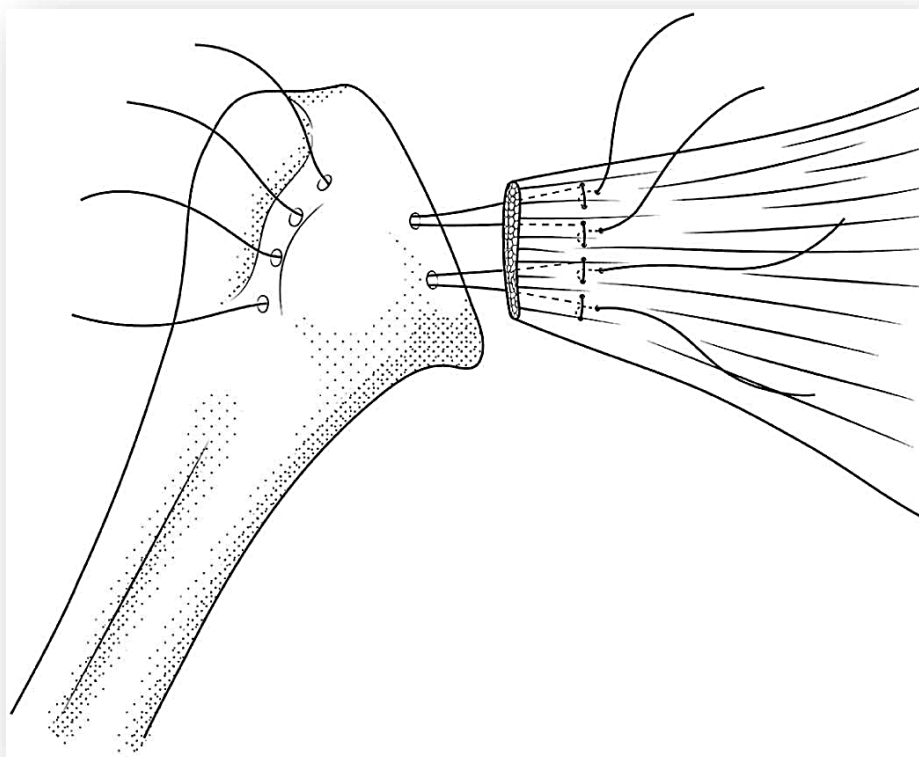
## Cons

- Less overall range of motion, especially internal rotation behind the back
- More potential for some persistent discomfort around the deltoid muscle
- Particular complications such as scapular spine fractures and dislocations



# Recovery from Shoulder Replacement

- The shoulder joint is completely surrounded by the rotator cuff
- In order to gain access to the joint to implant the prosthesis, the subscapularis muscle must be released from the bone and then reattached at the end of the case
- Recovery from both anatomic and shoulder replacement is based solely on the healing of this tendon
- It takes 3 months for this tendon to be solidly healed where there is little risk of rupture



# Deciding on the best Humeral Implant

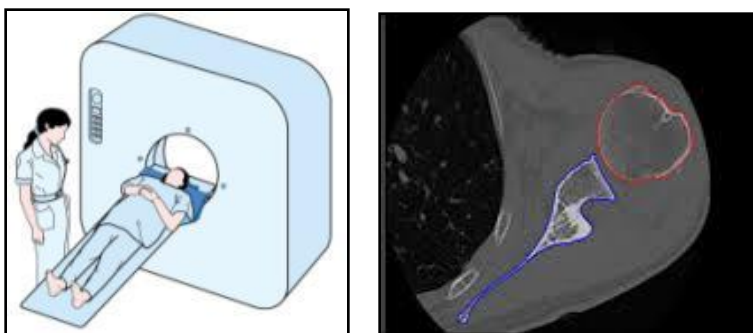
- Different implants each have their pros and cons that must be individualized to the anatomy, bone quality and clinical scenario
- Dr. Parsons will choose the implant that balanced these pros and cons to provide the best long-term outcome



# What is GPS?

- GPS stands for Guided Personalized Surgery
- It starts with a 3D CT scan which is imported into a planning software
- We can then plan the case to choose the optimal implant and its optimal position for each case
- This plan can then be used to navigate the case intraoperatively to achieve precise implant positioning

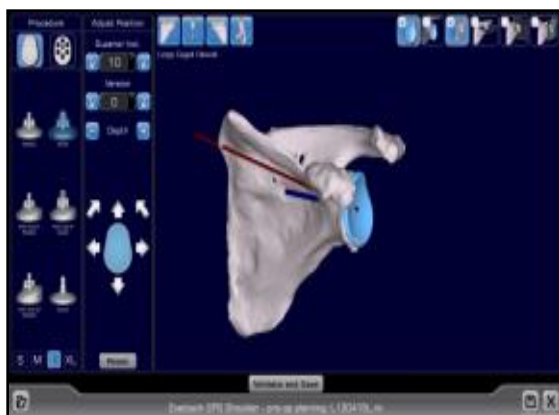
## 3D CT Scan



## Implant Selection



## Preoperative Planning

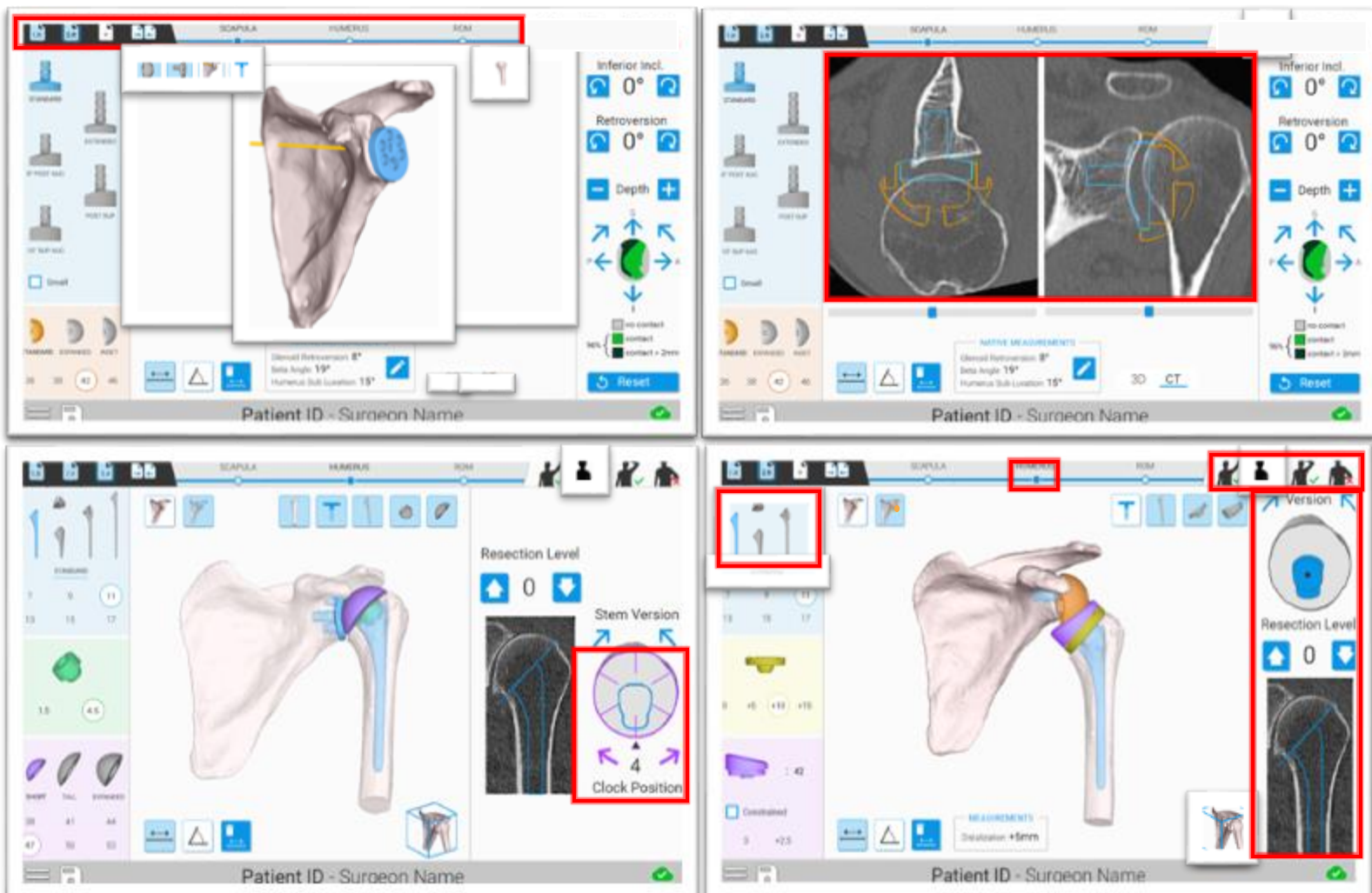


## Surgical Navigation



# Preoperative Planning

- Planning allows us to blueprint each operation before we do it
- This improves the precision of implant placement to avoid complications and optimize outcomes
- We can plan for any difficulties that might arise in complex cases



# Expectations After Shoulder Replacement

## Pain Relief

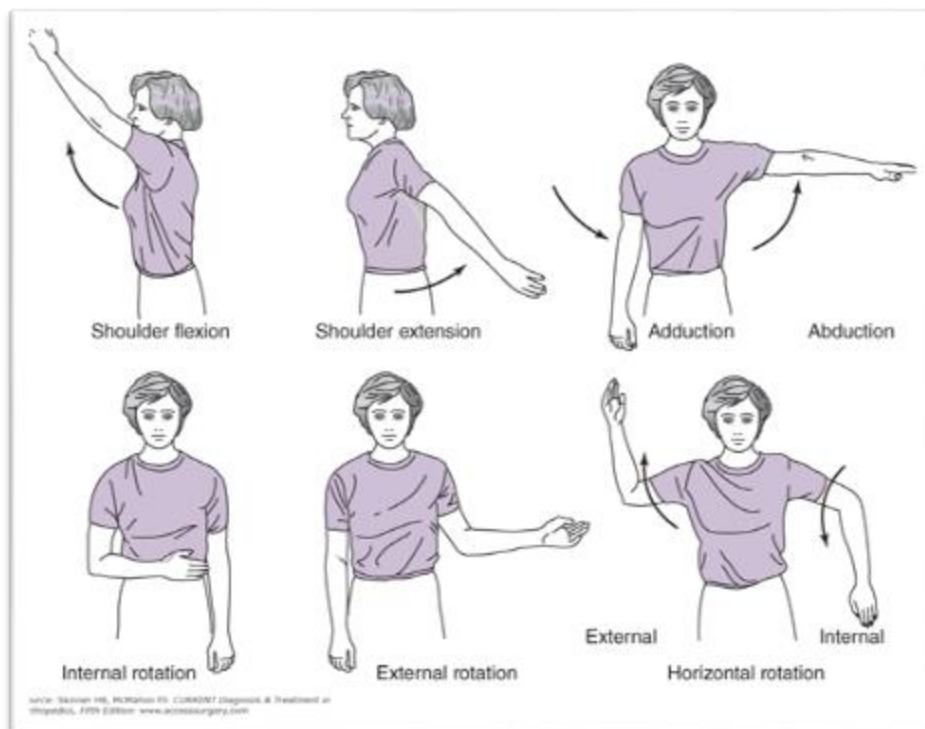
- The main goal of shoulder replacement is pain relief and 90+% of patients will achieve good to excellent results when it comes to this measure
- Some persistent discomfort with more strenuous activities may be present for 10-20% of patients
- The keys to a good outcome are as follows
  - Proper healing of the tendons around the shoulder
  - Dedication to the therapy program to regain strength and function



# Expectations After Shoulder Replacement

## *Range of Motion*

- Arthritic shoulders are generally very stiff in all planes of motion and replacement surgery can greatly improve this provided a successful recovery
- Postoperative range of motion can be affected by other issues such as ineffective physical therapy, a genetic predisposition for form scar tissue, prior surgery, significant preoperative stiffness and other complications



# Expectations After Shoulder Replacement

## *Return of Function*

- Shoulder replacement can significantly improve function as a result of improved comfort, range of motion and strength
- We allow patients to return to all manner of sports and leisure time activities but recommend against repetitive strenuous impact such as chopping with an axe
- Ability to return to specific activity is contingent on successful rehabilitee and recovery



# Patient Activation

- When patients get actively involved in their preparation and rehabilitation, the chances of a successful outcome are greater
- There is no surgical technique or technology that can compensate for a lack of motivation to succeed
- The decision to undergo joint replacement must include a commitment to actively participate in the outcome of surgery
- Joint replacement simply sets the stage for what patients can achieve through persistent dedication to the rehabilitation and recovery process

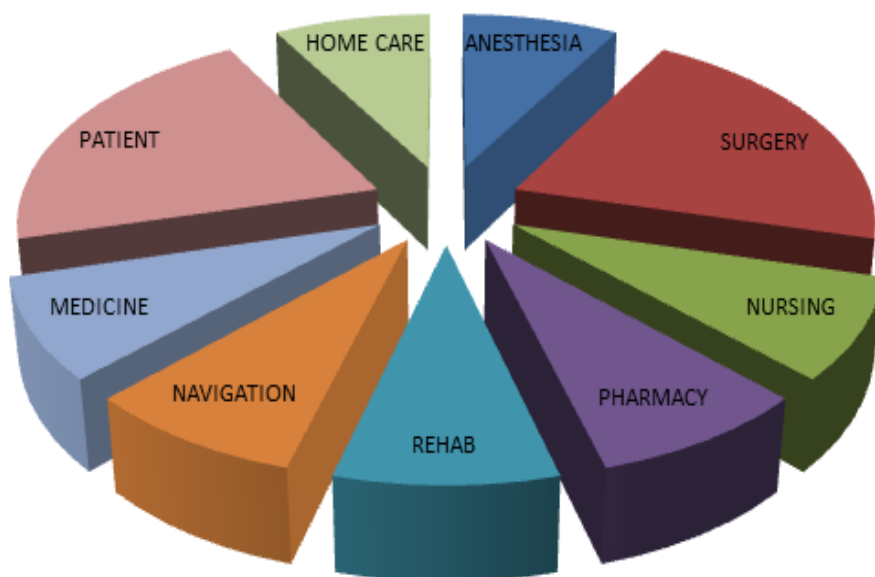
**OWN YOUR OUTCOME**



# AVATAR

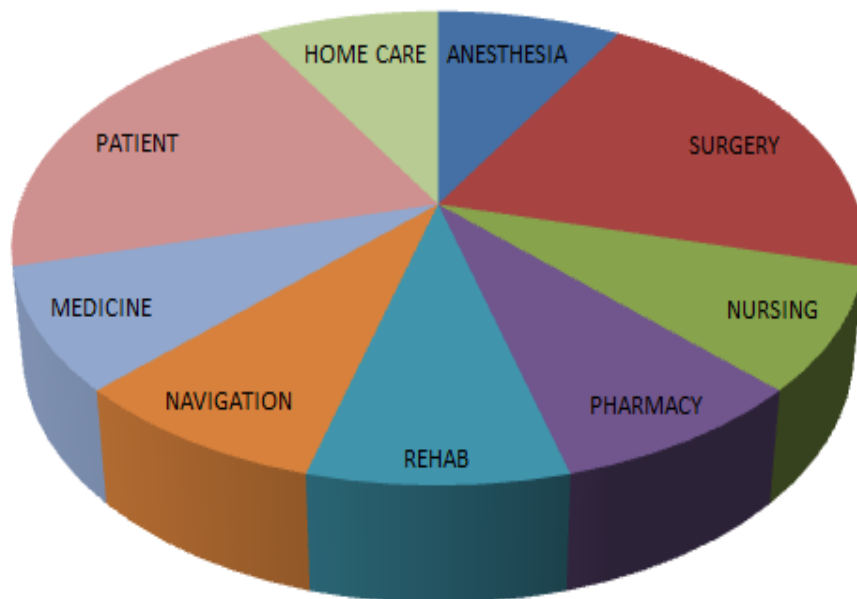
## Align Vital Assets To Accelerate Recovery

- Joint replacement surgery is a complex process that involves many aspects of care.
- Surgery is only one asset in this process.
- While a properly performed surgery is important to outcomes, all other assets must also be aligned
- AVATAR is a new approach that uses the best technology and surgical technique, selects the best professionals (surgical team, anesthesiologist, physical therapist), and ensures the best pain control



# Navigation

- AVATAR is about customizing each of these assets to a patient's individual needs and putting together a pathway that leads to better quality care and higher patient satisfaction
- Our goal is to help navigate each patient through the entire process and let nothing fall through the cracks
- We have a track record of over 2000 patients who have done better with personalized, customized total joint experience



# Same Day Surgery

- With the AVATAR program, an overnight stay in the hospital is no longer necessary for a majority of patients.
- **HOW?**
  - Pain is the major factor limiting rehabilitation after joint replacement. With the use of multimodal pain management, long-acting local anesthetics and medication to limit blood loss, a majority of patients can be dressed and heading home within a few hours after surgery
  - An individualized postoperative medication schedule will be developed for each patients using an opioid sparing protocol called multimodal analgesia.
- **WHO?**
  - Motivated patients who do not have any major health problems that require inpatient monitoring are eligible for same day surgery.
  - After surgery patients must demonstrate that they are sufficiently recovered to be functional and safe at home
  - Patients are discharged home by an experienced physical therapist, nursing staff and surgical team.
  - A total joint coach/support person must be available to drive the patient home and spend the first 1-2 nights after surgery
- **WHY?**
  - Hospitals are loud, impersonal and uncomfortable.
  - When patients recovery at home they can be in better control of their postoperative care, enjoy better sleep, better food and normal creature comforts which make recovery more pleasant and restful.

# Benefits of Same Day Surgery

- Multiple studies have now demonstrated it is as safe or sometimes even safer to go directly home after joint replacement than to spend 1-3 nights in the hospital
- The following are benefits that our patients have reported
  - ✓ Comfort of your own bed leading to better sleep
  - ✓ Comfort of your own home leading to less stress
  - ✓ Full availability of your coach
  - ✓ Home cooked food
  - ✓ Better ability to control your pain in real time
  - ✓ Better ability to self-manage any medical issues such as diabetes
  - ✓ Lower risk of infection
  - ✓ Better ability to mobilize since there will not be lines and monitors hooked up to you
  - ✓ Less noise and few people coming in and out

# MY AVATAR

- *AVATAR Definition*: the embodiment of a concept or philosophy in a person
- The goal of shoulder replacement is to restore you to the activities your love and have missed because of arthritis.
- My AVATAR is who you want to be when your arthritis pain is gone.
- Achieving your AVATAR takes a commitment on your part to regain strength and function after surgery. This is not automatic.
- Shoulder replacement simply sets the stage for you to achieve the goals you have for yourself
- Define your AVATAR before surgery so you can set goals for your new knee

# Coach

- It is important to have someone who can help you through the entire care episode of joint replacement from preoperative preparation through recovery.
- Your Coach can be a spouse, family member or friend who can assist you, provide a second set of ears, ask relevant questions and motivate you to succeed
- Recruit this person in advance and engage them as part of your care team so they can be part of your success story
- For many people, the process of undergoing joint replacement can be overwhelming and having a critical support person can have a tremendous positive impact

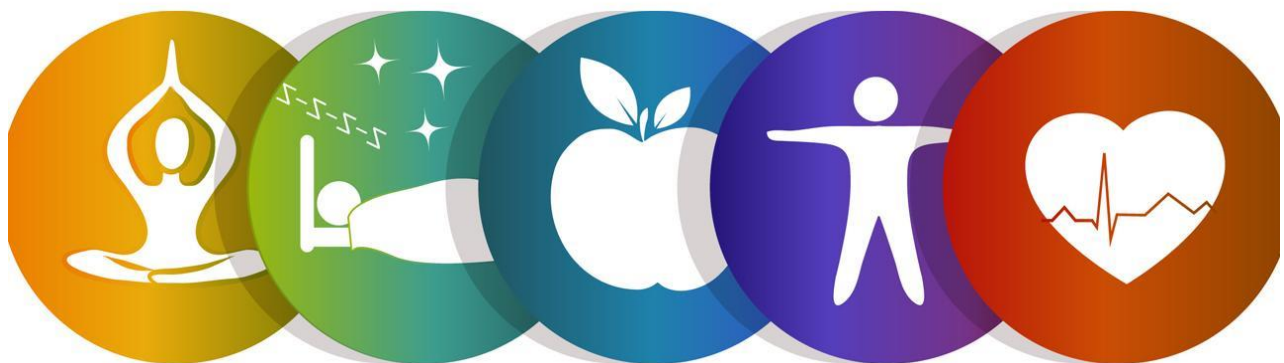


# Preoperative Preparation

- Getting yourself ready for surgery can improve the process of recovery and the final outcome
- This includes the following:
  1. General health and wellness
  2. Nutrition
  3. Weight control
  4. Prehab exercises
  5. Home preparation
  6. Medical Equipment

# General Health and Wellness

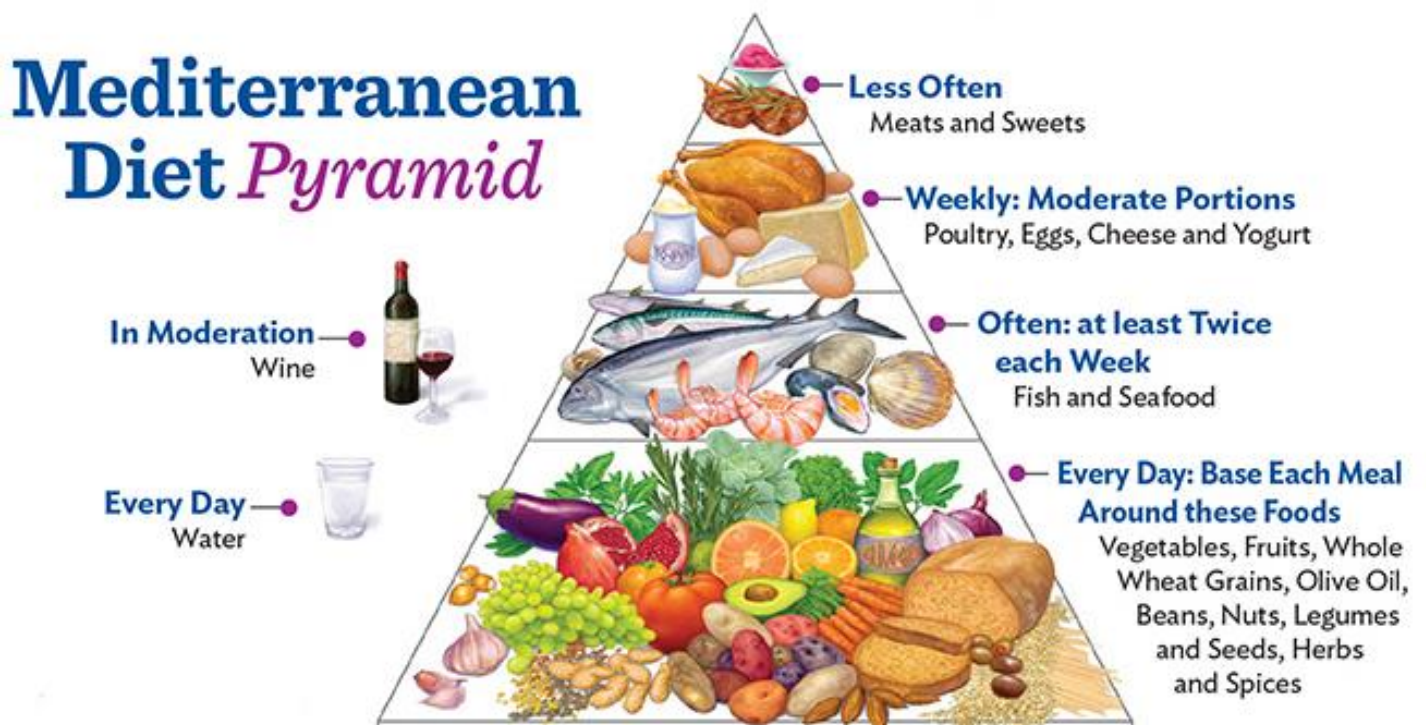
- Improving your general health before surgery can lower the risk of complications
- Any chronic health conditions should be well-controlled.
- Patients with Diabetes should have a Hemoglobin A1c of 7.5 or less
- Regular exercise to improve cardiovascular health and overall strength has a proven benefit
- Patients who smoke should aim to cease or significantly reduce nicotine use 6 weeks prior to surgery
- Alcohol consumption should be minimized in the weeks prior to surgery





# Nutrition

- Improving your nutrition prior to surgery can strengthen your immune system and boost your healing capacity
- It can also improve your bone quality and help strengthen your muscles before and after surgery
- Poor nutrition has been linked to a higher risk of infection
- Consider vitamin and mineral supplementation in the weeks prior to surgery
  - Multivitamin
  - Vitamin D: 2000IU daily
  - Vitamin C: 1000mg daily
  - Zinc 50 mg daily



# Nutrition Tips

- Eat at least 5 servings of fruits and vegetables every day. Try to consume a variety of colors of produce for additional health benefits. Each color contains different vitamins and minerals.
- Eat more whole grains and legumes (beans and lentils).
  - » Whole grains include brown and wild rice, whole grain noodles, corn, quinoa, oats, and popcorn.
- Try meatless alternatives. In place of meat you can get your protein from eating eggs, fish, poultry, beans, peas, soy-based foods (like tofu or soy milk), nuts/nut butter, and low-fat or fat-free dairy products.
- Keep your sodium intake to less than 2300 milligrams per day.
  - » Avoid adding salt to your food when cooking. Opt for a salt free seasoning or fresh herbs and spices.
  - » Eat freshly prepared meals at home. Processed foods and restaurant foods contain more salt.
  - » When shopping, choose the products with lower sodium content.
- Limit your daily sugar intake. Sugar can be found in honey, syrups, jelly, fruit juice, soda, candy, pastries. Read nutrition labels carefully to avoid products with high sugar content.
- Avoid foods with saturate and trans fats. Foods with unsaturated fats are a better option.
  - » Unsaturated fat is found in fish, avocado, nuts, and oils (sunflower, canola, and olive oil)
  - » Saturated fat is found in fatty meat, butter, ice cream, palm and coconut oil, cream, cheese, and lard.
  - » Trans fats are found in many processed foods, margarines, fried foods, fast food items, pies, cookies, and other dessert. Check nutrition labels.
  - » Boil, steam, or bake food instead of frying.



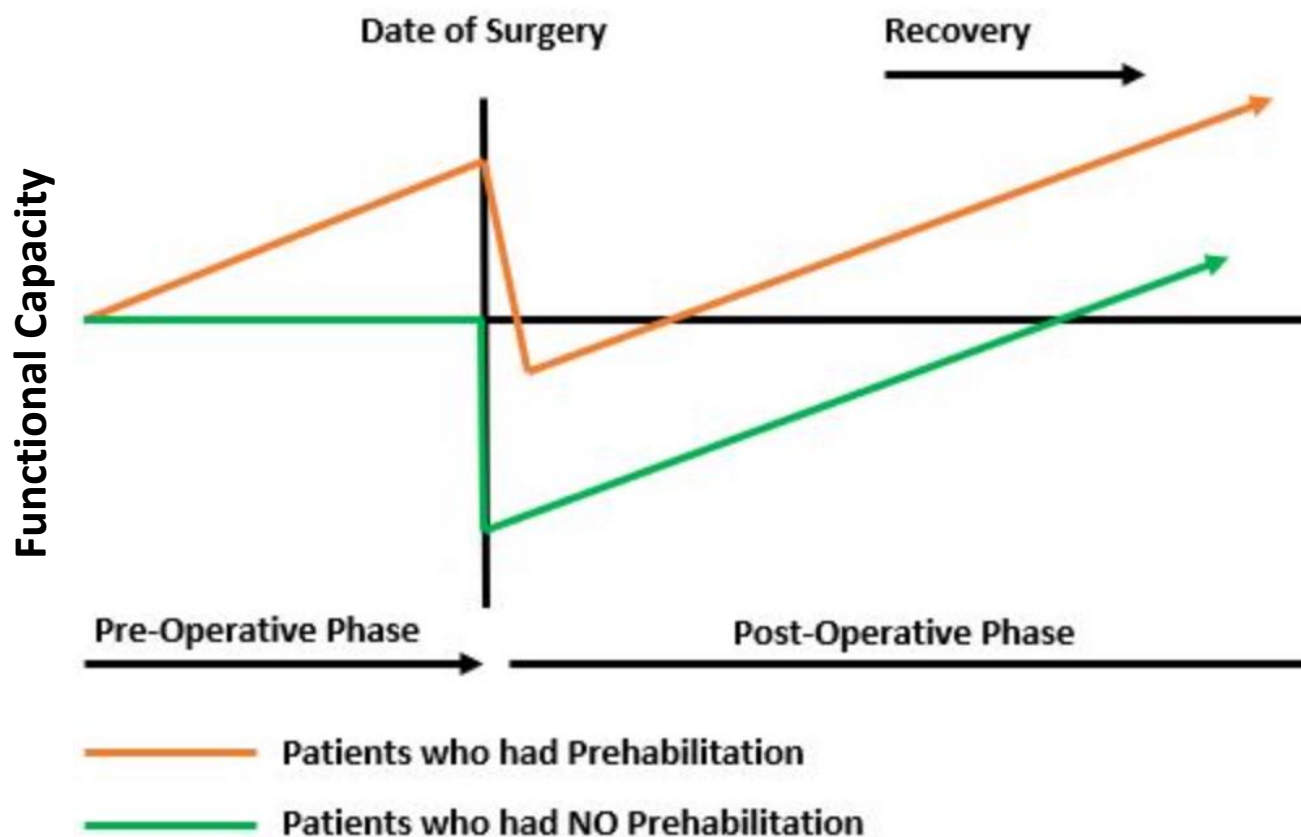
<https://shop.mend.me/products/mend-joint-replacement>

## Protein Supplementation

- Protein is key for healing and protein supplementation before and after surgery has several benefits
  - Reduced infection risk
  - Less muscle atrophy before surgery
  - Faster recovery or strength after surgery
- MEND is a supplement designed for joint replacement preparation and recovery and we recommend our patients purchase this and start it 4-6 weeks prior to surgery and continue for 6-12 weeks after surgery

# Prehabilitation Exercises

- Exercises to strengthen the shoulder muscles prior to surgery can jump-start the recovery process
- This can be done either with a home exercise program or as part of a structured therapy program
- Regular performance of these exercises will get you in the mode of exercising after surgery and familiarize you with what to do



# Home Preparation

- **Get your house ready prior to surgery so you can return to a comfortable and safe environment**
- ✓ Carry your cell phone with you at all times in the event of a problem
- ✓ Set up a recovery area with easy access to the kitchen, bathroom, remote control, electronics charging, etc..
- ✓ Move furniture to make clear paths for navigation providing room for use of a walker
- ✓ Remove throw rugs, loose electric cords or any other hazard that might produce a fall risk
- ✓ Put nightlights in areas like the bathroom to make navigation easier at night
- ✓ Stock up on groceries and other essential items like toiletries and any medications you will need
- ✓ Move essential items from low cabinets to waist height to reduce the need to crouch
- ✓ Set up your exercise area
- ✓ Prepare and freeze meals prior to surgery
- ✓ Make your ice packs
- ✓ Pay your bills in advance

# Medical Clearance

- You will need to get clearance from your medical doctor for surgery.
- If you see a cardiologist regularly for a heart condition or have a prior history of heart disease, cardiology clearance may be required as well.
- Routine lab work is also required including a nasal swab to screen for staph bacteria in the nose.
- Other testing such as additional lab work or an EKG may be required depending on age or other medical conditions.
- If there are any concerns about your health history that may impact surgery, we may arrange a consultation with the anesthesiologist as well.



# Medical Clearance

- **Our surgical schedulers can help to arrange medical clearance and any testing in the weeks prior to surgery**
- If you have any health conditions that are not stable or well controlled at the time of scheduling, your surgery may need to be delayed until your health can be optimized
- This can include
  - Poorly controlled diabetes
  - Unstable heart disease
  - Moderate to severe kidney or liver disease
  - Vascular disease involving the surgical leg
  - Any ongoing infection elsewhere in the body



# Preoperative Appointment

- You will have an appointment with us about 1 week prior to surgery to:
  - ✓ Review your medical clearance
  - ✓ Review your current medications
  - ✓ Review your lab work
  - ✓ Review preoperative instructions
  - ✓ Discuss pain management strategies
  - ✓ Answer any questions
  - ✓ Review risks and benefits of surgery
  - ✓ Sign consent for surgery
- **Be sure to bring an up-to-date list of your most current medications and dosing to this visit**





# Pain Management

- We cannot make surgery pain free, but our goal is to make the pain tolerable so that you can engage in the exercises necessary to gain motion and strength
- We will customize a strategy for you based on
  - other medications you may be taking
  - a history of prior medication intolerance or allergy
  - any medical conditions that may preclude certain medications
- **If you are treated for chronic pain by a pain management specialist, a clear plan needs to be developed prior to surgery regarding**
  - **who will manage the postoperative period and for how long**
  - **what medications are suggested in addition to baseline pain management**
- See our [\*Perioperative Pain Management Guide\*](#) for more details

# Medications to Purchase Prior to Surgery

- We recommend purchasing the following before surgery so that you have everything set up in advance. These can all be purchased over the counter.
  - ✓ Tylenol ES 500mg
  - ✓ Enteric-coated Aspirin 325mg
  - ✓ Prilosec 20mg (unless you take another antacid like Protonix)
  - ✓ Anti-inflammatory medication of choice
    - Ibuprofen 200mg
    - Naprosyn/Aleve 220mg
  - ✓ Miralax bottle
  - ✓ Colace 100mg

# Preoperative Bathing Instructions

- You will be provided with a bottle of **Hibiclens** antibacterial soap at your preoperative visit
- Start washing with this 3 days prior to surgery in the following manner
  1. Wash your hair and face first with regular shampoo and soap and rinse thoroughly
  2. Move away from the water stream
  3. Apply Hibiclens over your body excluding your face and wait 3 minutes
  4. Rinse thoroughly and do not use regular soap afterwards
  5. Use a clean towel to dry off
  6. Do not apply lotions or creams after use
- **You may shower the morning of surgery**



# Preoperative Medication Instructions

- Start Tylenol ES 2 pills every 8 hours 3 days prior to your surgery.
- **Do not take this the morning of your surgery. The last dose should be the night before**



- You will be given instructions on your other regular medications at the time of your preoperative visit
- If you take any blood thinners such as Coumadin, Eliquis or Xarelto, you will also be given specific instructions on when to take your last dose prior to surgery

# Preoperative Diet Instructions

- **14 DAYS PRIOR TO SURGERY**

- Stop herbal supplements to include Echinacea, Ginseng, Ginkgo, Garlic, Valerian, St John's Wort, Ephedra, Saw Palmetto, Vitamin E

- **8 DAYS PRIOR TO SURGERY**

- Stop any anti-inflammatory medications such as Ibuprofen, Motrin, Advil, Naproxen, Aleve,
- If you take low-dose Aspirin daily, you may continue this

- **DAY BEFORE SURGERY**

- Hydrate well with electrolyte fluid such as Powerade Zero
- **Do not eat any solid food after midnight**

# Day Before Surgery

## Low Fiber/Low Residue Diet

- The Low Fiber/Low Residue diet reduces the amount of waste that moves through your gastrointestinal system.
- This is helpful in preparing for surgery and reducing symptoms such as nausea and bloating
- General Rules
  - ✓ Avoid any food made with seeds, nuts or raw or dried fruits
  - ✓ Avoid whole-grain breads and cereals
  - ✓ Avoid legumes (beans, peas and lentils)
  - ✓ Do not eat raw fruits or vegetables and remove skins before cooking
  - ✓ Avoid tough fibrous meats with gristle
  - ✓ Limit milk and milk products
  - ✓ Limit foods high in fat

# Day Before Surgery

## Low Fiber/Low Residue Diet

### Recommended Foods

- **Meat and Other Protein** Ground or tender well-cooked lean meats, poultry, fish, eggs and soy without added fat
- **Grains** Enriched white bread and rolls, white rice, pasta, plain crackers, cream of wheat, Rice Krispies
- **Fruits** Fruit juice without pulp, canned or cooked fruits without skins or seeds, ripe bananas, seedless watermelon and other soft melons, peeled apples
- **Vegetables** Most well-cooked or canned vegetables without seeds and skin, potatoes without skin, tomato sauce, pureed spinach, green beans, carrots, iceberg lettuce
- **Fats, snacks, sweets and condiments** Vegetable oil, butter, margarine, ketchup, mayonnaise, plain cookies and cakes, jello, honey, syrup

# Day of Surgery

You can drink clear liquids up to 3 hours before your surgery

Do not eat any solid food on the day of your surgery

## Allowed

- Water
- Apple or Cranberry Juice
- Gatorade or Powerade
- Black coffee or tea
- Clear broth
- Ginger ale
- Seltzer
- Jello



## Not Allowed

- Milk or dairy products (including in your coffee or tea)
- Citrus juices
- Prune juice
- Any juice with pulp
- Anything not listed in the allowed list



# Day of Surgery

- You will receive a call the day before surgery in the late afternoon alerting you what time to report to the hospital
- If your surgery is on a Monday, you will receive the call in the Friday before
- Remember to stop any clear liquids 3 hours prior to the scheduled surgery time
- **What to bring**
  - ✓ Clothes that are easy to don and doff
  - ✓ Closed-toe, slip on shoes
  - ✓ A legal photo identification card
  - ✓ Up-to-date insurance card
  - ✓ Cell phone
  - ✓ Book or other form of entertainment
- **What not to bring**
  - ✓ Valuables such as rings, jewelry, watches. Remove these and leave them at home
  - ✓ Medications

# Preoperative Preparation

- First you will check in and register
  - At Portsmouth Hospital, this is inside the main entrance to the left
  - At Stratham Ambulatory Surgery Center or Atlantic Coast Surgical Suites this is in the main waiting area inside the main entrance
- You will then be escorted back to the preoperative holding area where your belongings will be stored, and you will be assigned a room or a bay and change into a gown
- The Same-Day Surgery (SDS) will complete your admission process by reviewing your medications, allergies, surgical preparation, recent health issues and the planned procedure and postoperative course
- An IV will be started for hydration
- The nursing staff will then wash down the surgical site with special anti-septic wipes to help reduce the risk of infection



# Preoperative Preparation

- You will be given several medications for “preventive analgesia”
- The anesthesia team will meet with you to discuss their plan and obtain anesthesia consent
- The majority of patients undergoing shoulder replacement will undergo an interscalene block before surgery
- our surgeon will see you in the same-day surgery unit to confirm the site of surgery and mark that site.
- Members of the OR staff will recheck and reconfirm the planned procedure and consent and then escort you back to the operating room



# Surgical Team

- In addition to Dr. Parsons, there will be a team of experts taking care of you in the operating room
  - Anesthesia provider
  - Physician-assistant (Kathy Leavitt and Stacey Riley)
  - Operating room nurse
  - Surgical technician (aka scrub nurse)
  - Second assistant
- Each member of the team has a dedicated role to ensure your safety
- You will be continuously monitored during the surgery
- Your safety is our #1 Priority



# Recovery Room

- When the surgery is complete you will be transferred to the Post Anesthesia Care Unit (PACU)
- Here a specialized PACU nurse will continue to monitor you and care for you as you wake up from anesthesia or sedation.
- If you have any discomfort, they can begin to administer medications for this
- A typical stay in PACU lasts about 1 hour but occasionally this may be shorter or longer depending on circumstances



# Same-Day Surgery Recovery

- If you are planning to go home the same day, you will be transferred back to the same-day surgery area after the PACU
- Here you will continue recover and the following criteria will be evaluated and completed to ensure your safe discharge
  - Your discomfort needs to be well-managed and tolerable
  - You need to have stable vitals signs
  - You need to be able to urinate
  - You need to be able to hold down food and liquid
- Physical and occupational therapy will also work with you and educate you to ensure your safe mobility and ability to manage basic activities of daily living



# Discharge

- Once you have met criteria, you and your caregiver can transition from the facility to home
- You will be wheeled to the car in a wheelchair or in some cases walk there with a walker
- You will be given instructions on continuing the multimodal pain management regimen according to the provided schedule
- Rest and relax, particularly for the first night and make sure to stay well hydrated



# VNA Services

- We will arrange a visiting nurse/therapist for the first 1-2 weeks after surgery
- This person will check your vital signs and assess your surgical site.
- They will also work on home exercises, swelling control
- This provider can communicate any concerns to your care team





# Pain Management

- Your care team will go over a tailored pain management program with you at your preoperative visit
- This will take into account any allergies, intolerances or potential medication interactions
- Staying ahead of the pain is paramount to achieving your rehabilitation goals and our multimodal program is designed to be taken on a schedule
- Further details about pain management after surgery are included in our separate online guide which patients should review.

# Wound Management

- Your incision will be closed with absorbable stitches and covered a mesh with skin glue.
- There will be a dressing over the incision that can stay on for several days if dry
- We do not use staples or any other type of suture than needs to be removed.



# Wound Management

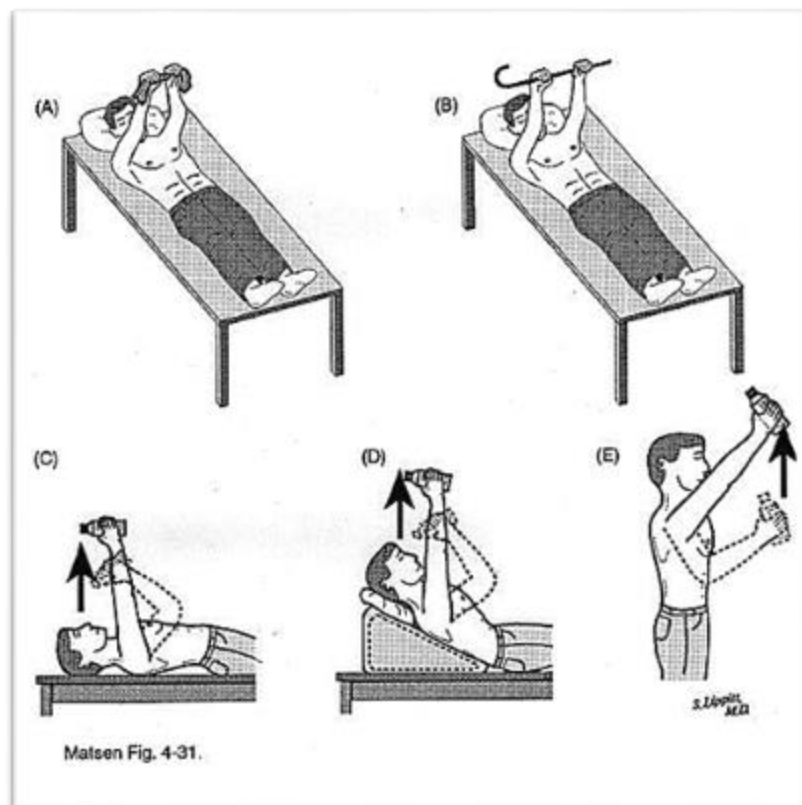
- The dressing over the incision will stay in place for 5-7 days after which the incision can stay open
- Do not submerge your knee underwater until cleared by your care team at the 3-week visit.
- The mesh will slowly begin to peel up from the skin
- Cut the peeled portion with cuticle scissors
- It may take 3-4 weeks for all of the mesh to come off

# Preventing Infection

- Infections after shoulder replacement are rare but serious
- Keep your incision covered with a dressing for at least 5-7 days after surgery
- Avoid submersing the incision under water for at least 3 weeks
- Monitor your incision for any drainage and alert our office immediately if this occurs
- Keep soiled clothing away from your incision
- Keep you hands clean at all times during dressing changes.

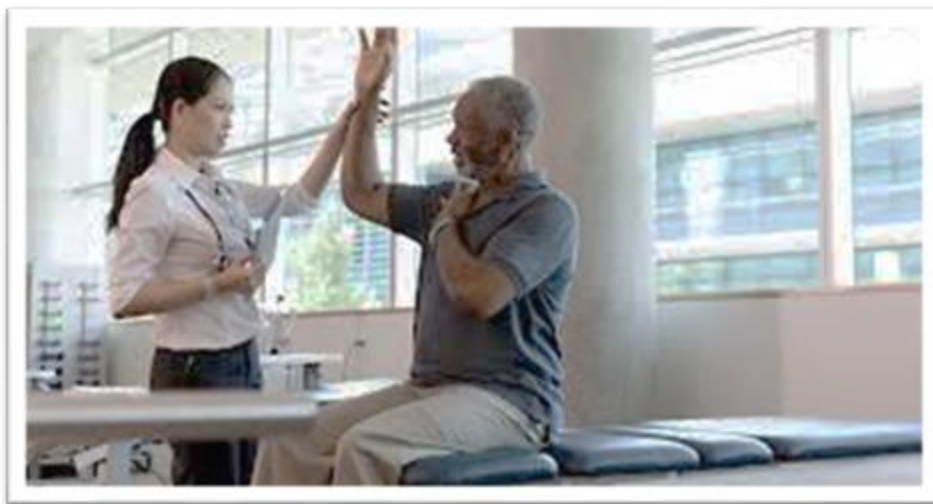
# Home Exercise

- Daily exercise is critical after shoulder replacement activate the muscles around the joint
- The therapists will arrange a program of home exercises that patients should do at least daily with some exercises performed more frequently
- There is a balancing act between working hard and overdoing it
- Listen to your body and do not try to push through excessive pain



# Outpatient Physical Therapy

- Outpatient therapy usually starts 1 week after surgery
- We have a set protocol that we can provide your therapist so they can follow our recommendations for how to progress while still protecting
- Consult with your care team about where you plan to attend outpatient therapy as our office does recommend certain practices who are most familiar with our protocols and goals
- Most patient will attend outpatient PT for 10-12 weeks after surgery to maximize range and strength



# Maintenance Exercises

- Since you will only be attending outpatient therapy 2-3 days per week, it is essential that you perform daily exercises on the other days
- Full recovery from shoulder replacement can take up to a year as the healing process matures and patients continue to make gains in function
- We highly recommend that our patients continue a maintenance exercise program that continues beyond the end of formal physical therapy
- Shoulder replacement gives patients the platform to achieve their physical goals in returning to activities, but each individual must achieve those goals through persistence and effort

# Return to Activity

- It is important to allow sufficient healing before returning to strenuous activity
- In general, you should wait 12-16 weeks before engaging in strenuous exercise to avoid injury to the soft tissues around the shoulder
- The early focus should be on swelling control, range of motion and muscle activation
- Sports like golf, pickle ball, tennis, soft ball and weight training require that your shoulder is well healed, strong and stable

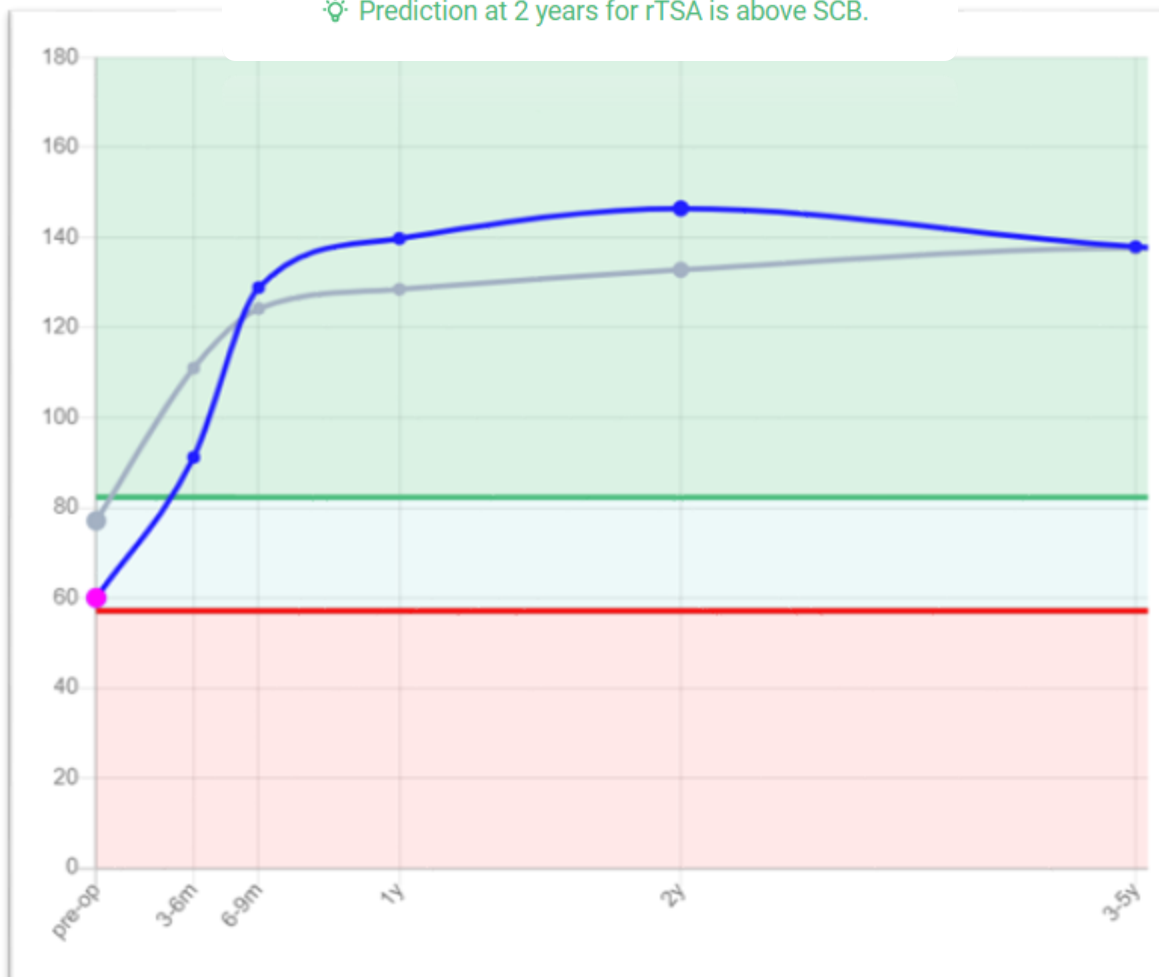


# How Long Does Recovery Take?

- Shoulder replacements continue to improve for up to 2 years after surgery with the largest gains occurring in the first 3 months
- Different factors can affect the rate of recovery and the end result such as diagnosis, preoperative stiffness and prior surgery

## Active Forward Elevation, rTSA

🔮 Prediction at 2 years for rTSA is above SCB.



# Potential Complications

## Infection

- Infections can occur in 0.5-1% of patients after shoulder replacement and typically occur either in the first 8 weeks after surgery or years later.
- Risk factors for infection include: morbid obesity, poorly-controlled diabetes, conditions or medications that suppress the immune system, poor nutrition and smoking, liver and kidney disease
- Signs of infection include increased pain, swelling, redness, fevers and wound drainage
- Wound drainage is also a leading cause of infection and should be addressed immediately by alerting your care team
- Infections usually require surgical debridement and treatment with intravenous antibiotics

# Potential Complications

## Blood Loss

- Major blood loss is not common after shoulder replacement and the risk of needing a blood transfusion is less than 4%
- Some blood loss is expected and may lead to some fatigue in the first weeks after surgery which is normal
- Your body will build back its nature blood stores in time
- Damage to major blood vessels at the time of surgery is extremely rare

# Potential Complications

## Nerve Damage

- Damage to major motor nerves around the shoulder is very uncommon
- Stretch injury to nerves has been reported in some cases and generally recovers but may take 6-12 months to reach full recovery
- Risk factors for such stretch injuries include
  - ✓ Diabetes
  - ✓ Short stature
  - ✓ Morbid obesity
  - ✓ Severe glenoid wear

# Potential Complications

## Medical Complications

- Surgery is a stress to the body and patient with medical problems such as heart, lung or kidney disease may experience medical complications from surgery
- Optimization of these medical problems before surgery is critical as is customization of the care process to prevent complications
- Make sure your care team is aware of any medical history that may affect your risk and recovery

# Frequently Asked Questions

- **How long should I keep a dressing on my shoulder?:** The dressing we put on during surgery can stay on until we remove it in the office at your first postop visit. After that the mesh will stay in place for a few weeks but a dressing is not required
- **When can I shower?:** You can shower 48 hours after surgery
- **When can I submerge my shoulder underwater?:** We generally advise patients to wait at least 3 weeks for this provided the wound is completely dry with no drainage.

# Frequently Asked Questions

- **Is it normal to feel tired or depressed after surgery?:** The stress of surgery and recovery as well as the energy devoted to healing can lead to fatigue and depression for a few weeks after surgery. Sleep disturbance is also common. These are normal occurrences that typically get better after 4-6 weeks.
- **Is it normal to get constipated after surgery?:** Constipation is very common after surgery and is due to a number of factors. High fiber foods and stool softeners can help prevent this. If this persists beyond 5-7 days you may require a suppository or enema.

# Frequently Asked Questions

- **My arm and hand are swollen. Is this normal?:**  
Swelling in the surgical arm is common. The best treatment is elevation which can be done by lying flat and putting the arm on several pillows so it is elevated above your heart.
- **I have bruising around my chest, flank and arm?:**  
Bruising in any one of these areas is common and nothing to worry about. It will resolve with time and does not require any specific treatment.





# Frequently Asked Questions

- **Will I set off the metal detector at the airport?:** Most security systems at airports are surface scanner and not metal detectors. Your shoulder will not set off a surface scanner but it will set off a metal detector. If you alert security of your replacement, they will generally just do a light pat down.
- **Are there any forbidden activities after shoulder replacement?:** Once fully healed, shoulder replacements are very durable and permit most activities. Repetitive high impact activities may risk earlier wear and are generally discouraged.

# Frequently Asked Questions

- **How long do I have to wear a sling?** We recommend wearing a sling for about 3 weeks except during exercises and to wear it at night for about a month to protect the arm from getting into unfavorable positions. You may remove the sling if you are sitting and put the arm in a position of comfort
- **How long does recovery take?:** Recovery time may be different for everyone depending on the severity of the arthritis, preoperative range of motion and many other factors such as genetic healing response. In general, it takes 12-18 months to reach maximum recovery, but patients may achieve 75% of this in the first 4-6 months.

# THANK YOU

- Thank you for entrusting your care to our practice
- We take great care to ensure the best possible outcomes for our patients
- Our AVATAR program has been refined over years of experience with 3 main goals
  - **Less Pain**
  - **Better Function**
  - **Faster Recovery**
- For any specific questions, please reach out to us at [avatar@kneehipsho.com](mailto:avatar@kneehipsho.com)