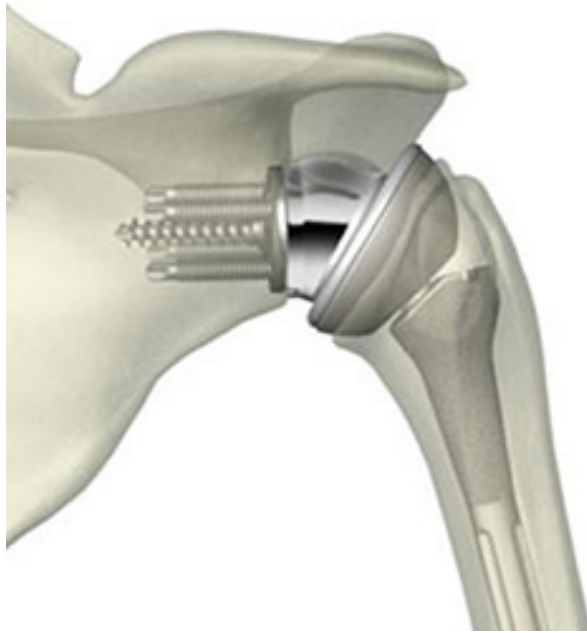


# REVERSE SHOULDER REPLACEMENT



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## HOW THE SHOULDER WORKS

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

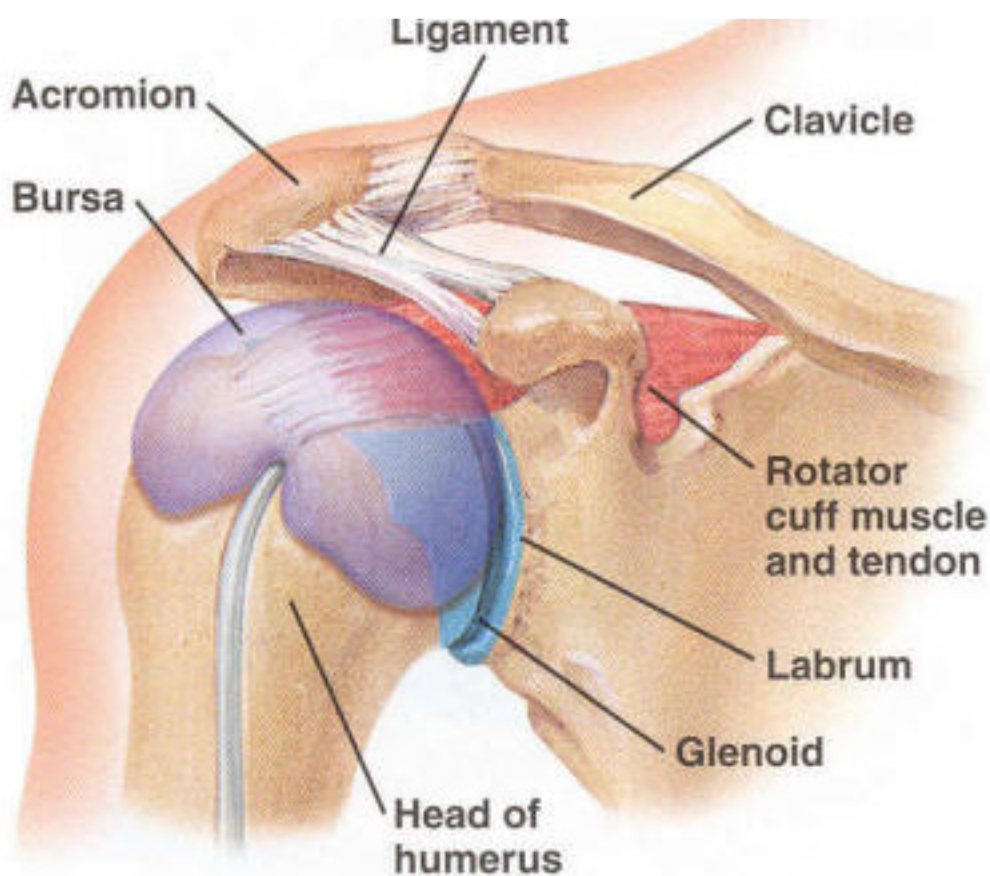
The shoulder is a ball and socket joint and is made up of three bones: the upper arm bone (humerus), shoulder blade (scapula) and collar bone (clavicle).

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

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

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

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



## INDICATIONS FOR REVERSE SHOULDER REPLACEMENT

A reverse total shoulder replacement allows treatment of patient's with:

- rotator cuff tear arthropathy
- instability with anterosuperior escape
- psuedoparalysis
- failure of surgery for arthritis and fracture management.
- osteoarthritis of the shoulder joint

A common indication for a reverse total shoulder replacement is called rotator cuff tear arthropathy (see figures 1A and B ). This is a condition that causes significant discomfort and decreased function of the affected side. These symptoms are caused by the loss of the rotator cuff tendons and deterioration of the shoulder's normal joint surface cartilage (arthritis). The instability of the joint, caused by the loss of the rotator cuff and arthritis, cause the pain and loss of movement.

Other indications for a reverse procedure are failure of a anatomic total shoulder replacement or failed fixation of a fracture.



**FIGURE 1A**



**FIGURE 1B**

## REVERSE SHOULDER REPLACEMENT

The reverse total shoulder replacement was first used in US in 2003, but it has been used in Europe since the 1980's and has shown to restore motion, give pain relief and increase stability.

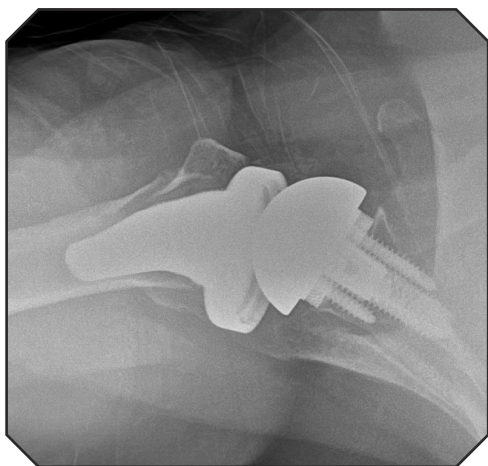
The reverse total shoulder procedure is generally used in individuals who are 60 years old or older and who are experiencing significant pain, weakness and little to no range of motion. This procedure is not preferred for younger individuals or those who perform heavy lifting overhead.

Normal shoulder anatomy allows the rotator cuff tendons to help balance the ball of the arm (humeral head) in the socket against the upward pull of the deltoid muscle. In the presence of rotator cuff arthropathy, the cuff tendons between the humeral head and the overlying bone (acromion) become progressively thinned until the humeral head moves upward and rubs against the acromion.

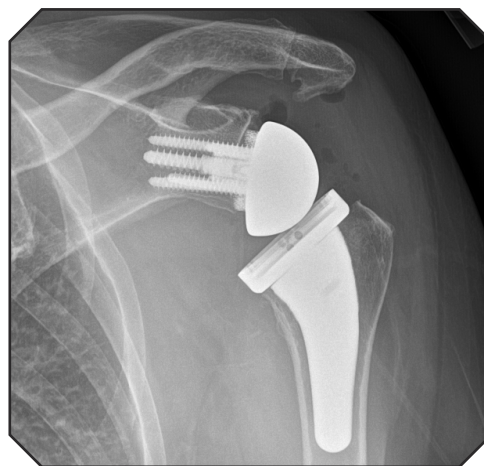
### **Reverse shoulder arthroplasty (RSA) vs. total shoulder replacement (TSA)?**

There are numerous factors to consider when choosing the optimal shoulder implant. In order to be a candidate for a TSA, an individual needs to have an intact rotator cuff. Two major concerns with a TSA over time, are cuff failure and potential for implant loosening. In addition, research also shows substantially higher revision rates with TSA versus RSA. As a result, the incidence and surgeon preference for RSA has increased over time. With an RSA, almost all patients have marked pain relief and improvement in shoulder function.

Individuals who have weakening and loss of function from rotator cuff arthropathy with a socket where the ball (humeral head) is normally located and a ball where the socket (glenoid) is normally located (figure 2 A and B). Changing the configuration of the shoulder provides more stability and a fulcrum against which the deltoid muscle can help elevate the shoulder and return some basic shoulder function.

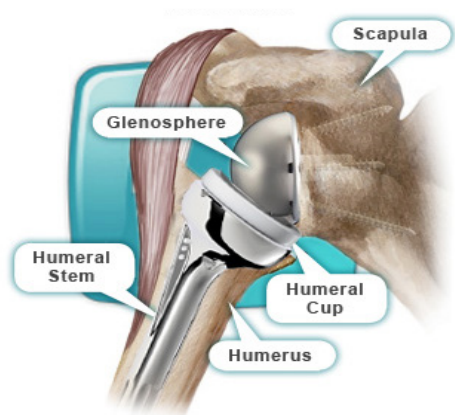


**FIGURE 2A**



**FIGURE 2B**

Reverse total shoulder 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 improvement in the function of their shoulder, but this is less predictable. The reverse total shoulder replacement is a mechanical device (figure 3 A and B) and is expected to have wear and tear with time and use. Most reverse shoulder replacements are expected to last 15-20 years.



**FIGURE 3A**



**FIGURE 3B**

## RISKS OF SURGERY:

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

## QUITTING SMOKING

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

## BEFORE SURGERY:

You should not take any anti-inflammatories (Aleve or Ibuprofen) or Aspirin 4-7 days before surgery. Let all medical providers know of any allergies you may have and medication you are taking. Please bring list of medications. You will need to complete a preoperative physical within 30 days of surgery.

## AFTER SURGERY:

After a shoulder arthroplasty, 70-90% of patients are going home the same day. However, if there is a medical necessity, a patient will stay in the hospital for 1 night. You will not be going to a transitional care unit. You should plan to have assistance from family/friends for the first few days after surgery. If a 1-night stay, please arrange a ride to be at the hospital by 8 am with the plan to leave by 11 am.

You will wear a sling for 4 weeks. You may remove sling to shower or bathe. You should wear the sling to sleep. You will be given pain medication. You will have 4 follow-up visits. All visits can be scheduled prior to surgery if needed. Your first appointment will be approximately 7-10 days after surgery with Kayla, physician assistant working with Dr. Norberg.

## INCISION CARE:

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

## RECOVERY TIME:

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



## RESTRICTIONS FOLLOWING SURGERY:

Following a reverse shoulder replacement we recommend all patients take at least 2 weeks off of work to rest and manage pain efficiently. All patients will be released to work with restrictions following the 2 weeks. It will take approximately 3 months before you feel comfortable lifting about your head. While in the sling you will only be able to lift 1-2lbs with the elbow at your side. If your job does not require lifting and is mainly office work (keyboard,paperwork,mouse) then it is likely you can return to work in 1-2 weeks. Jobs that require lifting will determine if they have the appropriate accommodations

**\*Reverse shoulder replacements have a life long lifting limit of: no more than 10lbs overhead, 25lbs from hip to shoulder, 50 lbs by side with the surgical arm.**

## REVERSE SHOULDER ARTHROPLASTY ACTIVITY TIMELINE:

0-4 weeks- Elbow remains at side in sling lifting only 1-2lbs.

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

3-4 months- Can usually do personal care and see overhead function returned.

## PAIN RELIEF:

- Most patients will have a nerve block that will typically last 24-72 hours. The block involves an injection of a local anesthetic (Ropivacaine) similar to novocaine. It is injected where the shoulder and neck meet. The block allows the surgery to be preformed using much less anesthetic drugs. The block also provides excellent pain relief after surgery. You may experience a numbness, tingling sensation while block is wearing off up to 24 hours after surgery. This sensation is normal.
- You should take some pain medication approximately 8-10 hours after your block is performed, even if you have no pain.
- Narcotic medications will be prescribed to help manage your pain after surgery. We only prescribe short acting narcotic medications following surgery. Recent studies have shown poorer outcomes and increased addiction and deaths with long acting narcotics.
- The pain medications will make your pain manageable but will not take away all of your pain.
- Typically, Oxycodone 5 mg will be prescribed. You may take 1-2 tablets every 4-6 hours as needed. Dr. Norberg recommends taking them as written the first day and then gradually spacing them out and taking them only if needed.
- Tylenol (acetaminophen) should be taken after surgery. Dr. Norberg recommends arthritis strength (8-hour) extended release 650mg tablets of Tylenol. You may take 2 tablets every 8 hours for pain management. Be careful not to exceed 4,000 mg of acetaminophen in a 24 hour period.
- Do not take Advil (ibuprofen) or Aleve (naproxen) for the first week after surgery. This may slow healing and weaken healing tissue. However, after 1 week (Advil, Aleve) did not show decreased healing are shown to be more effective in managing pain than narcotic medication. No not take these medications if on blood thinners (warfarin, lovenox) or have hx of reflux disease.
- If the pain is still not controlled increase frequency of icing shoulder, squeeze stress ball that comes with sling, and do gentle range of motion of elbow, wrist, hand.
- Exceeding the recommended dose of Tylenol 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 952-428-5639 during regular clinic hours (8:30-4:00). Pain medications are not filled after hours or on weekends.
- Take pain medication with food. They may also cause cognitive impairment so you are not to drive or operate heavy machinery. Another common side effect is constipation. You may use over the counter stool softeners (i.e. Colace or Dulcolax) to help with this. See packages for recommended dosages.
- For the first several weeks, many patients find it more comfortable to sleep in a recliner or propped with pillows in a

semi-sitting position.

- Put an ice pack on your shoulder continuously for the first 3 days after surgery. Use ice as much as you needed to control pain and swelling. Don't sleep with ice on your shoulder. Do not put ice packs directly on the skin.

## **CALL IF:**

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

## **DIET:**

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

## **FREQUENTLY ASKED QUESTIONS:**

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

Yes! You will have to do the exercises that we and the physical therapist instruct you to do to get the best result of your surgery. Dr. Norberg and his staff will adjust your therapy as you continue to heal your shoulder. Physical therapy will start 4 weeks after surgery.

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

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

### **Work Status?**

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

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

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

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

Fever over 101.5 degrees, the incision becomes red or swollen, or any foul drainage. If these symptoms occur, call Dr. Norberg's office right away. (952-428-5639).

### **Can I shower?**

Yes. You may shower 24 hours after your surgery over the mesh dressing. Do not scrub your incision. Do not submerge your incision for 2 weeks.

### **How can I use my arm after removal of the sling?**

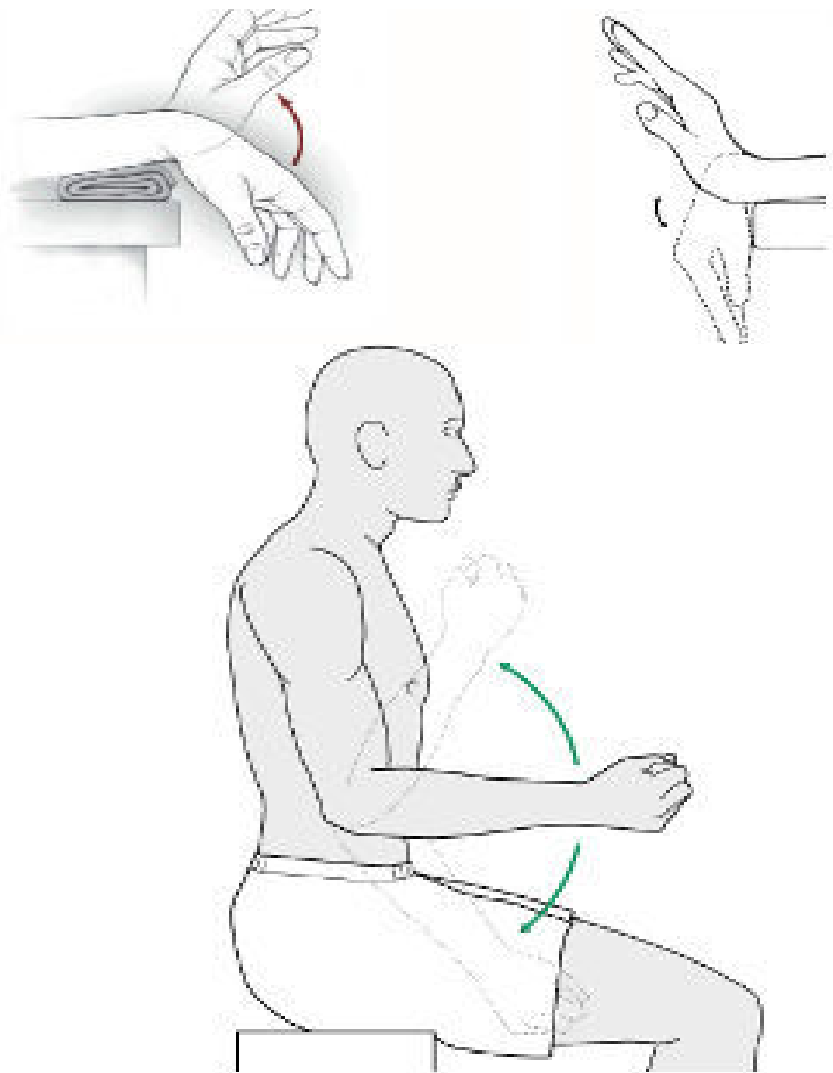
After 4 weeks in the sling, you may transition to using the arm without the sling to perform light personal care duties. You may use the arm away from the body or overhead as tolerated, do not push through pain. No lifting overhead. No greater than

### What about dental work after a joint replacement?

If you are having tooth pain or need to have dental work performed, please have this completed at least 3 weeks prior to your shoulder surgery. Do not plan to have elective dental work done for at least 1 month after surgery. After surgery, Dr. Norberg will also recommend taking antibiotics prior to a dental visit for at least 1 year. Patients without allergies will receive Amoxicillin. Your dentist may prescribe you this or please contact our office at 952-428-5639 for a prescription to be sent to your pharmacy.

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

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





## START EXERCISES - AFTER FIRST POST OPERATIVE VISIT IN CLINIC



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. If you have poor balance or feel more comfortable, you can perform table slides instead of the standing stretch.



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

## PAIN MEDICATION AGREEMENT FOR POST-OPERATIVE PAIN TREATMENT

The official policy of our practice is as follows:

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

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

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

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

### References:

Increases in Drug and Opioid-Involved Overdose Deaths- United States, 2010-2015. MMWR Morb Mortal Wkly Rep, 64(50-51), 1378-1382.

Dowell D, Haegerich TM, C.R. (2016). CDC Guideline for Prescribing Opioids for Chronic Pain- United States, 2016. MMWR Morb Mortal Wkly Rep, 65(1), 1-49.

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

Rudd RA, Seth P, David F, S. L. M. M. W. R. 2016;65:1445-1452. D. <http://dx.doi.org/10.15585/mmwr.mm655051e1>. (2016)