DISTAL CLAVICLE EXCISION

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The Patient’s Guidebook for Shoulder Surgery

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CONTENTS

Section 1
How does your shoulder work? ................................................................. 1

Section 2
What's wrong with your shoulder? ............................................................... 3
Acromioclavicular joint pain ................................................................. 3

Section 3
What kind of surgery is performed to correct your shoulder problem? ................. 4
Shoulder arthroscopy ........................................................................ 4
Distal clavical excision ................................................................... 5
How successful are these procedures? ..................................................... 5

Section 4
Potential risks of surgery ................................................................. 6
Peri-operative risks ........................................................................ 6
Post-operative risks ....................................................................... 7

Section 5
Pre-operative planning ...................................................................... 8
Special tests .................................................................................. 8
Pre-operative physical therapy .............................................................. 8
General medical check-up ................................................................. 8
The night before surgery ................................................................. 8

Section 6
The day of surgery ........................................................................ 9
Check-in ...................................................................................... 9
Anesthesia ................................................................................... 9
Surgery ....................................................................................... 10
Post-operative recovery unit ............................................................. 10
Table of Contents

Section 7

What to expect at home ............................................................................................................. 11
Medications and pain management ......................................................................................... 11
Cryotherapy ............................................................................................................................... 12
Wound care ............................................................................................................................... 12
Sling/brace wear ....................................................................................................................... 12
Physical therapy exercises ..................................................................................................... 12
Toiletting .................................................................................................................................. 13
Sleeping ...................................................................................................................................... 13
Driving ...................................................................................................................................... 13
Exercise .................................................................................................................................... 13
Sexual activity .......................................................................................................................... 13

Section 8

Common Problems ..................................................................................................................... 14
Pain .......................................................................................................................................... 14
Nausea ...................................................................................................................................... 14
Change in appetite and bowel habits ....................................................................................... 15
Bruising/swelling ..................................................................................................................... 15
Numbness/tingling ................................................................................................................... 15

Section 9

When to call the doctor .......................................................................................................... 16

Section 10

Important telephone numbers/office hours ......................................................................... 17

Section 11

Return to work (school) and sports ....................................................................................... 18
Follow-up visits ...................................................................................................................... 18
Work ........................................................................................................................................ 18
Sports ...................................................................................................................................... 18

Section 12

Rehabilitation following rotator cuff repair ........................................................................ 19
Phase I (0 - 6 weeks) ............................................................................................................. 19
How Does Your Shoulder Work?

The shoulder girdle is one of the most complex and interesting parts of your body. The shoulder joint has a greater range of motion than any other joint. However, it must maintain this mobility at the expense of joint stability. The shoulder girdle is made up of the clavicle (collarbone), scapula (shoulder blade), and glenohumeral joint (shoulder joint) (Figure 1).

The shoulder girdle is attached to the rest of the body by the connection of the clavicle with the sternum (Figure 2). The other end of the clavicle is attached to an outcropping of the shoulder blade known as the acromion. This joint is called the acromioclavicular joint (AC joint) (Figure 1). The shoulder blade is attached to the rib-cage and spine by several muscles. The shoulder blade is a rotating platform which moves along the chest wall to help position the shoulder joint and the rest of the arm. The glenohumeral joint is a modified ball and socket joint which is the connection between the humerus (upper arm bone) and the glenoid (socket portion of the shoulder blade).

The shoulder joint is stabilized in two main ways: muscle forces and ligaments. There are four small muscles that attach to the shoulder blade and and the humerus and provide both movement and stability to the shoulder joint. These muscles include the subscapularis, supraspinatus, infraspinatus, and teres minor. Collectively these muscles are referred to as the rotator cuff (Figures 3 & 4). The term “rotator cuff” originates from the fact that the muscles...
aid in rotation of the joint and their tendons form a cuff around the humerus. When the four muscles contract together they squeeze the joint together in such a way that when the arm moves the ball remains centered on the socket. Even with extremes of movement in the normal shoulder the ball slides no more than 1/16th of an inch in any direction!

The muscles do the lion’s share of the work stabilizing the joint, but at extreme positions the muscles are at a mechanical disadvantage and can’t effectively stabilize the joint. This is where the ligaments come into play. Ligaments are tough, fibrous tissue that connects bones with other bones. In normal ranges of movement the ligaments are slack but in extreme positions they become tight and function as a sort of a check-reign preventing dislocation of the joint.

The tendon of the biceps muscle may also play a role in stabilizing the joint. The biceps muscle has two upper tendons. The longer of the two tendons goes through a small groove in the front of the humerus and crosses the shoulder joint and attaches on the top of the socket (Figure 4). The tendon is held in the groove by ligaments, which form a pulley system that keeps the tendon from riding out of the groove.

During normal shoulder motion the muscles fire in a synchronous fashion allowing smooth, coordinated movement of the scapula and glenohumeral joint. The power muscles such as the deltoid, pectoralis, and latissimus dorsi work together with the rotator cuff so you can raise your arm. Any change in muscle function disrupts this delicate balance leading to inefficient function of the shoulder girdle.
What’s wrong with your shoulder?

Acromioclavicular Joint Problems

The acromioclavicular (AC) joint is formed by the end of the clavicle and the acromion (Figure 1). The clavicle functions as a “strut” connecting the shoulder girdle to the rest of the body. The AC joint is reinforced by several strong ligaments, which are responsible for suspending the weight of the shoulder and arm. The AC joint can become injured by several means. A direct blow to, or more commonly a fall onto, the point of the shoulder can cause the ligaments to stretch or tear. In most cases this injury heals well without surgical intervention. In a minority of cases patients experience chronic pain from damage to the joint, which can begin months or years after the initial trauma.

The AC joint also can undergo a slow degenerative process unrelated to any known injury. With time the joint deteriorates until there is no cartilage left on the ends of the bones (Figure 5). When this occurs the joint is termed arthritic. In athletes, particularly weight lifters, large repetitive stresses on the joint result in a condition known as osteolysis. With this condition the end of the clavicle is unable to bear the stresses and the end of the bone begins to disintegrate. In advanced cases x-rays will show an area of decreased bone density at the end of the clavicle.

AC joint pain can be very vague and is easily overlooked and misdiagnosed. Patients can complain of pain at the joint or often in the neck, collar bone, shoulder blade, and arm. The symptoms are aggravated reaching out to the side, reaching behind the back, pushing outward against resistance (i.e. pushing a door open), bench pressing, and lying on the shoulder. Frequently patients will note a popping or grinding sensation in the joint with certain shoulder maneuvers.
What Kind of Surgery is Performed to Correct Your Shoulder Problem(s)

Shoulder Arthroscopy

Before the advent of arthroscopy ("arthro" means joint, "scopy" means to visualize, look into) surgeons would have to make large incisions, typically measuring several inches, in order to perform most shoulder surgeries. Because the shoulder joint is difficult to expose by these older techniques there were parts of the joint that were inaccessible and thus never examined. The arthroscope is a tool which can be used to perform a complete examination of the inside of your shoulder. In addition, with the aid of specialized instruments surgical procedures can be performed through small puncture wounds rather than large incisions. The "scope" is a metal tube which is roughly ¼ “ in diameter (Figure 6.) The inside of the tube is hollow and has a lens system which is attached to a fiber optic cable that provides a light source. At one end of the scope is a camera which is wired to a TV monitor so that the surgeon can see the inside of the joint on the screen (Figure 7). As you might imagine the surgery can be technically challenging because all your movements are guided by the image on the monitor. For this reason all of the surgeons at Methodist Sports Medicine have spent an extra year in a fellowship learning how to do these procedures.
**Distal Clavicle Excision**

In certain patients, impingement and AC joint pain can coexist. In these cases a distal clavicle excision is performed in conjunction with the acromioplasty. The procedure involves removing roughly 3/8" of end of the clavicle (Figure 8). This creates a permanent gap between the acromion and the clavicle so the two bones no longer come in contact with each other. Because the bones no longer rub against each other pain is eliminated. All the ligaments around the bones are left undisturbed therefore the strength and stability of the joint are not compromised.

**Figure 8: AC joint with part of the end of the clavicle removed.**

**How successful are these procedures?**

In our general population of patients the success rate has been 95%. This means that 95 out of every 100 patients have dramatically less pain, improved function, and would have the surgery again if they were in a similar circumstance. Five percent of patients do not improve for a variety of reasons. These individuals are typically no worse than before surgery but they would not have surgery if given the opportunity again. Patients with work related injuries have a lower overall success rate.
Potential Risks of Your Surgery

Any surgery that we perform has certain documented risks. These potential problems can arise even when the surgery is carefully planned and performed. The most notable risks are outlined below. Fortunately, the incidence of such complications with elective shoulder surgery is very low. Certain factors may slightly increase your potential risk such as previous operations on the same shoulder or coexisting medical conditions (e.g., diabetes, heart ailments, etc.). Our surgical team will discuss any such condition prior to surgery if it may have a potential impact on your recovery. The following risks appear in the order of frequency:

Peri-operative risks

1. **Anesthetic complications**-

   - **Sore throat**: Only occurs in patients who undergo general anesthetic and is caused by the breathing tube used to provide airflow to your lungs. The soreness is temporary usually resolving in 24 to 48 hours.
   - **Nausea**: Occurs from the various drugs that are used during anesthesia. The newer drugs have a lower risk and several anti-nausea medications are available to minimize the symptoms.
   - **Shortness of breath**: Only occurs in patients who undergo an interscalene block (see section 6 on page 12 for a description). For 12 to 24 hours you may get the feeling that you can’t take a deep breath. This is due to temporary paralysis of the phrenic nerve, which blocks the action of half of the diaphragm muscle. Once the block wears off the feeling disappears.
**Herbal Supplements/Weight Loss Products.** The use of any weight loss products or herbal supplements must be discontinued **2 weeks prior to surgery.** These products can interfere with bleeding control and anesthetic medications.

**Serious complications**- More worrisome complications such as severe drug reactions and death are, fortunately, extremely rare. The risk of anesthesia is said to be lower than the chance of being hit by a car!

2 **Operative Risks**

**Bleeding:** Bleeding is expected during surgery because of the generous blood supply to the shoulder. With special instruments we cauterize small blood vessels to minimize bleeding. Blood loss during most shoulder surgeries is less than 1 to 2 ounces.

**Infection** rarely occurs. The risk has been estimated at roughly 1 in 500 surgeries. If an infection does occur then further surgery and antibiotics may be necessary to treat the problem.

**Nerve damage** is an extremely rare complication of shoulder surgery. If nerve function is lost it is usually temporary with return of function over a period of time.

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**Post-operative risks**

1. **Stiffness**- In a small percentage of patients a condition called *adhesive capsulitis* may occur. This simply means that the shoulder becomes stiff (ie-loses mobility) due to scar tissue formation. This can be a result of poor effort during rehabilitation or more often the stiffness occurs for no obvious reason. In most cases the condition is temporary and resolves with diligent rehabilitation.

2. **Re-injury**- If you are undergoing a reparative or reconstructive procedure bear in mind that we can’t make your shoulder better than new! If you should fail to comply with your rehab program or sustain a significant injury after surgery the result may be compromised.
Planning Before Your Surgery

Special Tests

It is most likely that you have already had shoulder x-rays by your family doctor or in our clinic. If necessary, you may have to undergo other tests such as an arthrogram, MRI (magnetic resonance imaging), EMG (electromyography), etc.

Pre-operative Physical Therapy

Many patients have had a trial of physical therapy as part of their prior treatment. For certain surgical procedures we may recommend a visit to the physical therapist to learn specific exercises which are to be performed after surgery.

Herbal Supplements/Weight Loss Products. The use of any weight loss products or herbal supplements must be discontinued 2 weeks prior to surgery. These products can interfere with bleeding control and anesthetic medications.

General Medical Check-up

For individuals who have a history of certain medical conditions, (e.g. heart ailments, lung disease, etc.) a visit to the primary care physician may be recommended. This gives your doctor an opportunity to identify any potential health risks and correct them prior to surgery. In some cases surgery needs to be postponed while further testing or treatment is initiated.

The Night Before Surgery

You should not eat or drink anything after midnight. This is a precaution to avoid anesthetic complications.
**The Day of Surgery**

**Check-in**

You will have to register at the hospital on the day of surgery. The specific time and location will be given to you during your office visit or by mail. Please be prompt! Failure to arrive on time unnecessarily delays not only your surgery but those who are having surgery after you. If you are significantly late your surgery will be **canceled**. You will be asked to arrive at least 2 hours before the actual surgery time to allow for the registration process, pre-operative testing, and consultation with the anesthesiologist. After you have registered a nurse will check you into the surgical holding area (Figure 9). She (he) will ask you several questions relating to your past health and take your temperature, blood pressure, etc. You will then be asked to change into a hospital gown.

**Anesthesia**

The nurse will start an intravenous (I.V.) line which will be used to deliver medications to your bloodstream during and after surgery. Immediately before surgery the anesthesiologist will discuss the details of your anesthetic. In many cases we will ask the anesthesiologist to administer an **interscalene block**. This technique involves an injection of local anesthetic (similar to novacaine) into the base of your neck **once you’re asleep**. The medication numbs those nerves which supply the shoulder and arm. The benefit is twofold. First the block lowers the dose of anesthetic required to keep you asleep. Secondly, the numbness lasts an average of 12 to 24 hours after surgery, which means you have no pain during this time. Occasionally the nerve which stimulates the diaphragm can also be affected. This may give you the sensation that you can’t take a deep breath. This sensation fades as the block wears off. Any questions you have regarding anesthesia should be addressed to the anesthesiologist.
Surgery

After you have been prepared, the nurse from the operating room will take you to the surgery area. You will be asked to wear a surgical cap to cover your hair. After being checked in a second time you will be wheeled into the operating room (Please note that you will be asked many of the same questions on several occasions. This is merely to prevent any important information from “slipping through the cracks”.)

The surgical team is composed of the surgeon, his assistant(s), 2 to 3 nurses or surgical technicians and the anesthesiologist. The temperature in the room is typically lower than normal and warm blankets will be provided. Once the anesthesiologist is prepared he will administer medicine which will make you feel relaxed. Afterwards, more medicine will cause you to fall asleep. At this point the anesthesiologist will proceed with an interscalene block and/or general anesthetic.

Surgical time varies from case to case but we will make a time estimate for your family so they can plan appropriately. After surgery Dr. Sallay will talk to family members to update them on your surgery. Please make sure that family members are available at this time.

Post-Anesthesia Recovery Unit (PACU)

When you awaken from the anesthetic you will be in the PACU. A nurse will be assigned to monitor your progress and address your needs. If you have had a block you will notice that your shoulder and arm are paralyzed. Don’t panic! This is an expected result of the block. After you have stabilized you will be transferred to your room or the second stage recovery area in preparation for discharge. It is only at this time that your family members will be able to see you. Family members are not allowed in the main recovery area because of need to maintain the privacy of the other patients.
What to Expect at Home

**Medications and Pain Management**

If you have had a successful block you will have no pain for 12 to 24 hours. Occasionally the numbness can last longer. When the block wears off you will feel a “pins and needles” sensation in your hand and arm. You will regain use of your hand first, then your arm, and lastly your shoulder. **When you have normal feeling in the skin just above the elbow take some oral pain medication.** Once the block wears off completely the pain medicine will have already taken effect. This prevents an abrupt transition from essentially no pain to severe discomfort. If the block is still in effect when you go to bed take the pain medication immediately before you go to bed. Remember for the first 24 to 48 hours it is wise to stay ahead of your pain. Don’t be too timid or proud to take your medication regularly during this time.

Narcotic pain relievers (ie: Vicodin, Lortab, Darvocet) alter your perception of pain. These medications can make you feel sleepy therefore you should not drink alcohol, drive, or operate machinery while taking them. Narcotic pain relievers can cause nausea, particularly if taken without food. **Always take your medications with food.** Additionally some patients will notice constipation. To minimize this be sure to drink plenty of fluids, especially fruit juices. Once your pain has reached a more manageable level you may switch to using an over-the-counter medication as directed.

Anti-inflammatory medications (ie: Vioxx, Relafen, Celebrex) will help with swelling, stiffness, and pain. These medications can cause stomach upset and rarely ulcers. They too should be taken with food. If stomach irritation occurs Pepcid AC can be taken in conjunction with the medication. If stomach irritation persists or if you notice blood in your stools, immediately discontinue the medication and call our office.
Cryotherapy

Cryotherapy (cold therapy) is just as important in your pain management as the medications. You should apply ice to your shoulder frequently, especially for the first several days after surgery. In most cases you will be provided with a Cyro/Cuff. This device is a vinyl bag which is contoured to your shoulder and can be filled with ice water from a thermos (Figures 10 and 11). The cold helps to decrease inflammation and therefore pain in the shoulder. You should use the Cryo/Cuff for forty minutes out of every hour taking breaks for showers eating, etc. At night time you don’t have to sleep in the cuff, although if you wish to do so that’s OK. If you had a distal clavicle surgery alone you can simply use an ice bag or a bag of frozen corn placed directly over the incision.

Wound Care

In surgery we apply a sterile dressing sealed with a plastic protective covering. You do not need to change the dressing. Leave the dressing on until you return for your first visit after surgery. You may shower with this type of dressing, however, you may not submerge your shoulder in a bath tub or a pool. If your dressing should accidentally come off or get wet call our office. In many cases a small amount of blood will be soaked up by the gauze resulting in a red spot. This is normal. If the dressing is saturated with blood, however, you should call our office.

Sling/Brace Wear

You may discontinue the sling the day after surgery. You can use your arm for light activities only. Do not do any heavy lifting or repetitive activities

Physical Therapy Exercises

You will be given physical therapy exercises, which will be individualized based on your type of surgery and any special circumstances. Therapy is every bit as important to your recovery as the surgery itself. Be sure to perform your exercises diligently as instructed. A therapist will provide specific rehabilitation instructions. Begin your exercises as soon as you are discharged post operatively. An outline of the exercises is included in this packet. If you are having trouble doing your exercises please call our office.
Toiletting

Toiletting may be a bit difficult, but you may use your arm for toiletting as needed.

Sleeping

You may notice trouble getting comfortable at night, which can last several weeks. Many patients find it helpful to sleep in a recliner or propped up on several pillows in bed. You may sleep on the operated shoulder; this will not damage anything repaired during surgery. However, you probably should not try this for a while because it is uncomfortable.

Driving

You should not drive until your shoulder is out of the sling and you have full control of your shoulder muscles. Until that time you may not have the ability to react rapidly in an emergency situation. You should refrain from driving for 1-2 weeks.

Exercise

You may begin lower body exercises (exercise bike, StairMaster, weight machines) whenever comfort allows. Running may take a few weeks because the impact of running will be painful for your shoulder initially. You should not resume any upper body exercise (except physical therapy) until you have consulted with Dr. Sallay.

Sexual Activity

You may resume sexual activity as soon as you are comfortable. Avoid supporting your weight with your operated side, otherwise normal sexual activity will not harm the operated shoulder.
Common Problems

Pain

Some degree of pain is anticipated with any surgery. If you underwent an interscalene block you will be pain free for 12-24 hours. After the block wears off you will experience normal post surgical pain. Make sure you take your pain medicine before the block has completely worn off. Failure to do this results in a sudden change from no pain to a lot of pain. Once you have begun to experience the pain treat it promptly and stay ahead of the pain by regularly taking pain medicine. A common mistake is to wait too long between doses because the pain level seems reasonable. The medicine works much better to prevent the pain rather than treating the pain once it has occurred. Take it regularly for the first 24-48 hours.

Remember some pain is normal! However, your pain should diminish day to day. If you notice worsening pain after several days call the office.

Nausea

Nausea and vomiting can occur for several reasons. In the first 24 hours the anesthetic agents you received during surgery can make you nauseous. The anesthesiologist typically administers anti-nausea medications, however, patients can still become nauseated. If you experience nausea at home it may be related to one of your pain medicines. All of the narcotic medicines (i.e. Lortab) can cause nausea particularly if you take them on an empty stomach. Never take your pain medicine on an empty stomach. Once you become nauseated you may not be able to take your medicines and it may be necessary to take rectal suppository anti-nausea medicine.
### Change in appetite/bowel habits

A temporary loss of appetite is observed in some patients. This is typically short lived and improves as you recover. Constipation is commonly associated with a decrease in your activity and your pain medications. The narcotics are especially constipating. You should drink more fluids than usual, especially fruit juices.

### Bruising/swelling

After two or three days you may notice significant bruising in your upper arm and sometimes into your chest. This is normal. The blood from the time of surgery slowly leaks out of the deep tissues and takes the path of least resistance under the skin. Because of gravity it ends up going down the arm. Swelling is also expected. Swelling in the shoulder and arm is typical and occasionally the hand and fingers can be affected. The Cryo/Cuff minimizes swelling.

### Numbness and tingling

When the block is wearing off you will feel a “pins and needles” sensation. This is normal and will stop once the block has completely worn off. Occasionally patients will get numbness because their sling or brace is in an awkward position. Try loosening or taking off the device to see if this effects the numbness. Any prolonged numbness in your hand after the block has worn off should be reported to our office.
Section 9

When to Call the Doctor

If you experience any of the following problems, call our office:

Fever

A low grade fever below 100° F is common. A temperature above 101 ° F, especially if it persists after the first 48 hours after surgery should be reported.

Pain

Pain is expected after surgery. Your pain can be aggravated if you fail to take your medicine as directed or if you are overactive with your shoulder after surgery. If your pain is steadily increasing over consecutive days despite all of the normal pain control measures (see section 1) call our office.

Wound Problems

You should expect some minor bloody drainage to be visible on the dressing. The dressing acts as a wick, therefore, a small amount of blood can make moderate sized spot on the dressing. If your dressing becomes soaked with blood or if you notice any pus drainage call our office.
Section 10

Important Telephone Numbers and Office Hours

Methodist Sports Medicine Center office hours are from 8:00am to 5:00pm Monday through Friday and 8:00am to 10:00am Saturday. The clinic is closed for official holidays.

General clinic telephone number:

Indianapolis: 317-817-1200
Toll Free: 800-867-9250
FAX number: 317-817-1220
Answering Service: 317-817-1200 - After hours call the answering service and ask for Mike Hinkle or Dr. Sallay

Dr. Sallay’s assistants:

Pam Sterrett (Secretary/Assistant): 317-817-1271
Mike Hinkle (Surgical Assistant): surgery scheduling, post-operative questions, pre-certification: 317-817-1291

Physical Therapy: 817-1200 (North)
Clinic billing department: 866-942-2687
Follow-up Visits/Return to Work/Sports

Follow-up visits

You will have an appointment to see Dr. Sallay 6-8 days after surgery. During this visit your dressing will be removed and your shoulder will be examined by Dr. Sallay. Following the exam you will see the therapist to review your exercise program and to add other exercises if appropriate. Most patients are taught a home exercise program which they can do on their own. You will then return for subsequent visits at 1 month, 2 months, 3-4 months, 6 months and 1 year after surgery. At each visit your shoulder will be re-examined and if necessary you will see the therapist to update your home exercise program.

You will periodically receive questionnaires in the mail for research purposes. Please make every effort to fill these out and return them to us promptly. This information will be used to improve our understanding and treatment of shoulder problems like yours. We appreciate your time and input in this most important process.

Work

You may return to work within 1-2 weeks if you have a sedentary job. If you have a job which requires manual work (factory, construction, etc.) then you may return to work within 1-4 weeks to light duty. Return to full duty manual work will be based on your specific job and your progress in rehabilitation. The range is 3-6 months.

Sports

Your doctor and therapist will give you specific guidelines for return to sports. You can typically return to running and lower body weight training in 2 weeks. Return to weight lifting and sports usually occurs 3-6 months after surgery. Full speed throwing may require 6 months or more.
Rehabilitation after your shoulder operation is every bit as important as the operation itself. Failure to perform your exercises correctly and frequently can compromise the result of your surgery.

Only three exercises are required during this initial phase. First is the *pendulum exercise* (Figure 12). This is a warm-up to the other two exercises. Relax your operated arm and let it dangle at your side. Bend forward at your waist allowing the weight your arm to stretch the shoulder. The next exercise is *elevation* (Figure 13). This can be accomplished by grasping the operated arm with the assist hand and raising it overhead. At first you will need to assist with your good arm. After a few days you will be able to raise the operated side on its own. It is important to relax the muscles in your operated shoulder. If your muscles tighten the exercises can be painful. Steady breathing, exhaling during the elevation, can be helpful.

The final exercise is *external rotation*. This exercise is completed with the aid of a cane or broom handle. The handle is grasped in your assist hand and the butt end of the stick is placed in the palm of your operated side. Gentle force is applied to the stick in order to rotate the operated arm outward (Figure 14). Please note that this exercise is aimed at pure rotation. If your operated arm is not held against your side you will raise the arm away from your body rather than rotate the shoulder.

Each repetition should be performed slowly and patiently. You should push into a range where you can feel some mild discomfort and hold that position for 5 seconds, then relax and repeat the movement. Realize that you will have some discomfort but you should not be in severe pain, this is counterproductive. Try to time your pain medications around your exercise sessions. You should do 10-15 repetitions of all three exercises **four times** every day.