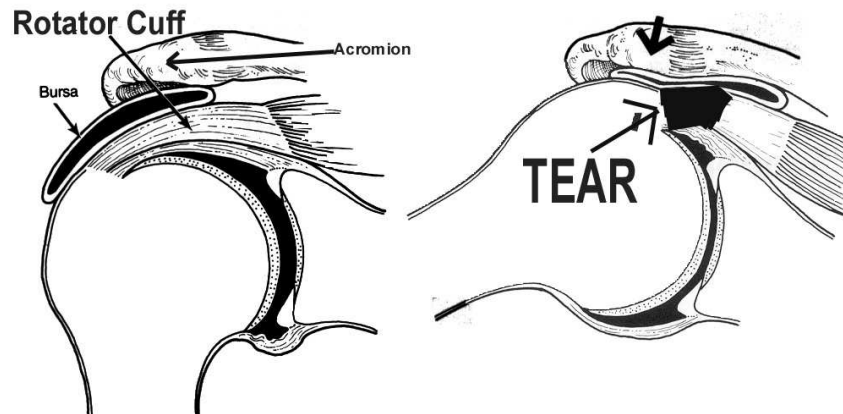




## **PATIENT NOTES | ROTATOR CUFF REPAIR**

You have elected to undergo an operation to repair the Rotator Cuff of your shoulder, which has a full thickness tear. This has been demonstrated by an arthrogram or an M.R.I.

The Rotator Cuff muscles are those muscles that surround the shoulder joint. Their job is to provide the power to lift and rotate the arm. As one ages these muscles become thinner and are prone to rupture, sometimes with minimal trauma. In the younger patient, rupture is usually associated with significant trauma. When the Rotator Cuff tears it usually does so at the junction of the muscle with the tendon, which is the part of the muscle that inserts into the bone.



Unfortunately when the Rotator Cuff muscles tear completely they do not repair by themselves. Leaving them unattended only leads to progression of the tear with progressive loss of motion and power. The longer a tear is left, the bigger the tear gets, and the more motion and power one loses. The surgical result is likely to be better with a smaller tear than a larger tear and thus the longer one leaves the tear unattended, the less satisfactory the surgical result is likely to be.

Typically patients get severe pain with elevation of the arm, discomfort at night and a restriction in motion and power. Eventually they may lose the majority of shoulder motion.

There are several different techniques available to repair the Rotator Cuff. I have suggested an open (i.e. with a cut) operation which is more appropriate in your case than an arthroscopic (minimally invasive or keyhole) procedure. The arthroscopic procedure has reasonably good results in cases where the tear is small or moderate but the results in larger tears are not as good as when the procedure is done in an open operation. The rehabilitation, however, may be quicker if the procedure is done arthroscopically.

The Rotator Cuff repair is a fairly major operation which has a twelve month rehabilitation period. The results are generally very good but even an excellent result does not give you a normal shoulder. The principle of the operation is to repair the torn muscle to the part of the bone from which it has become detached.

If you have certain medical problems you may require some preoperative tests which will be organised by our office, to ensure you are fit for a general anaesthetic. One week prior to surgery, you will commence washing your shoulder girdle with PHISOHEX antiseptic solution (available from your chemist). Should you get an allergic reaction to the PhisoHex then cease to use this immediately and inform our office. You are to avoid getting sunburnt.

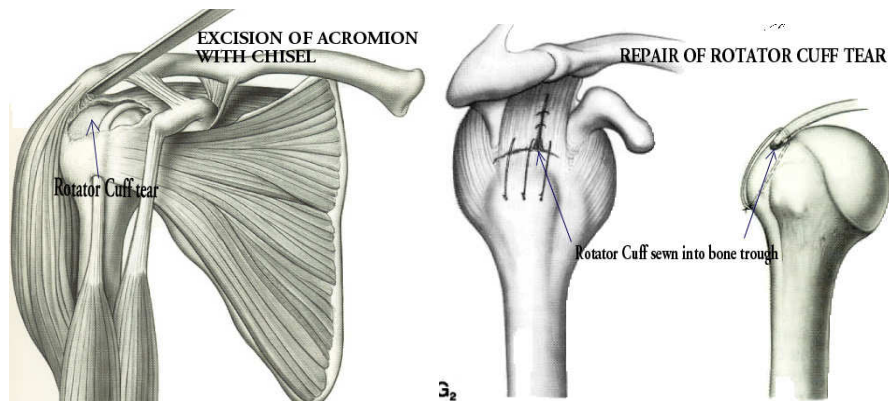
If you are on anti inflammatory tablets or Aspirin, please check with your G.P., and if he or she says it is safe, stop the tablets one week prior to surgery.

You will be admitted to the hospital on the morning of surgery and you will be visited by the anaesthetist who will examine you and make sure you are fully fit to undergo a general anaesthetic. In many cases the anaesthetist will explain to you the option of having a "block" which is an injection in and around the neck that will reduce pain for 12 to 18 hours post operatively.

The nursing staff will also explain the use of "patient controlled analgesia" (or P.C.A.) where you regulate the amount of pain relieving medication that you use. You must remove all rings from your hand prior to surgery.

The operation takes between 1.5 to 2 hours. The operative procedure involves a small scar over the top of the shoulder. You may get some permanent numbness about the scar but this will hardly be noticeable. I then proceed to trim the acromion bone and excise the coraco-acromial ligament which has no significant function in the body.

Both these structures rub on the rotator cuff and have contributed to causing the actual tear. If there is associated arthritis of the acromioclavicular joint then a small portion of bone is removed from the outer end of the clavicle.



The rotator cuff is then inspected and the tear is repaired. On most occasions this involves drilling a bone trough into the Humerus bone and sewing the muscle into that bone trough with a special type of stitch that never dissolves.

You will wake up in the ward with a drain coming out of your shoulder and in a sling. Your shoulder will not hurt too much if you have had a "block", but the "block" will wear off, after which you can use the "patient controlled analgesia"

On a few occasions the tear is massive and a repair can only be achieved by placing the arm in a special splint with the arm elevated to 90°. The patient on these occasions is required to wear that splint for 6 weeks. No physio is done for that 6 weeks if the splint is required.

There are still other occasions with massive tears where the rotator cuff cannot be repaired at all, or can only be partially repaired, and although the patients gain significant pain relief from the operative procedure they do not achieve as good a return of function as one would expect if the tear was able to be completely repaired.

In certain cases of large tears where the quality of the rotator cuff is poor, we supplement the repair with an artificial patch of tissue made from a pig's intestine (xenograft). Such tissue incorporates into the repair and your human rotator cuff cells settle on the patch, which acts as a scaffold. The human cells replace the pig cells over a 12 month period. This leads to a stronger and thicker rotator cuff in the long term. There are a number of disadvantages of the use of such a patch. There is a small risk of patch rejection which, if it occurs, requires a second operation to remove the patch. Up to 10% of patients develop a temperature for about 6 to 12 weeks after surgery which always settles. If there is a possibility of requiring such a device I will discuss the issues with you prior to surgery.

The morning after surgery I will see you and discuss the surgery with you. Your drain will be removed. A waterproof dressing will be placed on the shoulder and you will be allowed to shower. When showering take the blue sling off but leave your arm adjacent to your body. You will be given a gauze sling to wear in the shower – do not attempt to lift or rotate the arm – and then put the blue sling back on after you are dry. Make sure the armpit is as dry as possible because of the risk of a sweat rash or an armpit infection. It is important to sit out of bed and walk around as soon as you are comfortable and able.

In most cases, on the first postoperative day you will also commence a PASSIVE exercise program under the supervision of a physiotherapist. The shoulder movements are performed with the unoperated arm lifting the operated arm over the head, while lying down. This is done so that the repaired muscles do not contract when the shoulder is moved. The rotator cuff muscle takes 6 weeks to heal in the bony trough. If the muscles do contract in the first 6 weeks the repair may fail. We need to start the exercises early to avoid stiffness following the operation. It is normal for the exercises to cause some discomfort and I suggest you take some analgesics 20 minutes prior to exercising.

On occasions if you have a very large tear we do not allow any physiotherapy or exercises for 6 weeks.

On the second postoperative day you will be discharged from hospital after I review you. Your day of discharge will depend on how much pain you have and how you are coping with the exercise program. In the immediate postoperative period you will experience pain about the shoulder. There will also be significant pain at night as a result of the surgery.

On discharge from hospital you will be given analgesics as well as tablets to help you sleep at night, which I would encourage you to use. Should you require extra tablets, either let my office know or see your family doctor. You will also be given a package of antibiotics which you should continue until you finish the packet. You only need the one package.

You will have a "see through" dressing over the wound made out of a substance called "duoderm". This is a waterproof dressing that allows you to shower without compromising the sterility of the wound. You will notice under the dressing there will be a white material that looks like pus. This is the perspiration of your skin reacting with the medication in the dressing and is nothing to worry about. The dressing should not be changed. It is common to get swelling about the arm, forearm, hand and fingers. Please endeavour to keep the armpit as dry as possible – once the wound has healed at about 10 days you can use talcum powder which will help.

Most patients will need to do the passive exercises at home under their own supervision for 6 weeks. You will not need to see a physiotherapist during this period unless you have difficulty doing the exercises yourself. The exercises need to be done 4 times a day under your own supervision. The sling must remain on 24 hours a day including at night. The sling only comes off to have a shower and get dressed and on those occasions the arm needs to be kept adjacent to the body. Under no circumstances are you to elevate or rotate the operated arm. The Roads and Traffic Authority does not permit driving a vehicle while you are in a sling. I therefore recommend you do not drive for at least 6 weeks.

**When to contact me before I have removed your stitches:**

- Fever above 38 degrees Celsius
- Increased pain unrelieved with pain medications
- Sudden, severe shoulder pain.
- Increased redness around the incision
- Increased swelling at the incision
- A bulge that can be felt at the shoulder
- Shoulder pain, tenderness or swelling.
- Numbness or tingling in the arm.
- Change in colour and temperature of the arm.
- Change in motion ability
- Drainage or odour from the incision
- Any significant concerns you have

I will review you at about 10 days to 2 weeks following surgery to remove the stitches and check your range of motion. If movements are a little slow I will arrange some formal physiotherapy but if progress is satisfactory then physiotherapy will not start for 6 weeks.

I will then review you 6 weeks post operatively when the sling will be removed and formal ACTIVE physiotherapy will be commenced. This is where you are allowed to lift the arm up under your own power. You will be given a set of exercises using Theraband, which is a resistive exerciser. This form of therapy, in most cases, will be supervised by a physiotherapist a couple of times a week, but it is necessary for you to do the exercises at home 4 times a day. You need to follow the exercise sheet that I will give you and you should NOT deviate from those exercises. It is not unusual to have some increase in pain when you commence the active exercise program.

You can begin lifting light objects after 6 weeks but I do not want you lifting more than 2kg. The reason for this is that even though the rotator cuff has healed into the bone trough enough to allow you to lift your arm actively at 6 weeks, the muscle does not fully and solidly heal to the bone for 12 months. I therefore do not allow heavy lifting or overhead activity for 12 months. I will however allow a progressive increase in the weight restriction but this will depend on your progress. A rough guide is 2kg. at 6 weeks, 5kg at 6 months and 7.5kg at 9 months. I allow full function at 12 months providing there has been an adequate return of power.

I permit breaststroke swimming at about 4 to 6 months depending on your progress but you will not be allowed to swim freestyle for 1 year.

Physiotherapy will take at least 12 months to achieve a full or near full return of function. It is not uncommon for complete pain relief to require at least 12 months of rehabilitation following surgery.

I advise all patients, if possible, not to return ever to jobs that involve heavy lifting and overhead activity. This is because there is intrinsic weakness in the rotator cuff and with heavy activity there is always a risk of rerupture.

The success rate of the surgery is in the vicinity of 90%. The success rate and return of function is very dependent on the size of the tear, the bigger the tear the worse the result. Even with successful surgery you will never have a normal shoulder, but you should achieve good function and excellent pain relief. If you do not have surgery the tear will never heal, and the tear will progressively increase in size with an associated increase in loss of function. If you then elect to have surgery at a later date, that surgery is less likely to be successful, as the size of the tear has increased.

In about 10% of cases the rotator cuff does not heal and surgery fails.

Smoking reduces the success of surgery as it inhibits healing of the Rotator Cuff. I advise all smokers to avoid smoking prior to and after surgery.

## **COMPLICATIONS**

All surgery carries potential risks and complications. In most cases the decision to proceed with surgery is made because the advantages of surgery outweigh the potential disadvantages. It is very important, however, for you to understand the reason for choosing surgical management over other non-surgical forms of treatment and to make an informed choice in consultation with the surgeon. This is particularly important in cases of elective surgery.

It should be noted that there is no operation that cannot make you permanently worse off than prior to surgery but I would like to emphasise that such complications are exceedingly rare.

The risks of surgery can be divided into general risks with any surgical procedure and specific risks of particular procedures.

The general risks of surgical procedures include the following:

**Respiratory tract infections:** This includes the development of pneumonia, which can follow anaesthesia for surgical procedures. It is more common in the aged and very uncommon in the young and healthy. Treatment involves antibiotics, physiotherapy and respiratory support. Treatment is not always effective.

**Thromboembolic problems:** This term refers to the formation of blood clots within the blood vessels. If they form in the veins they are known as deep venous thromboses, which can cause swelling and pain in the legs and a restriction of blood flow. These clots can travel to the lungs and cause a pulmonary embolus (which is potentially fatal). This complication is more likely to happen in smokers, overweight people and women using contraceptive medications. For this reason patients are advised to stop smoking and stop taking oral contraception before surgery.

Long aeroplane flights also increase the chance of blood clots forming and therefore patients should not fly and have surgery in the same two (and preferably six) week period. Unlike lower limb surgery, blood clots are uncommon after shoulder surgery.

In emergencies, special precautions are taken. Treatment of this condition usually involves anti-coagulant (blood thinning) medication administered by injection into the skin or by intravenous drip and then followed up by a tablet form of anti-coagulant therapy. Therapy for this condition is not always successful. If clots form in the arterial system then a stroke may occur.

**Infection:** This can occur following any surgery. Operating theatres are designed to minimise the risk of bacterial infections. Surgical procedures are carried out in a sterile manner. In higher risk operations, antibiotics are given to decrease the likelihood of infection.

Despite expert treatment and antibiotic protection, infections still occur. These can cause prolonged disability, require treatment with antibiotics and occasional require surgery. Infections can be found at the operative site, in the lungs, the urinary system and elsewhere.

**Anaesthetic Complications:** Anaesthesia itself entails a degree of risk, some of which is outlined above. For further information regarding anaesthetic risks please feel free to contact the treating anaesthetist for your operation. My office staff will be happy to provide you with a contact number. You will see the anaesthetist in hospital prior to your operation and will have the chance to discuss the effects and possible complications of anaesthesia at that stage.

Rare and unusual problems can occur as a result of surgery and anaesthesia. If you are concerned about the potential for complications or the advantages and disadvantages of a decision to proceed with surgery you should discuss that with your surgeon before operation. If there is any doubt in your mind then I would strongly recommend that you seek an independent second opinion. This can be arranged through your referring medical practitioner.

The common complications specific to shoulder surgery include but are not limited to wound infections, stiffness and occasionally some transient numbness around the shoulder. In particular post operative stiffness can be a problem especially if you have diabetes. Very occasionally we have to do a procedure called a Manipulation if stiffness remains a problem after 6 months.

My surgical practice is a subspecialty practice. I operate within my defined areas of interest and expertise. I believe that this results in better outcomes for patients and a very low complication rate. My patients are only offered the option of surgery after non operative forms of treatment have been considered. Surgery is offered only when I consider that the potential advantages of this form of treatment outweigh the possible complications and side effects (when I feel that it is likely to lead to a better outcome for you than non-operative forms of management).

In the case of elective surgery, you are encouraged to consider the non-operative options of treatment and take time to make an informed choice about the preferred course of management. You are free to discuss this with me or your referring medical practitioner. If elective surgery is proposed, please feel free to take as much time as you need to come to an informed decision. If you are not completely comfortable with the decision to proceed with surgery, you are free to take up further discussions with me or seek an independent second opinion.

January, 2009

J. GOLDBERG	shoulder surgery	W. BRUCE	hip, knee	D. SHER	shoulder, elbow, knee
R. PATTINSON	paediatric, general	A. LOEFLER	hip, knee, spine	J. NEGRINE	foot, ankle
A. TURNBULL	hip, knee	P. WALKER	hip, knee	I. POPOFF	knee, shoulder, general
T. GOTHELF	foot, ankle, shoulder, elbow			J. TRANTALIS	shoulder, elbow

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