

Shoulder Surgery

Pre and Post Operative Handbook



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Shoulder Surgery Handbook

This hand book has been developed by Orthopaedic Physiotherapists, experienced in post operative shoulder rehabilitation. It has been developed to assist you with your preparation for, and recovery from, surgery. It has been designed as a source of general information and is to be used as a guide only. You should always discuss all relevant care with your Surgeon and clinical staff as each individual case is different and specific, tailored information is required.

This handbook is divided into five sections:

Section 1: Pre-operative Information: What to consider before coming into hospital for your operation?

Section 2: Basic shoulder anatomy: Which tissues may be involved?

Section 3: Indications for shoulder surgery: Why operate?

Section 4: Shoulder surgery: What does it involve?

Section 5: Post-operative recovery and rehabilitation: What happens after the operation?

Section 1:

Pre-Operative Information

Are you fit for your operation?

You can do a few things before and after your operation that can assist with your recovery.

Exercise

Speak to your Physiotherapist about suitable exercises to perform before your surgery. In some cases, exercises will be encouraged. In other circumstances, you may be advised to rest in the lead up to your surgery.

Practice transferring out of bed without the use of your involved arm. This will help you to become familiar with how to transfer following your surgery when you will likely be wearing a sling and unable to use your arm.

Alcohol

Decrease alcohol intake as it can affect medications you will be taking.

Smoking

Cease smoking; it increases the risks for anaesthetics and impairs healing of your shoulder. There are numerous products that can help you do this.

Watch your weight

Reducing your weight and healthy eating will assist in the recovery process. A dietician can assist you to commence a weight control program pre-operatively.

Medications



If you are on any medications, this will need to be discussed beforehand with your doctor and staff in the pre-admission clinic. Some medications will need to be ceased before your operation.

Pathology

There may be some tests organised for you in the weeks prior to your procedure. These will include an ECG, a blood test and perhaps a urine test. This is to ensure you are well prior to your surgery.

Physician

Your surgeon may wish for you to see a Physician before and during your admission. If you see one of the hospital Physicians, they will follow you through your admission. The Physician is a general medicine specialist who will assist in treating and monitoring complex conditions.

Admission Information

Essentials to Bring into Hospital



You should remember to bring into hospital with you the following items. Any **x-rays** that may be pertinent to your admission, all the medications that you are required to take regularly. These should be in their original packaging to avoid confusion.

You should also bring in a **small toiletry bag** including items you would routinely use.

You only need to bring in a **small amount of change** for newspapers etc. Keep **reading material** light as it can be difficult to concentrate for long periods following your operation. Please do not bring your valuables into the hospital, or ask staff to lock them away for safe keeping. A button up shirt or zip up sweater is handy to wear initially as it may be difficult at first to get a t-shirt on and off comfortably.

Coming to Hospital

It is usual to be admitted to the hospital on the day of surgery or occasionally the day prior. Your Surgeon will have provided you with details about when to present to hospital.

If hair removal is necessary, it will be attended to before your surgery. ***Please do not shave the operation site yourself as this can increase the risk of infection.***

If you have requested a single room, every effort will usually be made to accommodate you. However due to clinical demand and need, these rooms may not always be available and you may be asked to share a room until one becomes free.

The Anaesthetic Review

You will usually be required to fast for 6-8 hours prior to your surgery.

This means nothing to eat or drink.

The Anaesthetist will come and see you before your operation and discuss the type of anaesthetic you will have.

You will need to clarify with your Surgeon what medications you need to take on the morning of your operation. These are usually essential heart or blood pressure medications and can be taken with a small sip of water. The nursing staff can discuss this with you.

You will be off the ward for about 5 hours. This includes the time you spend in recovery after your operation. Your Surgeon will generally call a nominated person following your operation to update them on your progress.

Section 2: Basic Shoulder Anatomy:

Which tissues may be involved?

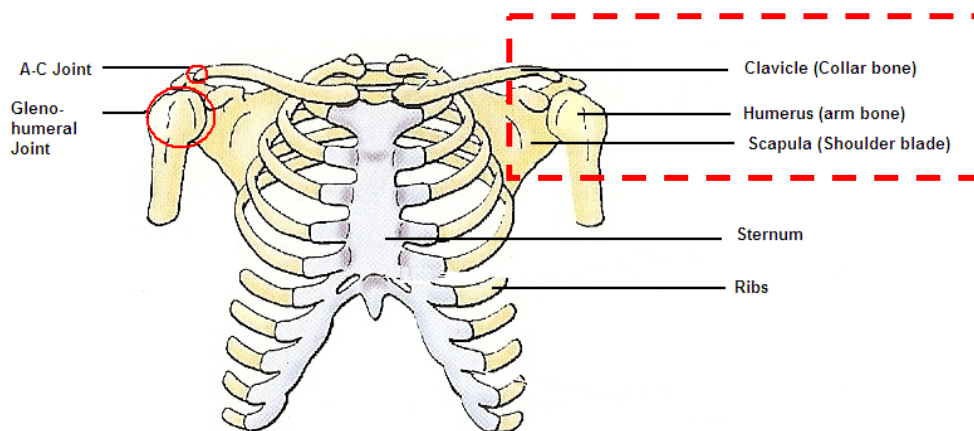
BACKGROUND:

Shoulder surgery is performed for a number of clinical conditions. When considering having shoulder surgery, it is important to have a basic understanding of the shoulder, the operation, and what to expect during recovery.

The shoulder is one of the least stable joints in the human body. For this reason, it is one of the joints which is most prone to injury.

The shoulder is actually composed of more than a single joint. It is better understood as a 'complex', composed of a number of different structures.

1. The shoulder blade (scapula)
2. The collar bone (clavicle)
3. The arm bone (humerus)
4. The joints that link each of these structures together



In order to reach with your arm, particularly above shoulder height, each of the joints that contribute to the shoulder 'complex' must work as a team. Soft tissues (muscles, tendons, ligaments) have a large role to play in facilitating this 'teamwork'. Where there is a deficit in any of these tissues, pain and movement limitation can result.

Types of Injuries/conditions:

Many different types of conditions can effect the shoulder:

- Bursitis
- Muscle, tendon, ligament, or cartilage tears
- Joint dislocations
- Ligament laxity (looseness)
- Bone fractures
- Frozen shoulder (Adhesive Capsulitis)

CONDITION / DIAGNOSIS	TISSUE INVOLVED	WHAT IS IT?
Subacromial Bursitis	Bursa	Swelling of a fluid filled structure that permits movement of a tendon over a bony surface.
Rotator Cuff tear	Muscle or tendon	Separation / tear of muscle or tendon fibres
Shoulder dislocation	Ligament, capsule, cartilage, tendon or bone.	“Gleno-humeral joint” popping out of its shallow socket, leading to adverse strain being placed upon ligament, capsule, cartilage (see SLAP lesion), tendon or bone tissues.
Glenoid labral tear (also known as SLAP lesion)	Labrum	Tear in a fibrous tissue that increases the stability of the “shoulder joint”.
Acromioclavicular joint separation/dislocation	Joint capsule, ligaments.	Joint capsule /Ligaments overstretched, typically following direct blow to shoulder, or fall on point of shoulder.
Fractured neck of humerus	Bone	Break in the upper arm bone, usually affecting older individuals, following a fall.
Frozen Shoulder (also known as Adhesive Capsulitis)	Joint Capsule	An inflammation & “shrinking” / tightening of the shoulder joint capsule, the deep lining surrounding the shoulder joint.

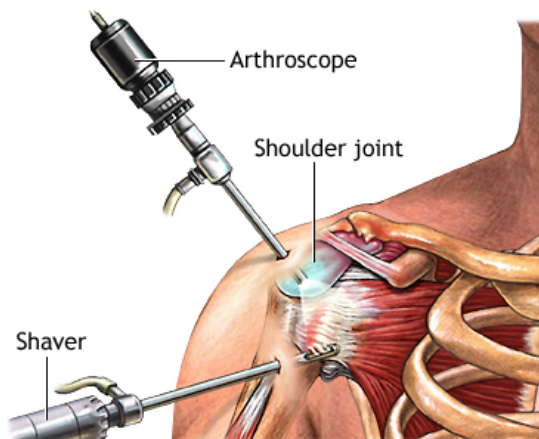
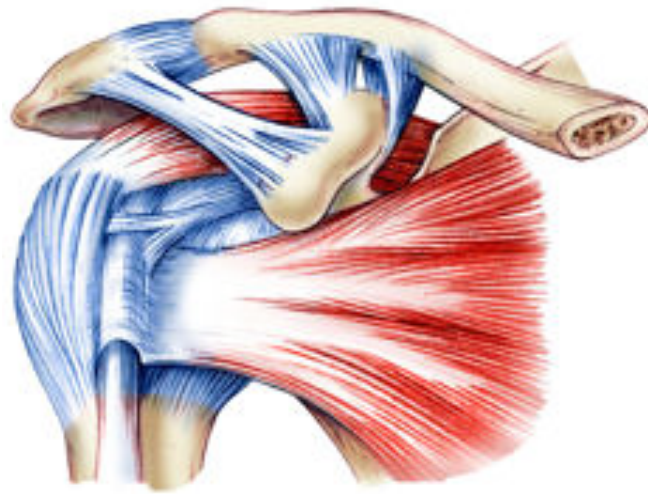
Section 3: Indications for shoulder surgery:

Why operate?

When tissues are damaged through injury or natural age-related 'wear and tear', some have a natural ability to heal. Other tissues, however, have a poor healing capacity, and surgery may be required to reduce pain, restore movement and enable a return to home, work and leisure activities.

In some circumstances, tissues simply need to be trimmed or 'tidied up', to reduce irritation and improve comfort. In other circumstances, tissues need to be repaired.

NB: In a later section of this handbook, recovery timeframes will be discussed. For the purpose of understanding the different types of operations, operations will be classified as either (i) 'tidy up', (ii) 'tissue repair' or (iii) 'other'.



Section 4:

Shoulder Surgery: What does it involve?

This section of the handbook considers several examples of the types of surgery which can be performed to address the injuries/conditions previously discussed.

Shoulder surgery can be performed either arthroscopically or via an open procedure.

Arthroscopic shoulder surgery is a form of keyhole surgery in which a small telescope attached to a video camera is used. An open procedure involves a larger incision in the skin, to gain access to the tissues which require repair.

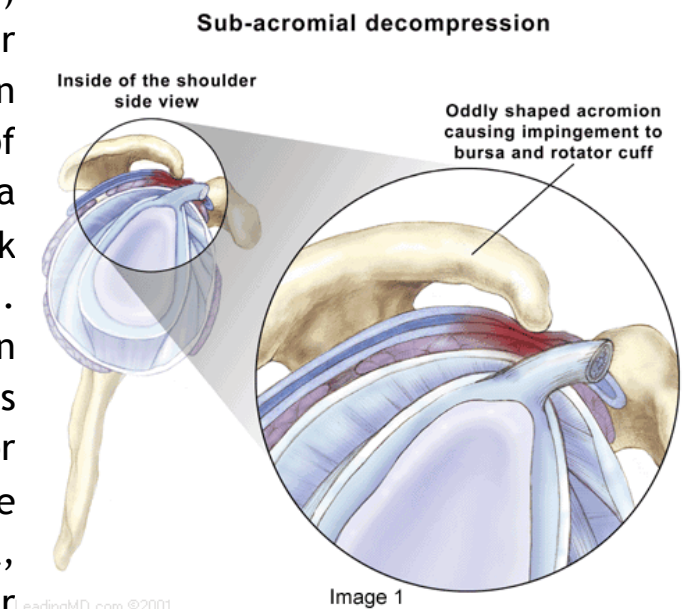
In the majority of cases, an arthroscopic surgical technique can be used. In some instances however, your surgeon may need to utilise an 'open procedure'. Your surgeon will advise you as to which approach is required given your unique circumstances, in order to achieve the best possible outcome.

TYPES OF SHOULDER OPERATION:

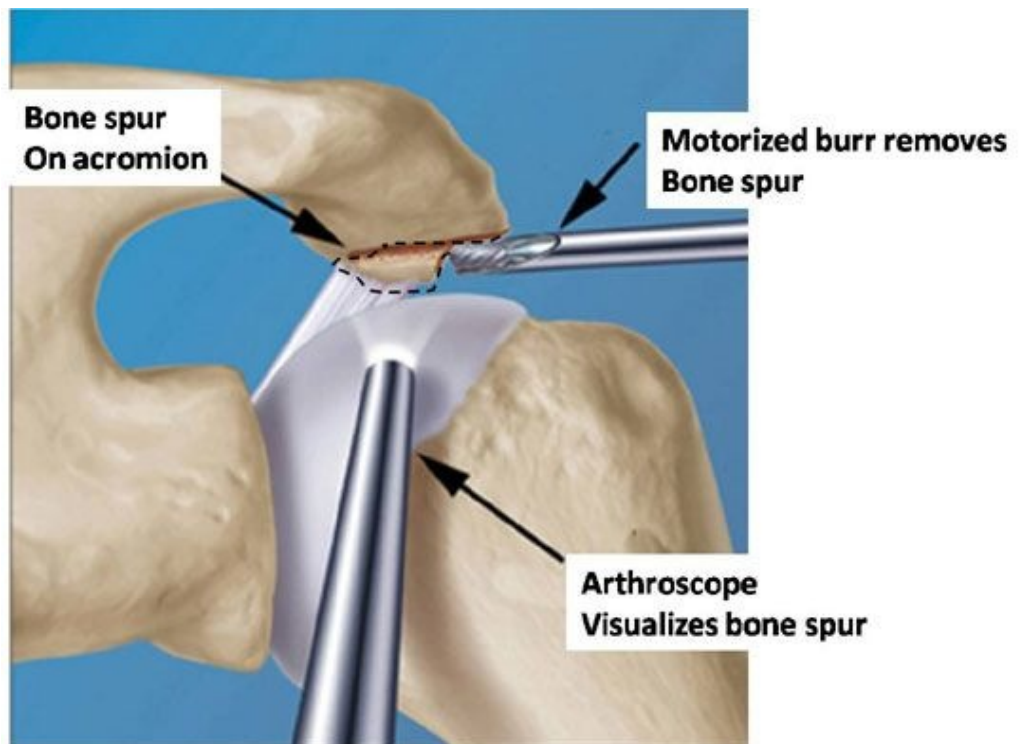
1. Sub-acromial decompression / bursectomy
2. AC Joint Excision
3. Rotator Cuff Repair
4. Biceps Tenodesis
5. Shoulder Stabilisation & SLAP repairs
6. AC Joint Stabilisation
7. Total Shoulder Joint Replacement
8. Clavicle ORIF
9. Humerus fracture
10. Capsular release / MUA

Subacromial Decompression / Bursectomy

As we age, bone spurs (bone growth) can develop on a part of the shoulder blade called the acromion. This can then cause irritation to other tissues of the shoulder. One such tissue is called a bursa which is a small fluid filled sack (imagine a small water balloon). Repetitive irritation of the bursa can lead to a condition called bursitis (inflamed bursa). The inflamed bursa or the bone spur can further irritate tendons which pass through the area, leading to tendon swelling and 'wear and tear'.



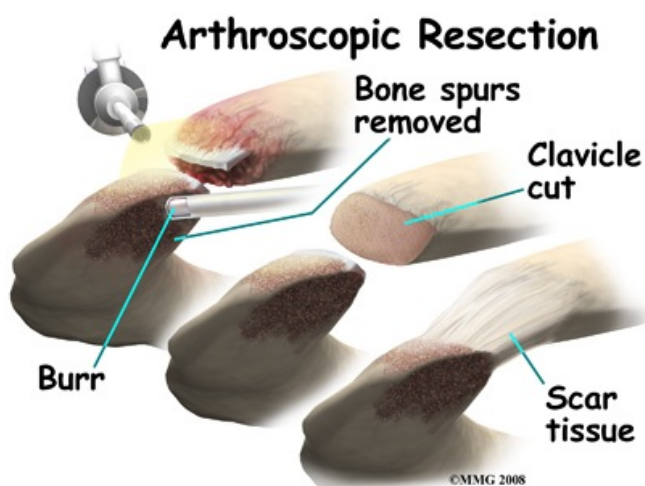
A subacromial decompression is a form of arthroscopic shoulder surgery which seeks to remodel the shoulder blade (acromion). It is essentially a



‘tidy up’ type of procedure which aims to remove likely sources of tissue irritation.

A Bursectomy may also be performed. This involves removal of the swollen/ inflamed bursa.

Acromio-clavicular (AC) Joint Excision



The AC (Acromio-clavicular) joint joins the shoulder blade and the collar bone. The AC joint is required to fully raise the arm. As we age, the bones (clavicle and acromion) that make up the AC joint can develop osteoarthritis, leading to pain and impaired shoulder movement.

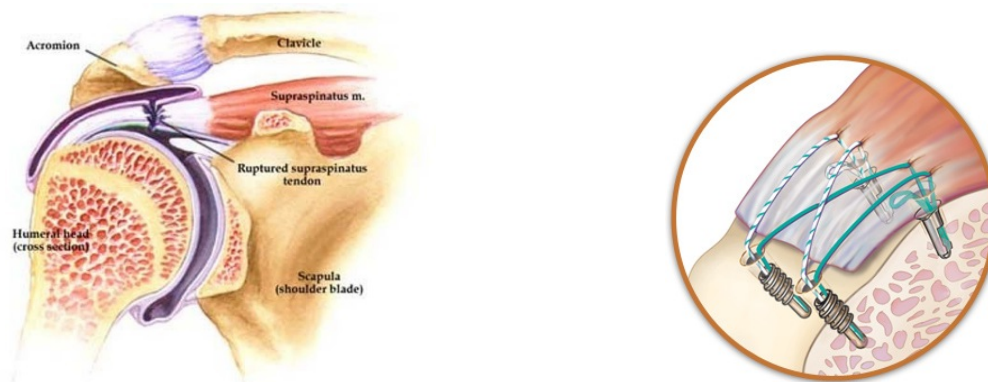
A surgical procedure called an excision can be performed, to trim the collar bone to remove ‘worn’ tissues, and facilitate pain-relief and improved function.

Rotator Cuff Repair

The rotator cuff is a critical group of muscles and tendons that form a cuff over the shoulder. Their primary role is to keep the head of your upper arm bone firmly in the shallow socket of your shoulder blade. If these muscles or tendons become worn or torn, you may experience pain, weakness, and an inability to fully raise your arm.

Depending on the size and location of the tear, conservative treatment (Physiotherapy) can sometimes be effective. If the tear is of a certain dimension or location, Surgery may be required.

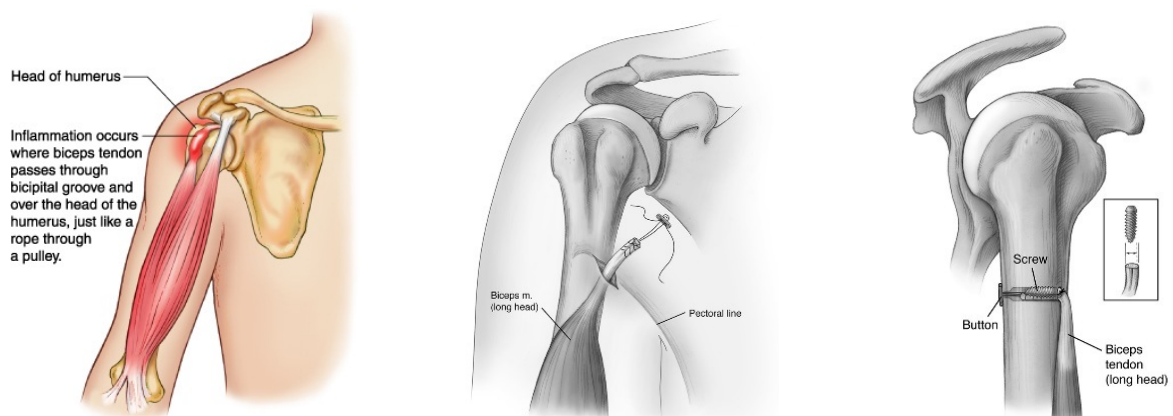
Rotator Cuff Repair surgery can either be performed arthroscopically (key hole surgery via small incisions) or via an open procedure, in which a larger incision is made. The surgery seeks to repair the torn tendon. The surgery uses small sutures and rivets (called suture anchors) to repair the tendon so that it once again attaches firmly to bone.



Biceps Tenodesis

The biceps is a muscle that travels from the elbow to the shoulder at the front of the upper arm. When you bend your elbow, the muscle tone that develops in the front of your upper arm is your bicep muscle. The bicep attaches into your shoulder via a tendon. Due to repetitive use or an acute injury, this tendon can develop inflammation, small tears, or a complete detachment from the shoulder socket.

A Biceps Tenodesis is a surgical procedure which relocates the bicep tendon. It involves cutting the bicep tendon from its usual attachment into the shoulder socket, and relocating and reattaching the tendon to the upper arm bone (humerus).



Shoulder Reconstruction & SLAP Repairs:

Shoulder instability is a condition in which the shoulder joint (gleno-humeral joint) is too loose, leading to the arm slipping out of the shoulder socket (also known as shoulder dislocation). Instability can occur naturally, or as a result of trauma to the shoulder. Damage can occur to a range of different tissues, some of which have a poor natural healing capacity. In the case of traumatic dislocation, cartilage and bone, along with the shoulder capsule and ligament tissue can be damaged. Surgery seeks to repair damaged tissues, to improve the stability of the shoulder joint, and reduce the risk of repeated dislocation.

SLAP tears are one kind of injury which may require surgery, typically in the form

of debridement (trimming) or repair. The labrum, as detailed in the earlier section of this handbook, is a fibrous tissue which encircles the shoulder socket (imagine a rubber ring encircling the top of a golf tee), increasing the stability of the shoulder 'gleno-humeral' joint. Tears of this tissue are typically graded according to their severity, as either Type 1, Type 2, or Type 3. Type 1 is a partial tear or degeneration (but not completely detached). Type 2 is a complete tear whereby the labrum is torn off the underlying bone. Type 3 is a 'bucket handle' tear, in which the torn labrum may fall into the joint, and may cause symptoms of 'locking' or 'clunking'.

Surgical repair of Type 2 Labral Tear:

FIG. 1: SLAP TEAR

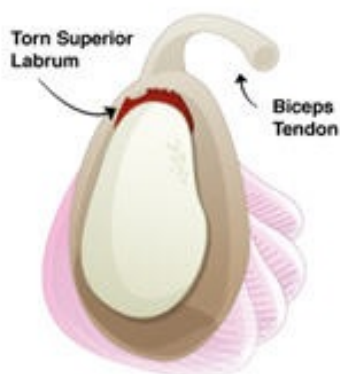


FIG. 2: POSTERIOR ANCHOR PLACEMENT

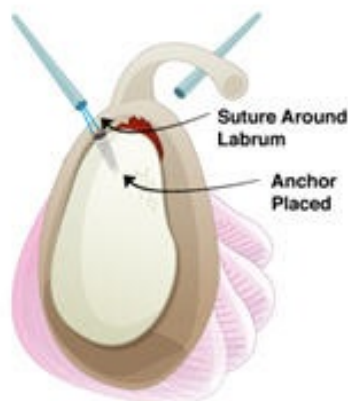
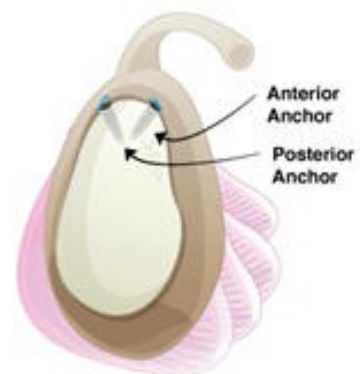
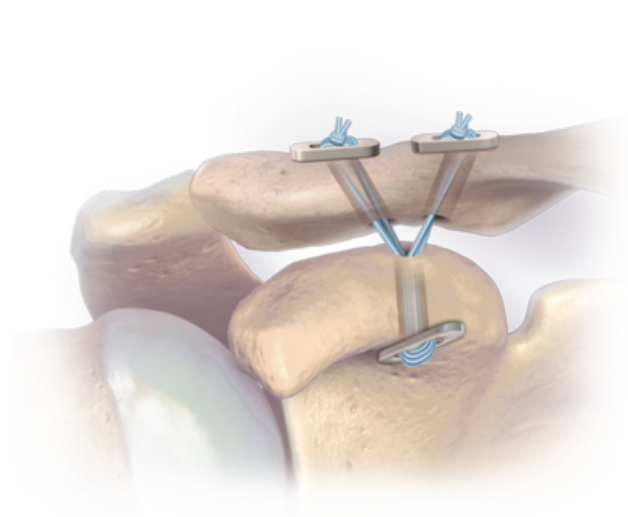


FIG. 3: REPAIRED SLAP TEAR



ACJ Stabilisation / Reconstruction

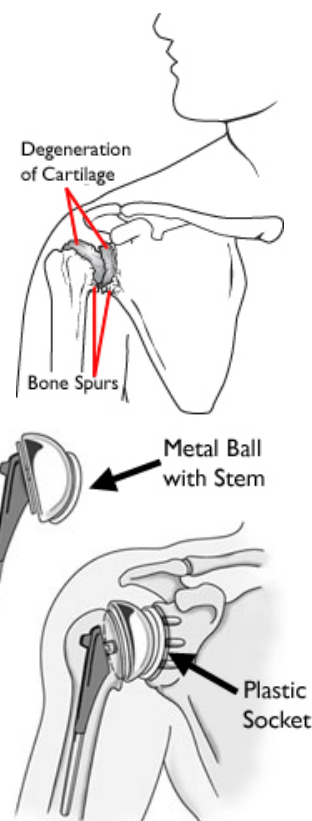
Trauma to the AC joint (the joint formed by the Acromion and Clavicle) can result in separation of this joint, leading to disruption of ligaments, to pain, and impaired shoulder movement. A common cause of injury is a fall onto the point of the shoulder. Surgery in the form of an AC joint stabilisation/reconstruction repairs damaged tissues, often using a special type of suture, or a special plate and screws.



Total Shoulder Joint Replacement

As we age, the shoulder can become very painful as a result of tissues becoming 'worn'. Osteoarthritis is one such condition that results in cartilage 'wear' (also known as degeneration), with pain and impaired movement the result.

Shoulder joint replacement surgery seeks to remove the damaged parts of the shoulder, replacing them with artificial components. This procedure is performed primarily as a means to lessen pain. It also seeks to improve one's ability to undertake basic daily activities. It is a procedure typically performed to improve quality of life, and typically does not restore full shoulder range of movement.



Clavicle Open Reduction Internal Fixation (ORIF)

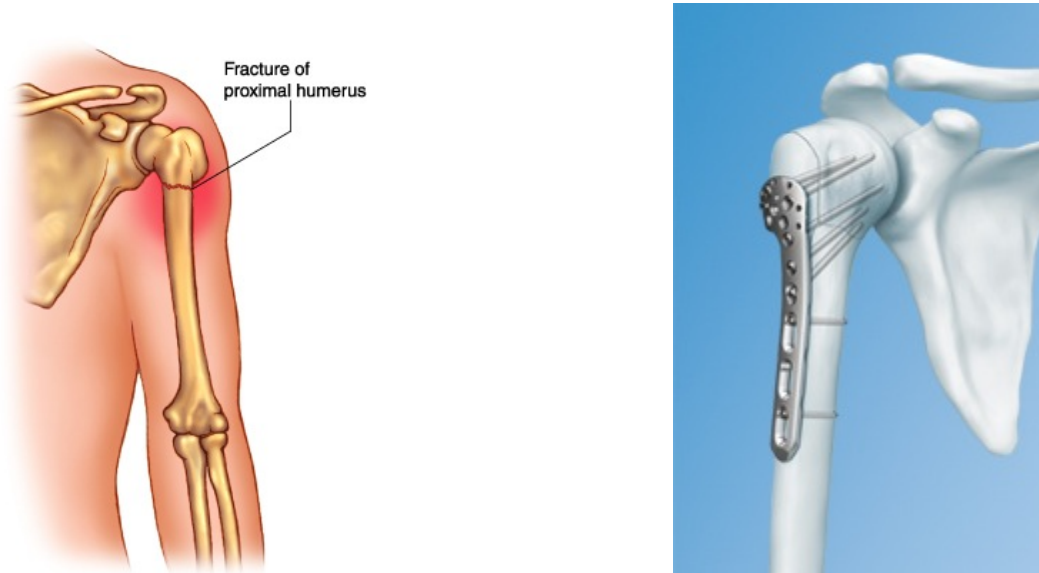
When the clavicle (also known as the collar bone) is fractured/broken, surgery may be required to promote healing. Sometimes, an operation is required in which an incision is made in the skin, the bones are re-aligned, and a plate and screws is inserted to stabilise the fracture.

This is called an open reduction internal fixation or ORIF of the clavicle. The location and extent of the fracture influences the anticipated recovery time following this type of operation.



Humerus fracture:

A fall, in some circumstances, can result in a fracture to the upper arm bone, also known as the humerus. The head of the humerus forms part of the gleno-humeral joint (ball/socket joint of the shoulder) which contributes to the shoulder complex. As such, a fracture to the humerus will influence your ability to move your arm. In some circumstances, fractures of this bone require surgery to facilitate the healing process. Surgery typically involves re-aligning the broken bone, and then stabilising it using a plate and screws. The location and extent of the fracture influences the anticipated recovery time following this type of operation.



Capsular Release & MUA (Manipulation under anaesthetic)

The shoulder joint capsule is a fibrous connective tissue membrane (like a thick cling wrap) that surrounds the shoulder joint. Due to a range of factors, certain individuals may develop a condition known as 'adhesive capsulitis' (also known as frozen shoulder). In some instances, the condition will develop without a distinct cause. Adhesive capsulitis is a condition in which the shoulder capsule becomes inflamed, thickened and stiff, causing pain and impaired shoulder movement. In some cases, this pain and stiffness resolves over time without surgery. Natural recovery can take several years. In other, more resistant cases, surgery may be required. Surgery is typically in the form of a capsular release, in which a surgeon will cut through tight portions of the capsule.

A capsular release may be performed in combination with a technique called a 'manipulation'. A 'manipulation' involves your surgeon moving your shoulder (while you are under the anaesthetic) in such a way as to stretch tight tissues to increase movement.

The goal following these procedures is to get your shoulder moving. As such, a sling may not be used, or if used, will only be used for a short period of time. A commitment and dedication to your rehabilitation exercises is paramount following these procedures to optimise the outcome of the procedure. Your Physiotherapist will guide your rehabilitation program.

Section 5

Post Operative Recovery & Rehabilitation

Rehabilitation timeframes following shoulder surgery vary significantly. Timeframes depend on:

1. Time between injury/symptom onset and surgery.
2. Surgical approach (arthroscopic or open surgical technique).
3. The type and extent of surgery performed.
4. The rehabilitation goals of each individual.

The timeframes detailed in this table are an approximate guide only. There is significant variation in recovery timeframes between operations, and indeed within any category of operation. Please discuss further with your Surgeon as required, to gain an individually tailored recovery timeframe for your operation.

OPERATION	'TYPE' OF SURGERY	SLING USE	REHABILITATION TIMEFRAME
Sub-Acromial Decompression	'Tidy Up'	1 Day-2 weeks (for comfort)	6 weeks - 3 months
AC joint excision		1 Day-2 weeks (for comfort)	10 weeks – 3 months
Capsular release / MUA	'Other'	1-2 days	Variable
Rotator Cuff Repair	'Tissue Repair'	4-6 weeks	8-12 months
Biceps Tenodesis		2-4 weeks	3-6 months
Shoulder Reconstruction		4-6 weeks	6-10 months
Clavicle ORIF		2-4 weeks	2-3 months
ACJ Stabilisation		4-6 weeks	2-4 months.
Total Shoulder Joint Replacement		1-4 weeks	6-12 months
Humerus ORIF		2-6 weeks	3-6 months.

The following information is designed to help you anticipate when certain activities are likely to commence following your operation. It is a guide only as each Surgeon will have specific preferences for your care. Generally speaking, recovery following 'tidy up' type procedures are quicker than procedures requiring 'tissue repair'.

'Tidy up' type procedures include sub-acromial decompression, bursectomy, labral debridement. Recovery time frames following these procedures are generally in the range of 2-4 months, with an initial period of sling use typically ranging between 2 days and 2 weeks (you will be advised of the exact period of sling use following your procedure by your consulting clinicians).

'Tissue repair' type procedures include rotator cuff repair, shoulder reconstruction, biceps tenodesis. Broadly speaking, recovery time frames following these procedures are in the range of 4-12 months. In the instances of 'tissue repair' type procedures, a longer period of sling use is required, typically in the range of 4-6 weeks (you will be advised of the exact period of sling use following your procedure by your consulting clinicians). The best approach to gaining an accurate indication of your anticipated recovery timeframe is to speak directly with your Surgeon.

Recovery timeframes following capsular release and/or manipulation vary significantly. Unlike other surgeries, you will be encouraged to move immediately to minimise the likelihood of the shoulder stiffening up, and as such, a sling is rarely used for any longer than 1-2 days. Please discuss your anticipated recovery timeframe directly with your Surgeon.

Sling



Following shoulder surgery, you will most likely be required to use a sling.

The sling will have either one strap or two straps depending on the protection required. The Physiotherapist you see in hospital will teach you how to adjust your sling to achieve comfort.

In basic terms, when the sling is fitting you well, your elbow should sit down into the pocket of the sling, when your shoulder is relaxed. Avoid shrugging to protect your shoulder as this will lead to muscle tightness and pain around your upper shoulder and neck. Let your shoulder relax, and allow the sling to take the weight of your arm. Adjust the neck strap so that an angle of approximately 90

degrees is formed at your elbow, when your arm is relaxed in the sling. Some slings have a small loop at the opening of the sling - if it is comfortable, you can pass your thumb through this loop to maintain the sling in a good position.

When showering, you can have your sling off, but unless advised otherwise, continue to cradle your arm using your good arm. When your sling is off, unless advised otherwise by your Physiotherapist, you should not reach away from your body with your involved arm (keep your arm in close to your body). The only exception is when washing your arm pit - in this instance, you can lean forward, and allow your arm (cradled by your good arm) to come passively away from your body (with support). In this position, you can access your arm pit to wash, before standing upright.

Posture

Posture is a critical element of your initial recovery. While wearing a sling, it is very important that you endeavour to maintain an upright sitting/standing posture, avoiding stooped/rounded shoulders. A general guide is to gently draw your shoulder blades back and together (within your comfort levels), to activate your shoulder blade muscles, and prevent other muscle groups from tightening up. Perform this gentle contraction only within comfort levels, and cease if pain is



exacerbated. As an exercise, you can gently activate these muscles, hold for 5 seconds, then relax. Repeat 5-10 times, performing 4-6 times per day as a set exercise.

Also, stand tall, imaging there was a helium balloon attached to the top of your head. Lengthen up through the head, to avoid slouching. This will help prevent



certain muscles from tightening, and will aid your initial comfort and both your initial and ongoing rehabilitation.

Ice

Icing is an important component of your initial recovery, and may be used as a pain-relief 'tool' during your post-operative rehabilitation. Ice helps to reduce the inflammation caused by the procedure. Apply ice for 20-30 minutes, every 2-3 hours in the first 72 hours following your surgery. Thereafter, use ice as required to ease residual pain, swelling, and/or inflammation. Make sure you place a tea towel or cover between the ice pack and your skin, to stop ice burns. Depending on which tissues were addressed during your surgery, place the ice pack to the front, side or top of the shoulder for best effect.

Sleeping

Whilst there is no one answer to the best way to sleep, in the initial stages following your shoulder surgery, you may find it helpful to place a pillow or folded towel down the back of your arm (to support your arm) while you rest in bed. This will help to prevent strain on your shoulder while resting, and should improve your comfort.

You may find it more comfortable to rest in a semi-reclined position, using a reclining arm chair, or resting in bed with pillows.

Exercise

In the majority of cases, specific exercises will be commenced from day 1 following your procedure. The type of exercise that you are advised to do will depend on the surgery you have performed. In some cases, exercises will be limited to movement of the hand and wrist. In other cases, supported movements which involve the shoulder may be permitted. A Physiotherapist will see you in the Hospital, and advise you as to which exercises you should do. An exercise sheet will be given to you as a reference, to guide your initial rehabilitation.

Typically, you will complete the exercises that the Hospital Physiotherapist advises, until you see your Surgeon for your Outpatient review. In most cases, your review with your Surgeon will be scheduled for 1-2 weeks following your procedure. As part of your review with your Surgeon, discuss when he/she would like you to commence further

Physiotherapy. Then, call to make an appointment. See details at the end of this publication.

It is ok to walk in the days following your surgery, but you should not jog or run. Take your time to ease back into walking for exercise, building back up gradually to the level that you were walking prior to your surgery. Avoid uneven or slippery terrain to avoid a trip or fall.

Hydrotherapy / Swimming:



You must not commence hydrotherapy or swimming until your wound has healed sufficiently. This is to reduce the risk of infection.

Be guided by your Surgeon or Physiotherapist as to if/when to commence water based exercise(s).

Driving

Each operation is different, and the length of time that you will be unable to drive will depend on the type and extent of surgery that you have performed. Please discuss directly with your Surgeon

and/or Physiotherapist for specific guidance.

Needless to say, you will be required to have good use of both arms to be safe to drive a motor vehicle.

This publication was produced by Physiotherapists from Glenferrie Sports & Spinal Clinic.

Glenferrie Sports and Spinal Clinic (GFSSC) provide Orthopaedic inpatient and outpatient Physiotherapy services to Glenferrie Private Hospital. If you are having your surgery at Glenferrie, you will see one of our Physiotherapists on the ward the day of, or the day following, your operation.

Our Physiotherapists work closely with your Surgeons to ensure a safe and timely recovery following your surgery.

Our primary consulting rooms are located within the Hawthorn Aquatic & Leisure Centre, located a short-walk from the Hospital. We have direct access to a state-of-the-art gymnasium, 50 metre swimming pool and a hydrotherapy pool which enables us to provide evidence-based treatment and prescribe post-operative rehabilitation exercise programs tailored to the needs of all patients.

Please contact Glenferrie Sports & Spinal Clinic to arrange your post-operative Physiotherapy review appointment and ongoing rehabilitation. In most instances,

this appointment should be made following your initial post-operative review with your Surgeon.

Contact Details:

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Email: glenferriessc@me.com.au

Clinic location:

Glenferrie Sports & Spinal Clinic

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Also consulting at:

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