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ROTATOR CUFF REPAIR

And biceps tenodesis surgery

Patient information leaflet

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Introduction

This information booklet has been produced to help you understand why your shoulder is painful and help you gain the maximum benefit from shoulder surgery, if required.

The booklet is not a substitute for professional medical care and should be used as guidance in association with the advice from your Orthopaedic Consultant and Physiotherapist.

Individual variations requiring specific instructions not mentioned here may be required.

Summary

The shoulder is a highly mobile ball and socket joint relying heavily on stabilising muscles (the rotator cuff) for its control and function.

The rotator cuff can tear, causing pain and an inability to lift your arm away from your side. It is assessed using your symptoms, examination and imaging as appropriate.

Depending on the size of the tear, there are several non-surgical treatments but if these have failed to resolve your symptoms the surgical options should be explored.

Typically after surgery you will have some discomfort in the shoulder, neck or arm, however regular analgesia will be provided to help manage this.

Your shoulder movement and function will need to be limited, using a sling for three to six weeks (depending on the size of the tear) to allow the repair to heal. Function, including driving and work will also be restricted initially.

It will often take 9 months for you to feel optimum improvement in shoulder symptoms and be able return to full function.

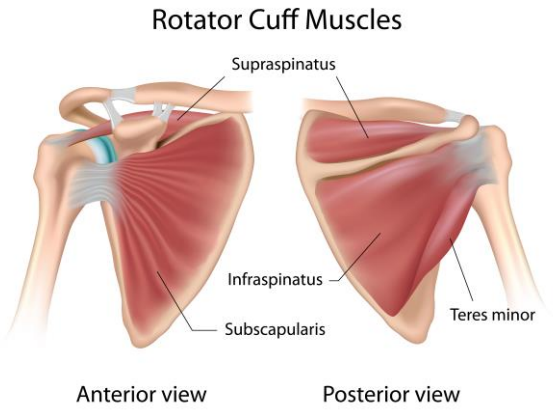
Shoulder anatomy

The main shoulder joint, the glenohumeral joint (GHJ) is a ball and socket joint, providing a very wide range of movement. It is formed by a ball on the top of your arm bone (humeral head) and a shallow socket (glenoid) which is part of the shoulder blade.

The joint is surrounded by a tough fibrous sleeve called the capsule which helps hold the joint together.

Above the ball and socket joint is a ligament which is attached to a bony prominence (the acromion) on the top for your shoulder blade. This forms an arch over the shoulder joint. This area above the shoulder joint and below the arch is known as the subacromial space.

To move your shoulder and control the positions of the ball on the socket, you have a group of muscles and tendons known as the rotator cuff.

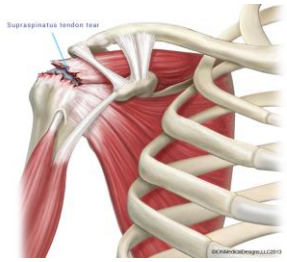


They attach from the shoulder blade onto the top of the humeral head, passing through the subacromial space. One of these tendons (supraspinatus) sits in the middle of the subacromial space. A small fluid lining, called the bursa cushions this tendon from the under surface of the arch.

Shoulder Conditions

Rotator Cuff Tear

The rotator cuff can tear either traumatically, through a fall, wrenching of the arm or lifting something to heavy; or as we age, the rotator cuff tendon can wear and degrade, becoming weak and increasingly prone to rupture or tear.



If the rotator cuff tendons or muscles tear, you will find it very difficult and/or painful to lift or rotate the arm away from the body with the same range of motion as before the injury. Pain at night is also very common, often radiating down the arm

What are my treatment options?

A traumatic, full thickness tear to an intact cuff will generally require a surgical repair and the sooner this can be done after injury, the better the outcomes for you.

A traumatic partial thickness tear or the atraumatic, degenerate tears generally don't always require surgical repair. The initial treatments include; advice and education into the condition, painkillers, self-help strategies, Physiotherapy and injections.

As you are attending the Orthopaedic clinic, many of these should have already been tried. Meaning you have probably had the problem for some time, or that it is severely affecting your daily life and therefore the surgical options now need to be considered.

Long head of Biceps (LHB) Tendon Rupture

LHB usually ruptures during a forceful action or trauma, such as a fall or lifting something to heavy. Typically pain is instant, often accompanied by an audible 'pop'. Depending on your individual functional requirements usually surgery is not required.

Assessment

What tests have to be done?

These shoulder conditions are diagnosed from the symptoms you have discussed with your doctor and findings of the examination of your shoulder. Either an ultrasound scan or MRI may be performed to assess the rotator cuff tendon and muscle, and other soft tissues.

Surgery

Rotator Cuff Repair

The surgery is usually performed arthroscopically (where a camera is placed inside the joint) however sometimes it may be done as an Open procedure or a combination of the two, called a Mini-open repair.

A rotator cuff repair involves stitching the torn tendon back onto its insertion at the top of the arm bone (humerus) using sutures and bone anchors. In massive rotator cuff tears, the repair may need to be augmented with a Graft Jacket, a regenerative tissue developed from human skin.

Your surgeon will perform other procedures on the shoulder alongside the rotator cuff repair in order to maximise your chances of the best outcomes. These will include:

Sub-acromial Decompression:

(+/-) Acromio-clavicular Joint Excision

(+/-) Long-head of biceps (LHB) Tenotomy or Tenodesis

Sub-acromial decompression

The procedure aims to increase the size of the sub-acromial space and reduce the pressure on the affected soft tissues, including the rotator cuff tendons. Sub-acromial decompression (SAD) involves releasing the ligament from the front of the acromion, trimming off the under surface of the acromion and removing the inflamed bursa. This allows the tendons to move more freely.

Acromioclavicular joint (ACJ) excision

It is sometimes required to remove a small section off the very end of the collarbone (clavicle) where it meets the acromion if the joint has become arthritic and to allow more space in the arch below it.

LHB Tenotomy or Tenodesis

If the LHB is inflamed or torn where it enters the shoulder joint, your surgeon may perform a **Biceps Tenotomy** – this is where the LHB is released from its attachment in the shoulder joint, allowing it to relocate into the upper arm and out of the shoulder joint. Long-term this does not usually cause any significant weakness of your biceps or impairment of function, only a possible change in the muscles appearance.

However, in the more active, sporting patient a **Biceps Tenodesis** may be preferred. As with the tenotomy, this involves detaching the LHB from its attachment in the shoulder joint and reattaching it to the humerus. It is a more complex procedure but maximizes the chance of full biceps strength and normal muscle appearance.

The addition of a sub-acromial decompression, ACJ excision and/or a long head of biceps tenotomy being performed will not change the post-operative exercise program or recovery time. The biceps tenodesis may require additional restricted elbow movements and function to protect this repair.

Irreparable rotator cuff tears

In some cases of massive rotator cuff tears, it is not possible for your surgeon to be able to repair it sufficiently. In these cases, it may be possible to use an Orthospace InSpace™ Balloon. This is placed between the humeral head and acromion, inflated with physiological water to promote smooth movement of the shoulder joint and allow alternate muscles to the rotator cuff to produce basic, shoulder function.

Anaesthesia

The surgery is usually performed with a combination of a regional nerve block and a light general anaesthetic (GA) or sedation. The regional nerve block is a specialised injection in which local anaesthetic is injected around the nerves that supply your shoulder and arm. This makes the shoulder go numb for the operation and provides pain relief after the operation for up to 24 hours. It also enables just a light GA or strong sedation to be given, allowing earlier recovery and, in most cases, you will be ready to go home on the same day as your operation.

After the operation, your arm will remain numb with limited movement due to the regional nerve block. This is normal and will gradually return after 12–24 hours.

Further detailed information about your anaesthetic will be provided to you in the booklet *'About your anaesthetic'* before you attend the hospital.

Pre-surgery considerations

Will my shoulder be painful after the operation?

Although you will have small scars, this procedure can be painful due to the surgery performed inside your shoulder. The procedure is to resolve pain and/or improve movement thus allowing maximum function; however it can be several months until you start to feel the benefit of the surgery.

The pain can be kept to a manageable level by taking pain relief medication. This is to allow you to feel comfortable so you can get a good night sleep (vital for the body to heal itself), perform your exercises to prevent your arm from feeling stiff and sore, and allow you to perform basic functional activities for yourself once out of the sling. This will all help the operation to be as successful as possible.

Will I be given pain relief to take home?

Yes, typically you are prescribed several days of regular paracetamol and non-steroidal anti-inflammatories (NSAID's), with something slightly stronger such as codeine phosphate to be taken as needed. If you require further medication after these are finished, please contact your own G.P. or you can obtain more paracetamol or NSAID's from your local pharmacy.

Pain and swelling can often be reduced by using an ice pack over your shoulder. It should be applied for 20 minutes and can be repeated every 2 hours. Never apply ice directly to your skin. Never use ice if you skin feels numb or tingling.

If you find it difficult to manage your pain, please contact the hospital.

Will I have to stay over-night in hospital?

Usually not, especially if your surgery is performed in the morning or early afternoon; the later the surgery is completed, the more likely you will require an over-night stay in hospital.

Who will monitor my wound and remove stiches?

Your stitches will need to be removed after 10 days. You will need to make an appointment at your GP surgery for this to be done.

Keep your wound dry until it is healed. Your dressing will be splash proof to allow you to have a short shower. Avoid using spray deodorants, talcum powder or perfumes near or on the wound.

If your wound feels increasingly painful or looks red and hot round the wound dressing please contact the hospital as it may be a sign of infection.

Do I need to wear a sling?

You will be required to wear a sling for 3-6 weeks, depending on several factors.

You can typically remove the sling for hygiene and to perform your exercises, but should be worn at all other times, including at night.

You may be able to take the sling off by yourself but in the early stages it will be easier if you have someone to help you if possible.

Start by supporting your operated arm with the non-operated arm whilst someone else does the Velcro straps. If you don't have anyone to help, support your arm on a table, whilst you undo the Velcro straps. You can then slip the sling off.

In the case of larger cuff tears, you may be required to wear a more substantial sling. This includes a large bolster sitting under the arm to stop the repair being under tension, maximising the chance of healing.

You may find it more comfortable for the shoulder at night, if you place a pillow under your upper arm when lying on your back or to rest your arm on a pillow in front of you when lying on your non-operated side.

Will I be able to do my normal activities of daily living?

No, you are not allowed to actively lift the arm away from your body for the first 3-6 weeks, depending on several factors. You are only allowed to perform passive movements of the shoulder for hygiene purposes and as part of the exercises (Appendix) to reduce stiffness of the joint.

To undress take the un-operated arm out of your clothes first then slide the clothes off your operated arm. To dress, slide your operated arm into the sleeve of your clothing first, followed by the un-operated. Initially, you will find button/ zip clothes easier to get on and off or wide neck loose tops.

To wash, carefully lean forward with your arm relaxed so it gently moves away from your body, this will allow you to wash under your arm, dry and apply deodorant.

As you **progress out of the sling** (at 3-6 weeks post op), you will be allowed to perform **small** amounts of active-assisted and active movements, guided by your Physiotherapist.

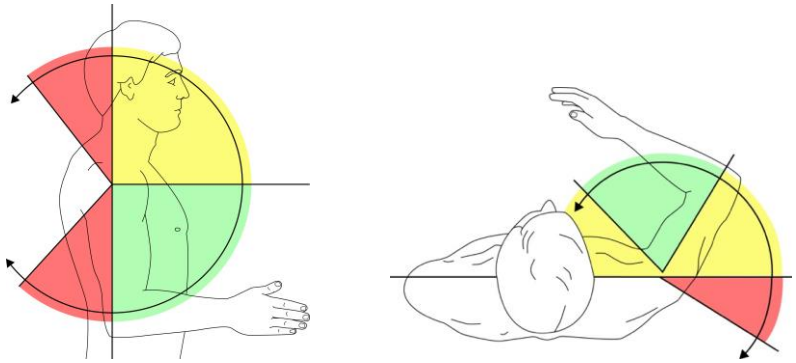
If you do too much with the shoulder, especially early on, then you risk damaging the repair, or at least irritating the healing tissues causing more pain and making it more difficult to progress. The challenge is, knowing how much is too much?

To answer this question, below are three strategies designed to help guide your progression of exercise and function:

1) 'Safe-Zones'

When you move functionally or with exercises it is helpful to imagine 'safe zones' (see pictures below). You can begin by using your arm in the green zones and progressing to yellow, then red areas over weeks and months following surgery as comfort allows.

Activities at or above shoulder height put more stress on the areas that have been operated on. Try and avoid repeated activities in these positions for the first 6 weeks.



2) Pacing

As you wean out of the sling you should use the arm for small durations of function and exercise frequently, such as 30-60 seconds, every 30-60 minutes but only in the 'Safe-Zones' to begin with. Then adjust (increase or decrease) this amount depending on how your shoulder copes, guided by the 'Soreness Rules'.

3) 'Soreness Rules'

These allow you to guide your 'Pacing', so that you make steady progress, with manageable discomfort only.

When you do a light, easy activity for a minute or two in the 'Safe-Zone' and the shoulder feels:

i) Fine during, after and in the evening, you may increase the difficulty or duration of that activity by about 10-20%.

ii) Uncomfortable but manageable after the activity for under 20 minutes and/or uncomfortable but manageable in the evening, you continue at about the same level of activity.

iii) Uncomfortable during and/or painful after and/or painful in the evening that is difficult to manage you need to reduce down the activity by about 10-20%

And then reassess with the 'Soreness Rules' again, with each activity and at the end of each day.

How long before I can drive?

Approximately 6-8 weeks, once you've weaned out of the sling and you have active control of your arm. This can vary from person to person as to when you feel comfortable to do so. It is advisable to contact your car insurance company to inform them of your shoulder surgery. Make sure you feel comfortable performing an emergency stop and using all the car controls before your first car journey and slowly build up your journey time, using the 'Soreness Rules' to guide your progression.

How long before I can return to work?

This will depend on your occupation. Approximately 6 weeks for non-manual, sedentary work. If your job requires any lifting or reaching overhead you will require longer off. Approximately 10-12 weeks for light manual work and 12-24 weeks for heavy manual work.

However this is guidance only, it will also depend on the size and severity of your tear, how well your shoulder is progressing in movement, function and control of discomfort post-operatively. Your Physiotherapist or Consultant can also help to guide you on this as you progress.

It is useful to liaise with your employer earlier (pre-operatively) rather than later to negotiate a suitable time off and ideally a staged return, in terms of hours and physicality of tasks where possible. This is often arranged through your Occupational Health department or Human Resources (HR) department if your company have one. If not, speak directly to your line-manager.

When can I return to sporting activities?

Depending on the sport, you can usually begin to return between 4-6 months. However this is guidance only. Your ability to start these activities will be dependent on the size of your tear, pain, range of movement and strength that you have in your shoulder.

As with all other functional activities, start small and gradually progress. Use sports specific movements and skills within your rehabilitation and the techniques; 'Safe-Zones', 'Pacing' and 'Soreness Rules' to guide the progression.

Your Physiotherapist or Consultant can also help to guide you on this as you progress.

Will I have outpatient Physiotherapy?

Yes, rehabilitation is vital to the long-term outcome of your shoulder surgery. You will be seen by your local outpatient Physiotherapist 2-3 weeks after your operation date. This appointment will be arranged for you by the Physiotherapist you see on the ward. They will also show you your initial exercises (Appendix). You can perform these as guided once the nerve block has worn off and you have control over your arm again.

These exercises will then be reviewed by your outpatient Physiotherapist at your first appointment and progressed as appropriate.

When do I return to the orthopaedic clinic?

This is arranged for approximately three months after you are discharged from hospital. You may see your consultant or another member of the specialist shoulder orthopaedic team.

If you or your Physiotherapist is concerned about your progress, please call the hospital. If you feel you need to be reviewed earlier, please call your consultant's medical secretary.

- Queries relating to your surgery

Most people feel significant improvement in their shoulder symptoms by three months.

Post op underwear

Choosing the right bra post shoulder replacement can be difficult. There are many different options out there and the key is to find something both comfortable and easy to put on. Strapless bras, racer back styles or one shoulder bras can be a good choice to avoid the straps being positioned over the surgery site. Alternatively, bras with wide straps can provide desired support without digging in like thinner more traditional straps may do.

Another choice may be a front fastening bra. Front fastening bras are available with velcro and zip fastening, as well as hook and eye which ladies may be able to be secure independently using only one hand.

Appendix

Regular rehabilitation exercises at home are essential to progression and your long-term outcome. These should be gradually progressed along with

your movement and function, guided by your outpatient physiotherapist and the 'safe zones', 'pacing' and 'soreness rules' techniques detailed in this booklet.

Post-operative exercises

All exercises should be performed out of the sling, three to four times per day once the nerve block has worn off and should not cause any significant increase in pain. Use the 'safe-zones', 'pacing' and 'soreness rules' to guide the progression of your range of movement and repetitions as guided by your outpatient Physiotherapist. If you have any concerns regarding the exercises please call the hospital.

Gentle mobility exercises to be performed while using the sling to avoid your joints stiffening up:

1. **Neck** – bend your head forwards, to each side and turn to look over each shoulder 4–5 times.
2. **Shoulder blades** – roll your shoulder blades forwards and backwards 4–5 times. Sometimes the operated side can be stiffer and harder to control, do them in front of the mirror to help perform them evenly.
3. **Elbow** – bend your elbow up and down 4–5 times, then with your elbow at 90° turn your hand palm up, palm down 4–5 times.
4. **Wrist and hand** – bend your wrist up and down 4–5 times, then stretch your fingers out and make a fist 4–5 times.

Specific shoulder exercises to be performed up until you see your outpatient Physiotherapist:

5. Shoulder passive forward flexion

Lean forwards allowing your arms to gentle come away from your body. To a maximum range as per restriction below.

Hold for three seconds and stand back up. Repeat 4–5 times.

N.B. Try to avoid your shoulder blade 'hitching' up, by drawing it back.

6. Shoulder passive external rotation

Keeping the elbow close to the body, use your non-operated arm to gentle guide the hand of your operated arm outwards, to a maximum range as per restriction below

Hold for three seconds and bring your hand back to the start. Try to avoid your body turning, your shoulder blade dropping backwards or your upper arm coming away from the side of your body. Repeat 4–5 times

Specific consultant restrictions as required:

- Sling for _____ weeks.
- Weeks _____
  - Shoulder passive forward flexion up to _____
  - Shoulder passive external rotation up to _____
- Weeks _____
  - Shoulder passive forward flexion up to _____
  - Shoulder passive external rotation up to_____

Seek advice if you:

- Develop a temperature or fever
- Increasing pain
- Redness
- Swelling
- Severe bleeding
- Numbness in your arm/hand 72 hours later
- Difficulties passing urine
- Queries regarding your painkillers

You will be sent an Outcome Questionnaire one year after your surgery, please look out for it, complete it and return it to us. Your input is vital in enabling us to fully assess the effectiveness of the surgery and our service.