



SHOULDER JOINT ARTHRITIS:

Information for patients to help in making decisions about treatment

SHOULDER JOINT ARTHRIDE

About the shoulder

There are three bones which together make up the shoulder;

- 1. The upper arm bone (humerus)
- 2. The shoulder blade (scapula)
- 3. The collarbone (clavicle)

The upper arm bone (humerus) and the shoulder blade (scapula) create the 'ball and socket' shoulder joint. This joint is formed where the rounded top of the humerus (the ball) fits into a dipped part of the shoulder blade (the socket), known as the glenoid. You may hear of this 'ball and socket' joint being called the gleno-humeral joint. The joint allows you to rotate your arm, where movement depends on how easy the ball fits and joins into the socket.



How does damage to the shoulder joint occur?

There is a layer of cartilage (a tough, flexible tissue lining) which is responsible for the smooth movement of the 'ball and socket' joint. The cartilage acts as a protective layer around the rounded top of the humerus (the ball) and the dipped part of the shoulder blade (the socket), to ensure the bones do not rub together. If the cartilage becomes damaged or worn away, then this can lead to the 'ball and socket' shoulder joint becoming stiff and painful as a result of the bones rubbing.

What causes the cartilage to become damaged or worn away?

 Osteoarthritis – A joint condition where the cartilage gradually breaks down and wears away

- Rheumatoid arthritis An autoimmune condition where the inner lining of the joint (synovium) becomes inflamed. This can cause the lining to thicken and the cartilage to become damaged.
- Rotator cuff arthropathy A condition where the cartilage has become worn down and the rotator cuff (a group of tendons and muscles that surround the 'ball and socket' joint) has become worn or torn. This causes the rounded top of the humerus (the ball) and the upper part of the shoulder blade (known as the acromion) to rub.

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Treatment options

Treatment options can vary depending on the severity of the joint condition.

What are the treatment options for shoulder impingement?

1) No Treatment, Self-Management

This involves managing your symptoms alongside the advice and support of healthcare teams. It would include altering daily activities in line with the level of pain and stiffness experienced. Such alterations could include achieving a balance between being active and resting, pacing yourself throughout the day/week, and adapting where needed (for example through using a pillow under your arm while sleeping or using various aids to help with daily activities). Paracetamol or anti-inflammatory painkillers (such as ibuprofen) can help to ease and control your pain symptoms. GPs may be able to prescribe stronger painkillers if necessary. For some patients, shoulder joint arthritis can interfere with daily life so severely that this treatment option might not be practical.

2) Physiotherapy

Rest is important but it is equally important not to stop moving your shoulder completely. Applying heat (for example, with a heat pillow or water bottle) and using ice packs can help when resting, while gentle movements can help to ensure the shoulder does not become weak. Physiotherapists will guide you through tailored shoulder exercises and more general changes to activities (e.g. sports adjustments and posture). Through exercises and other treatment methods, a physiotherapist would work with you to improve the strength in your shoulder muscles and adapt the way in which you carry out activities. By strengthening your muscles this enables an increase in your range of movement, less pain and helps to improve your shoulder function.



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After meeting with a physiotherapist, you would continue to work on the exercises and other changes at home in order to build up muscle strength. To benefit from the physiotherapy, it usually takes a regular commitment to the exercises and general changes for several months and then continuing to follow this regime.

Side effects of physiotherapy:

- Pain as a result of exercising may occur, however this is expected when the muscle is being worked and should be short-lived. Painkillers will help to reduce this pain, as well as applying heat and using ice packs.
- Swelling may occur as the muscles and ligaments are being used more. A mixture of heat and ice after an exercise session could help to control the swelling.

3) Steroid injection (also known as corticosteroid injection)

This involves an injection into your shoulder to inject steroid (a man-made type of hormone) into the area of pain and discomfort. This can help to ease the pain and stiffness felt in the shoulder joint.

It can be carried out using ultrasound guidance (gel is placed on your skin and an instrument is rubbed over the gel to generate an image on a screen to see the soft tissue, including the rotator cuff) in order to direct the injection at the exact area within the shoulder.

A steroid injection can help to ease shoulder pain if exercise has not helped. Typically, after a 24 hour period of rest, you should gradually be able to return to day-to-day activities. However, while the injection provides a period of pain relief, physiotherapy is required during this time to build up muscle strength, as the effect of an injection tends to weaken generally after around 6-12 weeks. Stopping with

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any exercises after having the injection may result in the pain returning. Possible risks and side effects of having a steroid injection:

- It is possible to repeat steroid injections, however, too many injections are not good for the tendons
- Most patients experience pain and discomfort in the shoulder for a couple of days after the injection
- Temporary bruising or bleeding (particularly if you take blood thinning medication, such as warfirin)
- Infection (noticeable by redness, swelling and pain)
- Paler skin and dimples where the injection was given – this could be permanent
- Blood sugar levels may increase for a few days if you are diabetic
- Blood pressure may increase for a few days if you have high blood pressure
- Allergic reaction (anaphylactic shock) extremely rare

4) Surgery - Shoulder replacement

Symptoms of shoulder joint arthritis can ease within a few months with the above non-surgical treatment options, however occasionally if symptoms cannot be helped or eased with these non-surgical treatments then a surgical option may be suggested.

What is shoulder replacement surgery?

Shoulder replacement surgery is where the surfaces of the humerus (ball) and scapula (socket) are removed or reshaped and replaced with artificial surfaces made from metal and plastic. Replacing the joint surfaces can provide pain relief and greater day-today comfort.

Although there may be an increase in the range of movement in comparison to before the surgery, the joint replacement may not give you a full range of movement which you previously had. This can depend on the condition of the muscles and how stiff the joint was before the surgery.

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Types of shoulder replacement surgery

The type of shoulder replacement surgery can depend on a number of aspects, including the condition of the bones (humerus and scapula) and tendons (rotator cuff – a group of tendons and muscles that join the humerus and scapula, to keep the shoulder stable). This will be discussed between you and your surgeon, however, this is often not known until the surgeon can see inside your shoulder (to examine the structure) which happens during the operation. The different types of shoulder replacement are listed below:

Partial shoulder replacement (only the ball is replaced)

- Shoulder hemiarthroplasty the rounded top of humerus (the ball) is removed and replaced. This type of replacement is commonly used in patients with fractures and other cases where the bone is badly affected that the cap replacement (shoulder resurfacing) could not be fitted properly.
- Shoulder resurfacing the rounded top of the humerus

is not removed but instead reshaped before a metal cap is placed over the bone. Typically, this is used for younger patients where the humerus (the ball) has been affected but not the shoulder blade (socket).

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Total shoulder replacement (both the ball and socket are replaced)

- Total arthroplasty the rounded top of the humerus is removed and replaced with a metal artificial ball, in addition to a plastic artificial socket being attached to the shoulder blade.
- Reverse anatomy arthroplasty

 this is the same as a total arthroplasty except the artificial surfaces are reversed (the metal ball is attached to the shoulder blade and the plastic socket is attached to the humerus). This is typically only carried out for severe shoulder joint arthritis.

What does the operation involve?

The operation is complete under general anaesthetic (you will be asleep) and usually lasts between 1-2 hours. It is carried out through open surgery, which means that the surgeon would make one single cut, approximately 10-12cm long, at the top/front of the shoulder.

The surgeon would examine the joint and depending on the condition of the bones and tendons they would determine which type of replacement is appropriate. A decision is made on the type of replacement in the operating theatre if this is not clear before the surgery, which is almost always the case. Depending on the type of replacement, the surgeon would either remove or reshape the rounded top of the humerus and attach the artificial surface(s) with acrylic cement and/or metal pins. Precautions are taken to help ease some of the post-surgery symptoms, including pain and swelling. For example, surgeons usually inject some local anaesthetic into the joint to help ease the pain felt after the operation (vour arm will feel heavy as a result of the local anaesthetic but this should disappear within 48 hours). Similarly, 1 or 2 draining tubes would be inserted into the joint as a precaution for reducing any swelling which may occur. The tube(s) would be removed the next day on the ward.

The surgeon would complete the operation by closing the cut with stitches or metal clips, which again would be removed after the operation (usually after 10 days).

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After the operation

You may need to stay in hospital for 1-2 days after the operation, exactly how long varies between individuals depending on overall general health. It is expected that patients engage in a process of rehabilitation which would involve engaging and committing to physiotherapy for several months after the surgery.

You will experience pain after the operation, but this is typical until the shoulder has fully healed. Usually, a shoulder replacement takes at least 3 months to heal, however this varies between individuals. Improvements in strength and shoulder movement can continue to be made after the 3 months for up to 2 years.

You would be wearing a sling after returning from the operation. This would be worn for a few days and at night to support your arm. A physiotherapist would explain how to put the sling on and how to take it off. They would also advise you on activities which you could and could not do, given that you would not be able to fully use your arm during recovery. Part of this would involve guiding you on how to be as independent as possible (e.g. with dressing and preparing meals). It is important to engage in gentle exercise as soon as possible. This however needs to be carefully considered in order to protect the shoulder which will be healing. A physiotherapist will speak to you on the ward after the operation to help with this. Physiotherapy would help to gradually improve the range of shoulder movement. Although there may be an increase in the range of movement in comparison to before the surgery, the joint replacement may not give you a full range of movement which you previously had, but you should be able to move your arm more comfortably.

On the day after the operation, an x-ray will be taken. This is then followed-up at about 6 weeks after to check how the shoulder is healing and to discuss progression. Typically, the healthcare follow-ups would continue for about 1 year after the surgery. Generally, it is expected (as long as there has been an engagement in the recovery process) that you could start driving again at 6 weeks, return to a desk-based job at 4-6 weeks, return to manual work at 3-6 months and

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participate in non-contact sports at 3-6 months after surgery.

Risks and side effects of the operation

All surgeries can involve an element of risk, below are the risks associated with this surgery;

- The artificial replacement becomes worn down or loose over time due to various factors, including dislocation, fracture, infection and parts of the artificial replacement being broken or worn off and irritating the joint. This means that the replacements would eventually need to be replaced (5-10 in 100 patients need a new replacement at 10 years; 17 in 20 patients need a new replacement at 15 years). Removing the original replacement and fitting a new one (known as a revision replacement) can often be more complicated and take longer to recover from
 - Scarring on your shoulder due to the 10-12cm cut made during the operation.

- Within the first 5 years, for less than 1 in 50 patients the replaced joint dislocates –strengthening the muscles after surgery during physiotherapy decreases this risk.
- A fracture or torn tendon.
- Very rarely, patients are allergic to the artificial joints or the acrylic cement which requires further surgery to remove the replaced joints.
- Anaesthetic risks; 1 in 100 patients have sickness and nausea. Less than 1 in 100 patients have more serious complications such as cardiac, respiratory or neurological problems.
- Complications such as infection, excessive bleeding, blood clots and nerve or blood vessel injury are rare but may occur in less than 1 in 100 patients
- Constant pain and stiffness (beyond what is expected). This should improve in time with physiotherapy, however it could be that the tendons are weak which means that the range of movement may not improve.

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