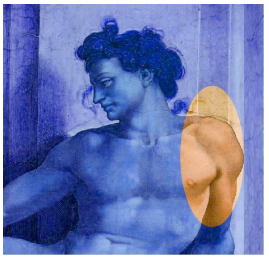
Reading Shoulder Unit



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VERSO

Reverse Total Shoulder Replacement

Rotator cuff tear arthropathy is a problem that occurs when a patient has both shoulder arthritis and an irreparable rotator cuff tear. This condition results in a weak and painful shoulder joint. When the rotator cuff is torn, the shoulder can wear out, leading to shoulder arthritis.

The shoulder is a ball and socket joint with a large range of movement. The joint sometimes needs replacing. This is usually when severe arthritis affects the joint surfaces and the shoulder becomes painful and difficult to move.

The rotator cuff is the group of tendons and muscles that surround the shoulder joint. These muscles and tendons are important in performing shoulder tasks (such as lifting your arm overhead), and keeping the ball of the ball-and-socket shoulder joint centered.

The reverse shoulder replacement was specifically designed for this problem of rotator cuff tear arthropathy or when there is arthritis with torn or non-functioning rotator cuff.

In a traditional shoulder replacement, the ball of the top of the arm bone (the humerus) is resurfaced or replaced with a metal ball. The socket of the shoulder blade (scapula) may be retained or replaced with a plastic socket. The absence of a rotator cuff causes the implant to move abnormally resulting in unusual forces on the artificial joint. This leads to a poor functional result and early failure of the replaced joint.

What is a reverse shoulder replacement?
The reverse shoulder replacement uses a ball-and-socket joint as well, but the ball is placed on the shoulder blade, and the socket is placed on top of the arm bone. This is the reverse of our normal anatomy, and thus the name "reverse shoulder replacement."

Why reverse the anatomy?
The reverse shoulder replacement is designed for patients who do not have a functioning rotator cuff, and therefore do not have "normal" shoulder anatomy. By reversing the ball and the socket, the large deltoid muscle which forms the contour of the shoulder becomes more efficient mechanically and is able to lift the arm up overhead, to compensate for the torn rotator cuff.

Are there problems with a reverse shoulder replacement?
Loosening of the implants, fracture of the arm bone or socket, instability or dislocation of the ball from the socket, and persistent pain. Over time, the prosthesis could erode and damage bone stock. This can happen with an anatomical or reverse implant.

What is the *VERSO* reverse shoulder replacement?

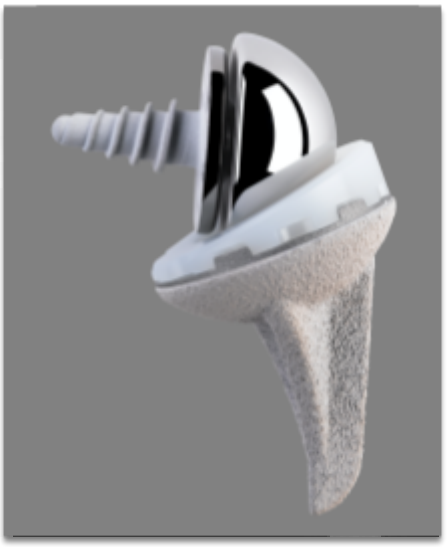
This is a special bone conserving reverse total shoulder replacement. It follows the basic principles of reverse replacements, but is bone preserving and causes less bone erosion over the longer period. It was developed at the Reading Shoulder Unit, over a period of 10 years. The prosthesis uses a special coating called hydroxyapatite that allows the bone to bond onto the prosthesis over 12 weeks, thus avoiding the use of bone cement with its problems. It has a special screw-in base plate and ball for the shoulder blade,

and a short-stemmed socket for the top of the arm bone. It has been implanted in patients for 21 years with very promising results.

Who is a good patient for a reverse shoulder replacement?

Patients interested in a reverse shoulder replacement must have significant pain from shoulder arthritis, and an irreparable rotator cuff tear or non-functioning rotator cuff muscles. Patients who do not have this combination of conditions can usually undergo other surgical procedures to address their problem.
The deltoid muscle should be functioning.
Patients interested in having this procedure should discuss all of their options with their orthopaedic surgeons. Certainly, a reverse shoulder replacement should only be performed if simpler, non-operative treatments have failed to alleviate symptoms.





The Operation

The operation is performed under a general anesthetic with a nerve block. Sometimes, it is possible to perform the procedure under nerve block alone, especially in patients who may be at a high risk for general anaesthetic.

The new reverse ball and socket joint is inserted sacrificing only a minimum quantity of bone to preserve as much good bone stock as possible in the event of future surgery.

General Advice

The operation lasts approximately 60-90 minutes. You will usually be in hospital for 1 – 2 days after your operation. Following your surgery, you will be in a sling for the first couple of days - until the nerve block wears off. This is for comfort only and you may take it off as you wish. It is advisable to use the sling **in crowded places** for the first 3 weeks.

You will NOT be allowed to push yourself up from chairs using the operated arm for the first 6 weeks

A physiotherapist will see you in hospital to give you advice about using your arm and exercises. Outpatient physiotherapy will be arranged when you are discharged.

Although you will be allowed to use your arm immediately after surgery, your arm will be painful at first and in the first few weeks you will be quite one handed which will significantly affect your daily activities.

As your pain improves so will the amount you can use your arm.

Driving and most light activities are usually possible about 3 weeks after the surgery. However the strength in your arm will take longer to improve, and will be dependent on the amount of pain and stiffness you had prior to the surgery.

A doctor or physiotherapist will discuss this with you.

Risks and Complications

As with all surgery there is a risk of some complications. These are rare, but you should be aware of them before your operation. They include:

- Complications relating to the anaesthetics
- Infection
- Dislocation
- Bleeding
- Failure to achieve successful result
- Fracture of the arm bone or the acromion
- Unwanted prolonged pain and/or stiffness
- Damage to the nerves or blood vessels around the shoulder.
- Loosening and Wear
- Implant failure
- A need to redo the surgery / Need for revision

If you require further information please discuss with the doctors either in clinic or on admission.

What to expect

Following your operation, you will have a scar approximately 3 inches long on the front of your shoulder.

Your arm will be supported in a sling and a physiotherapist will teach you how to take it on and off to do your exercises. You will be in hospital for up to 2 days.

General guidelines

Pain:

A nerve block is usually used during the operation which means that immediately after the operation the shoulder and arm may feel numb. This may last a few hours. After this your shoulder will be painful and this may last a few weeks. You will be given painkillers to help this whilst in hospital. These should be continued after you are discharged home.

Wearing a Sling:

You will return from theatre wearing a sling. This is used for the first couple of days following your operation - until the nerve block wears off and you regain control of your arm. It is important that you remove the sling to exercise. You can stop wearing the sling as soon as you feel comfortable.

The Wound:

Keep the wound dry until it is healed. This normally takes 10 to 14 days. Your stitch is dissolvable and needs only to be trimmed at your clinic visit.

If your wound changes in appearance, weeps fluid or pus or you feel unwell with a high temperature, contact your GP and the Consultant via the Hospital where you were operated.

Driving:

This is usually possible after about two to three weeks, but will be dependent on your recovery.

Returning to work:

This is dependent upon your occupation. Light activities which involve using your arm in front of your body may be resumed after about three weeks. If you carry out heavy work, you may need to consider an alternative occupation.

Leisure activities:

Gentle swimming and exercises in water can begin at 2 weeks, Golf at 6 weeks.

Follow up appointments:

You will have an appointment to see the doctor/specialist physiotherapist three weeks after your operation.

Further follow ups with x-rays will be at 3 months, 6 months, 12 months, then annually thereafter.

Progress:

This is variable and dependent on the amount of movement and the strength of your muscles prior to surgery. Following discharge, your pain will slowly decrease and you will become more confident. You will be able to use your arm in front of you for light activities. After six weeks your strength will start to improve.

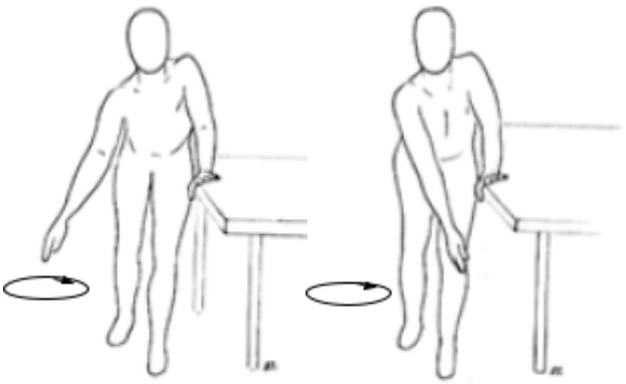
Exercises:

You will start exercises on the first day after your operation. A physiotherapist will see you to teach you these and progress them. Out patient physiotherapy will be arranged for when you are discharged.

Anterior Deltoid Exercises

As a result of prolonged overuse and wear and tear, the muscles arising from the shoulder blade and attaching to the top of your humerus (arm bone) – the rotator cuff muscles - have become torn. This means you are no longer able to easily lift your arm above 90 degrees.

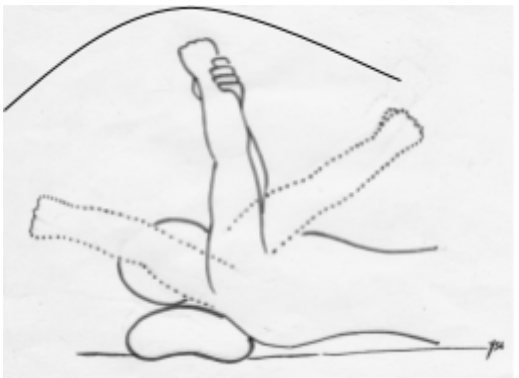
However there is another powerful muscle on the outside of your arm – the deltoid muscle – that may be re-educated to compensate for the torn rotator cuff. The function within this muscle is crucial to achieving a successful result from your reverse shoulder operation



The following exercises should be done three to five times a day to strengthen your deltoid muscle. It will reduce your pain and improve both the range of movement and your arm function.

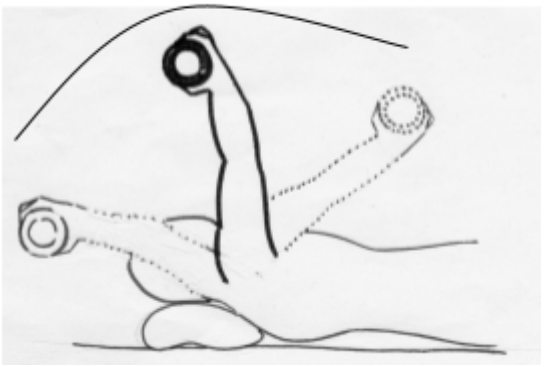
These exercises must be done for at least 12 weeks and must always be performed lying down to begin with.

You will be taught the exercises at the unit and reviewed at 6 and 12 weeks.

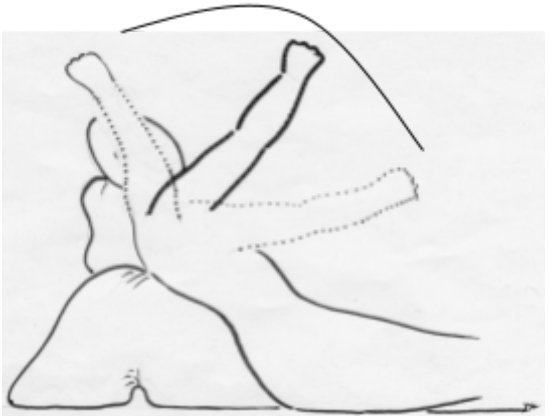


Exercises:

1. While standing, bend forward and let your arm dangle free and perform gentle pendulum movement for about 5 minutes. This will help you in relieving pain and free up your muscles around the shoulder.

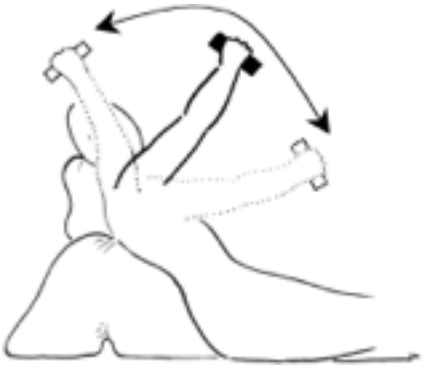


2. Lie down flat on your back, with a pillow supporting your head.
3. Raise your weak arm to 90 degrees vertical, using the stronger arm to assist if necessary.
   The elbow should be straight and in line with your ear.
4. Hold your arm in this upright position with its own strength.



5. Slowly with your fingers, wrist and elbow straight move the arm forwards and backwards in line with the outside of the leg, as per diagram (gentle movement from both sides of the arm upright position.) Keep the movement smooth and continuous for 5 minutes or until fatigue.
6. As you get more confidence in controlling your shoulder movement, gradually increase the amplitude of movement until your arm will move from the side of your thigh to above your head, touching the bed, and return.
   Keep the movement smooth and continuous for 5 minutes or until fatigue.
7. As you get more confidence in controlling your shoulder movement, a lightweight e.g. a tin of beans or small paperweight, should be held in the affected hand.

   Repeat as above (5 and 6).



Once you have gained more confidence in controlling your shoulder movement, gradually go from lying down to sitting and eventually standing.

At this stage you may recline the head of your bed or put some pillows underneath your back to recline your position. Repeat the same exercise again, this time against some gravity.

Start again from holding your arm in the upright position with its own strength.

Repeat as above (5, 6, and 7).

Start first without any weights and progress to use the same lightweight you used before in the lying down position.

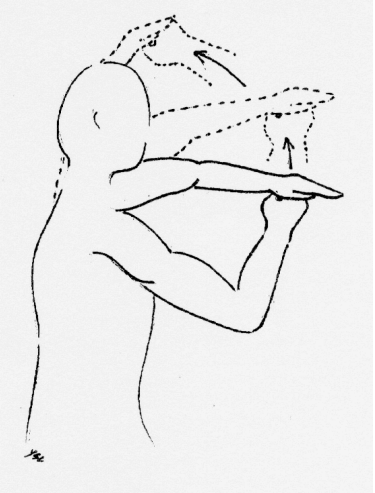
Another useful exercise for re-education of concentric contracture of the deltoid muscle:

Performing the exercise:

Make a fist with the hand of the affected side. The flat hand of the opposite side is providing resistance. Push your affected side hand against resistance from the other hand. While doing this, you will notice that you can fully elevate your arm (above your head).

Repeat these exercises in order to 'learn' and re-educate your Deltoid muscle to perform this 'concentric contracture' even without pushing against your other arm.

You should repeat these exercises X 10 in a session, 3 to 5 sessions per day.



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Professor Levy has a professional relationship with the company that makes the Verso prosthesis. He helped design it and acts as their Chief Medical Advisor and Company Secretary. However, he does not receive any money, royalties, or financial rewards when this device is used. He holds shares in the manufacturing company in lieu of granting the patent. He is telling you this so you have full transparency. He believes this is the best device for your specific medical needs, but you are completely free to ask for an alternative or a second opinion