OXFORD
SHOULDER & ELBOW
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INFORMATION FOR YOU

Shoulder Impingement

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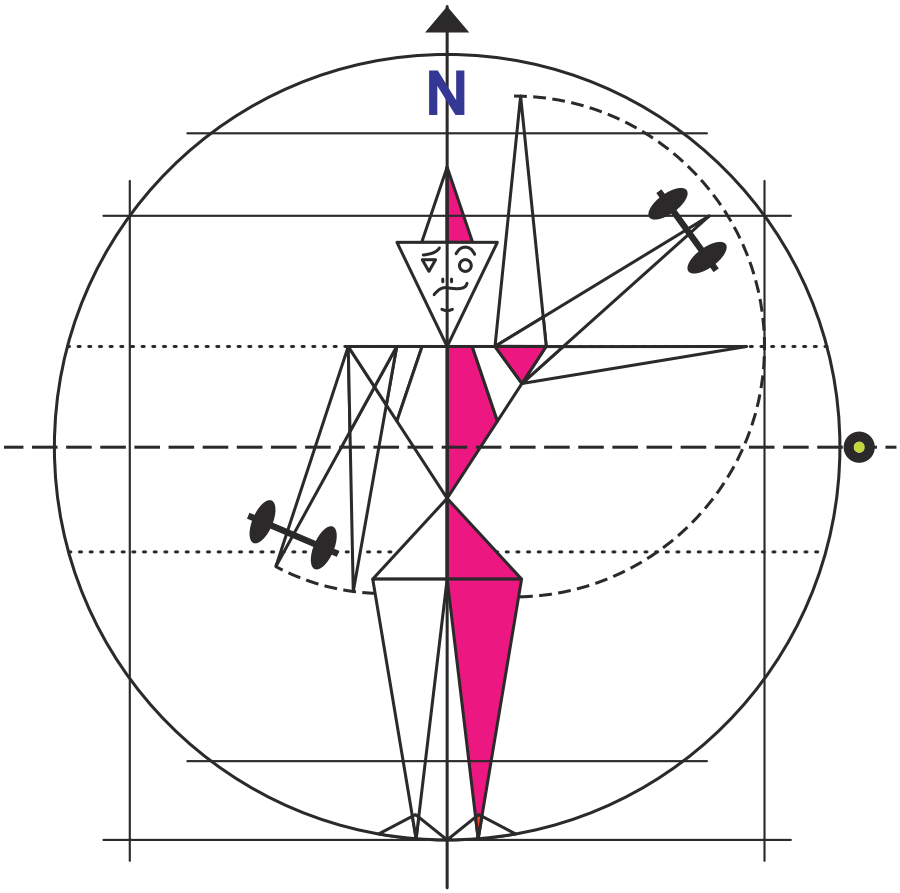


Nuffield Orthopaedic Centre
NHS Trust

Shoulder Impingement

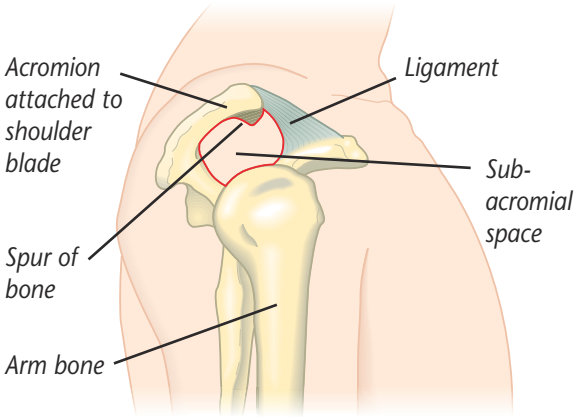
The aim of this information sheet is to give you some understanding of the problem you may have with your shoulder. The leaflet has been divided into sections, describing your shoulder, what we know about shoulder impingement and your treatment options.

About your shoulder

The shoulder joint is a ball and a shallow socket joint. It is formed from a ball on the top of your arm bone and a shallow socket which is part of the shoulder blade.

Above the ball and socket joint is a ligament which is attached to a bony prominence ('acromion') on your shoulder blade. This forms an arch. See picture. The area **between** the shoulder joint and the arch is known as the **sub-acromial space**.

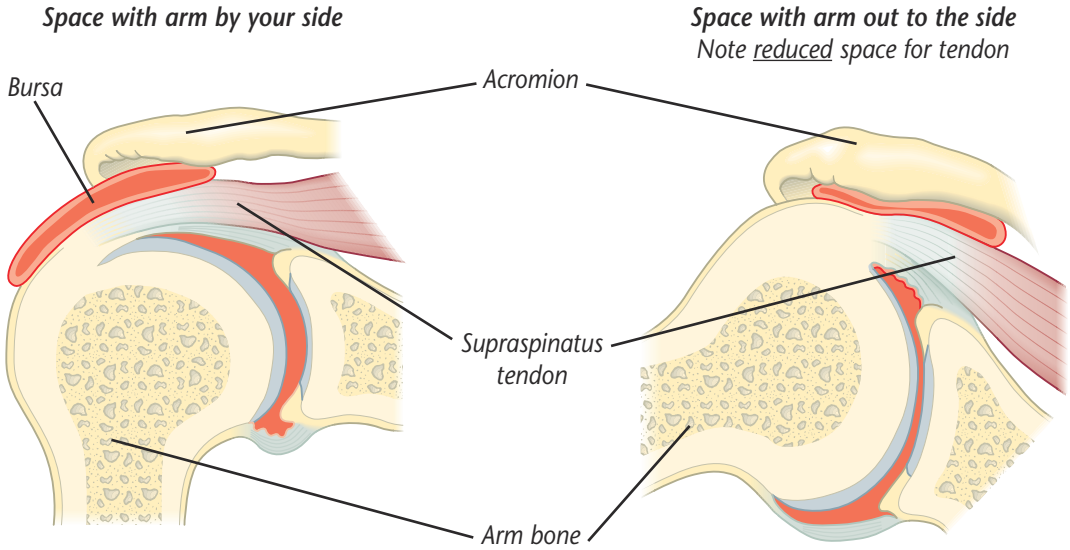
Right arm seen from the side



To move your shoulder and control the position 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 arm bone, passing through the sub-acromial space. One tendon ('supraspinatus') sits in the middle of the sub-acromial space. A small fluid lining ('bursa') cushions the tendon from the roof of the arch.

When you move your arm away from your side, the rotator cuff works to keep the ball centred on the socket. When your arm reaches shoulder height (horizontal), the sub-acromial space is narrowed. Above and below the horizontal, the space is larger.

Right shoulder seen from the front



What is impingement?

The rotator cuff appears to be vunerable to tendon damage or degeneration (wear and tear). This particularly affects the supraspinatus tendon in the sub-acromial space. Unfortunately this is more likely as we get older. Damage to the tendon(s) can range from inflammation to tears. We do not know why some people are susceptible to having these problems. Sometimes there is a precipitating event that makes the shoulder painful. For example over-use, a new (overhead) arm activity such as DIY, pruning or hedge trimming in the garden, carrying luggage. This may cause irritation of the tendon which gives pain and weakness.

Once the tendon becomes affected, it swells, filling more of the space, which increases the chance of the tendon and bursa becoming pinched. This is known as 'impingement'. Anything that narrows the space between the rotator cuff and the arch above, will tend to pinch and irritate the cuff. For example, if your shoulder blade is dropped, the bony prominence will be angled downwards, decreasing the space. Sometimes small calcium deposits can be found in the tendon, as a result of inflammation.

Tears in the tendon can occur from sudden injuries such as falling, but more commonly they develop gradually, as a wear-and-tear effect on the tendon. This is partly age related, but may result from longstanding impingement. The tears can be partial or full thickness.

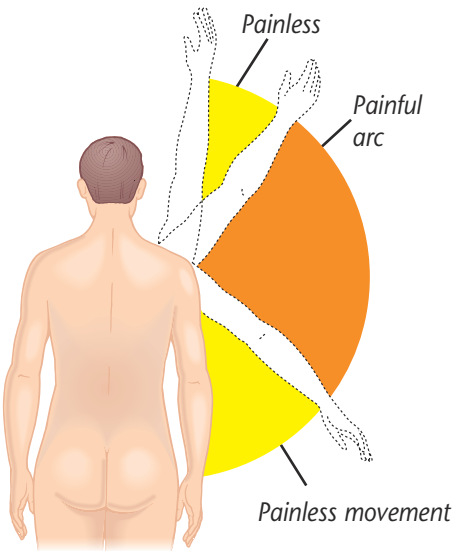
How common is it?

Extremely! It is the most common problem of the shoulder. 20% of people will have symptoms at some time in their lives. It most frequently begins in middle age (between the ages of 45–65).

What are the symptoms?

The main complaint is one of pain, often felt on the outside of the upper arm. A classic presentation is of a painful arc on movement when the arm is lifted out to the side and up to your ear. This corresponds with the narrowing of the sub-acromial space (see diagram below).

The 'painful arc' of movement



Pain is also commonly felt on twisting movements such as putting jackets and coats on. When the inflammation is active, you may experience pain at night and when your arm is resting. Sometimes people describe a 'locking' sensation in the arm on certain movements.

Symptoms of neck, shoulder, upper arm or hand pain should be reported to the doctor. In addition tell them if you feel pins and needles or tingling in the arm or hand as these may indicate that the pain is coming from your neck, via the nerves in your arm.

Why does it occur?

The exact cause of sub-acromial impingement is not known. It appears that some people may be susceptible to a wear-and-tear process in the tendon. The problem appears to be within the tendon and it starts to fray and split. Mechanical triggers (i.e. changes in posture or activity) where the tendon is stressed, may then cause episodes of pain.

What tests may be done?

The main way we diagnose shoulder impingement is from your symptoms and by examining your shoulder. Sometimes an X-ray will be taken, although this only shows bones and does not show muscle inflammation or wear and tear. If there is some suspicion that the tendon is torn, you will be sent for an ultrasound scan or an MRI (Magnetic Resonance Image). Both of these scans show the tendons, and can highlight if they are torn. The ultrasound scan is commonly done in this hospital and often when you attend clinic.

What are your treatment options?

We appreciate that as you are attending the Nuffield Orthopaedic Centre you have probably had the problem for a long time or that it is particularly severe. However treatment is usually non-surgical, with a very small proportion of people requiring an operation. An operation is usually only done when your shoulder has not responded to the following 'conservative' (non-surgical) treatments.

The majority of people find their symptoms settle *without* the need for an operation

Non-surgical treatments ('conservative care').

1) Injections

These are given into the sub-acromial space aiming for the bursa not the tendon itself. Usually a mixture of local anaesthetic and steroid is given, from the back of the joint. Although you *may* feel increased pain for the first 24 hours, injections can have a good effect. Doctors will generally not want to give more than three injections into one shoulder in a year. If your symptoms keep returning, other treatment methods would be suggested.

2) Physiotherapy

An assessment of your shoulder will be done, and from this, an individual programme of exercises given. These may include exercises to strengthen the muscles around your shoulder blade, improve your posture, stretching exercises and/or strengthening the rotator cuff. Although the exercises may be hard work, tight or uncomfortable, they should **not** be painful.

If you are unable to do any form of exercise because of pain, the physiotherapist may offer treatments such as ultrasound and laser. It is difficult to prove that these work, but they rarely cause worsening symptoms.

Thorough assessment of your arm, advice and exercises are probably more important aspects of treatment. The advice may include discussing the self-help ideas listed in the next section of this leaflet.

3) What you can try – 'self-help' ideas – modify your activities.

The aims of the treatment are

- to reduce the stress on the tendon(s) so that your body can try and heal the area.
- to break the pain cycle.

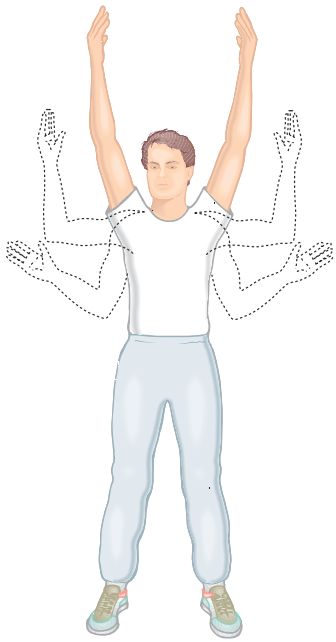
Change things!

How to reduce the stress on the tendon

- If possible, **stop** the activity that causes pain or **find a different way** of doing it.

For example, you may find that you tend to use your arm at shoulder height. Try to avoid this by raising yourself up (i.e. using steps for sustained overhead activities).

Another common movement that aggravates shoulder impingement is raising your arm with the elbow twisted outwards. Try keeping the ***elbow in*** and then raise your arm, palms up to the ceiling, so you are trying to clap your hands up overhead, similar to a waiter balancing a tray on their palm. Is this less painful? It may feel extremely awkward to begin with – however, with practice, it will feel more familiar.



- Remember your shoulder blade is half of your shoulder joint. Look in the mirror, is your shoulder blade lower on the side that hurts? Try some shoulder blade exercises (see diagrams at the back of this leaflet). Think about your **posture** – try and gently 'square' your shoulder **blades**, keeping your elbows and body still.

In addition, try sitting with your arm by your side, with the elbow propped on an arm rest. This will tend to keep the shoulder blade up.

- If you are involved in a sport/profession using repetitive movements, seek expert advice on your **technique**. A physiotherapist may be able to give you advice on your movement patterns as well as **appropriate stretching** and **progressive strengthening exercises**.

How to influence/break the pain cycle

All the ideas mentioned above can reduce the pain. Specific treatments may also help.

- Pain **medication** (i.e. tablets).
- Try using **anti-inflammatory cream or gel** on the area (from chemist without a prescription, but check you have no allergies or conditions that are influenced by these drugs).
- Try using a **wet ice-cube** and massage it over the tender area for 10 minutes.

If you have not already tried some of ideas listed above, **it is worth doing so now**.

Surgical treatment

If your symptoms do not settle with the above measures, an operation may be suggested. The operation done most frequently is a 'sub-acromial decompression' (SAD). This is done by keyhole surgery (arthroscopy) and you are in hospital for a day. The operation involves cutting the ligament and shaving away part of the prominence on the underneath of the acromion bone. This aims to increase the size of the sub-acromial space.

If the rotator cuff muscle is torn, the surgeon may be able to repair it. Rehabilitation after the repair operation is longer than after the decompression operation alone.

There are separate information booklets on both these operations.

Exercises

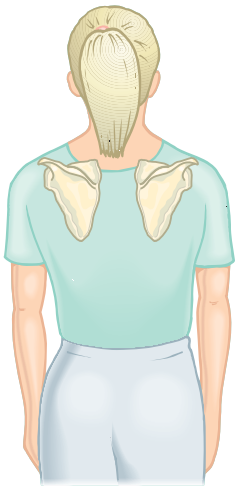
These are some examples of exercises which may help with your shoulder impingement problem. The exercises **should not be painful**. They may feel hard work, stretchy or aching. *Often a physiotherapist will guide you with exercises **specific for your shoulder**.*

However, in general terms, if you try the exercise on both arms and it feels much more difficult, hard work, stretchy on the problem shoulder, it would be worth you trying that particular exercise. **You do not need to do all the exercises listed below!** Continue with the exercises which feel different on the problematic shoulder, aiming to try and get rid of the difference between the two arms. Do the exercises regularly 1–2 times a day.

Do not continue with them if the pain worsens. Reduce them by doing them less often or less forcefully. If the pain is still worse, see the physiotherapist or doctor.

Shoulder blade exercises

1. Sitting or standing

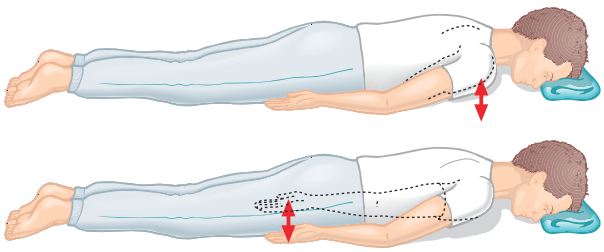


- Keep your arms relaxed.
- 'Square' your shoulder blades back.
- Hold it for 10 seconds, repeat 10 times.
- *Do not let your back arch, breathe!*
- If one shoulder is lower, 'square' it by lifting that one, ***UP*** and back.

Lying face down, with head in front on a towel or turned towards shoulder.

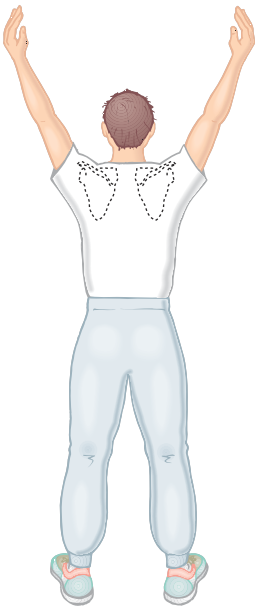
2. Keep arm relaxed by side

- Lift shoulder straight up in air. Try and keep a gap approximately 5 cms between front of shoulder and bed.
- Hold the shoulder up for 30 seconds but arm relaxed by side. Repeat 4 times.
- **Progress** – by lifting the arm **up and down** (elbow straight), but ***keeping the shoulder blade up all the time.***
- Aim to do this for 30 seconds.
- Repeat 4 times.



Standing close to and facing a wall/door

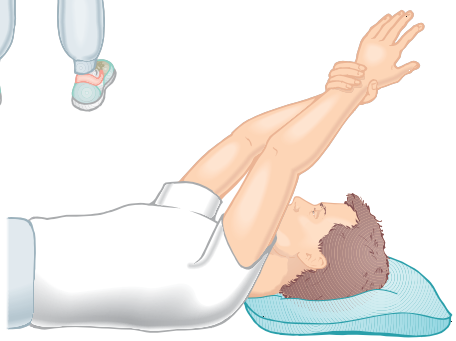
3. Arms up overhead in a V shape



- Little fingers against the wall, thumbs pointing back behind shoulders.
- Rest your arms against the wall.
- Shrug your shoulder blades up, letting the hands slide upwards.
- Repeat 10 times.
- Progress by pulling shoulder blades together whilst they are shrugged up.

Stretching exercises

4. Overhead stretch lying on your back



- Knees bent up and feet flat on floor/bed.
- Stretch your problem shoulder arm up overhead, using your other arm. Aim to try and get the upper arm towards the floor/bed.
- Repeat 3–5 times, holding for 20 seconds.

Stand or sit.

5. Cross body stretch. Take arm across your body

- Giving a gentle stretch with your other hand at the elbow. Try and keep your shoulder down. The stretch should be felt at the back of the shoulder and upper arm.
- Repeat 3–5 times, holding for 20 seconds.
- *Do not do if it is **painful** in the front of the shoulder.*
- Sometimes you can feel more stretch if you lie on your back to do the movement.

This leaflet has been written to help you understand more about the problem with your shoulder. ***This leaflet is not a substitute for professional medical advice and should be used in conjunction with verbal information and treatment given at the Nuffield Orthopaedic Centre.***

Comments will be gratefully received. Please send to Jane Moser, Superintendent Physiotherapist, Oxford Shoulder & Elbow Clinic, Nuffield Orthopaedic Centre NHS Trust, Oxford OX3 7LD or give in at a clinic appointment.

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www.oxfordshoulderandelbowclinic.org.uk