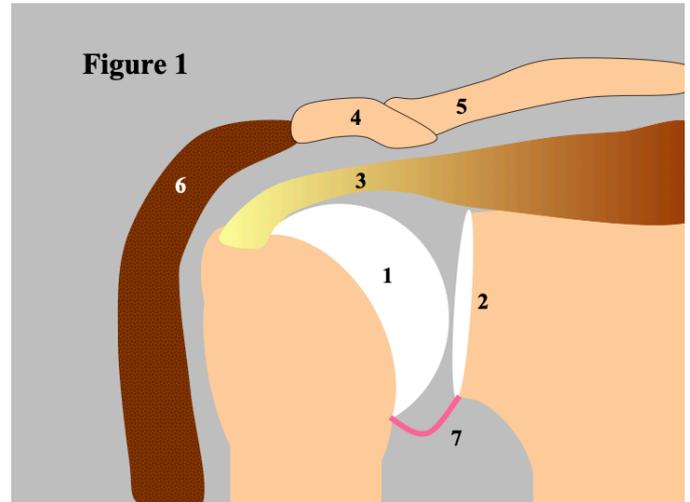


Subacromial impingement and its treatment

Figure 1 is a cartoon diagram looking directly at a right shoulder:

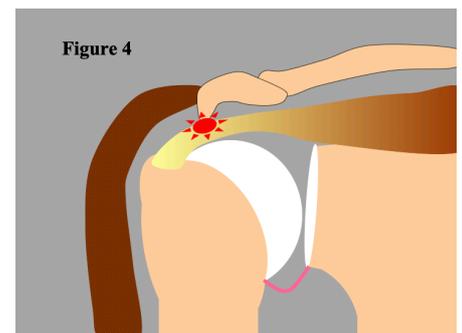
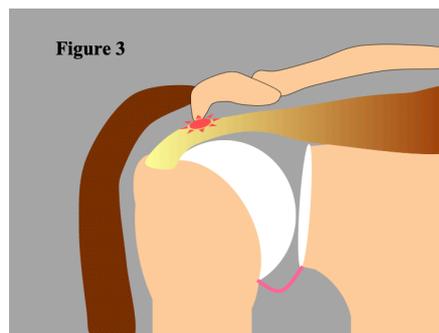
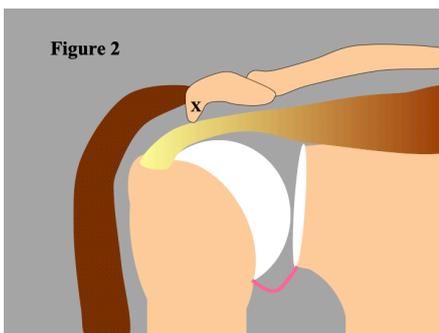
- 1 - humeral head, the ball of the main ball & socket joint of the shoulder
- 2 - glenoid, the socket of the main joint
- 3 - rotator cuff, the strong tendons around the shoulder from the shoulder blade muscles
- 4 - acromion, the bony roof of the shoulder which is part of the shoulder blade
- 5 - clavicle - the collar bone which joins to the acromion as the acromioclavicular joint or ACJ
- 6 - deltoid, the big muscle around the outside of the shoulder which gives its shape
- 7 - capsule, the deepest lining of the shoulder



[Subacromial impingement](#) is the term used to describe anything that impedes movement of the shoulder in the subacromial space. The subacromial space is that between structures 3, 4 and 6 in Figure 1.

Patients usually gradually develop pain in the shoulder typically at the front and side radiating down towards the elbow which is worse with activities particularly repetitive movements above shoulder height.

Figure 2 shows a spur of bone X from the acromion which relatively closes down the subacromial space. This bone spur develops over many years and is part of normal anatomy but in combination with a thickened ligament that is attached to it, can start to rub on the rotator cuff tendons as shown in Figure 3. The more this rubs, the more the tendon and surrounding bursa tissue (the lining of the space) swells so the more it rubs and the vicious cycle continues getting worse with more inflammation as seen in Figure 4.



This manifests as debilitating shoulder pain which can disrupt sleep at night and hinder everyday activities. Classically the pain is described in a 'painful arc' of movement whilst lifting the arm.

Treatment always starts with simple measures such as activity modification (avoiding the actions that bring on the pain), rest, tablet painkillers (eg paracetamol 1g = 2 tablets four times per day) or anti-inflammatories (eg ibuprofen 400mg = 2 tablets three times per day after food) and simple physiotherapy exercises. These measures in isolation or more often in combination can all help break the painful cycle and allow movement, strength and function to return to normal.

If simple conservative measures don't have the desired success then the shoulder should be investigated with plain X-rays and occasionally a scan (either ultrasound with a probe moved across jelly on the skin or MRI lying still in the noisy body scanner tunnel).

The next stage is to consider a steroid and local anaesthetic injection into the subacromial space as seen in Figure 5.

This injection has very few minor risks and potential complications or side effects and can be performed in the outpatient consultation room with a clean technique.

The steroid is a strong anti-inflammatory which bathes the inflamed tendon and bursa tissue and reduces the swelling and breaks the painful cycle allowing physiotherapy rehabilitation exercises to strengthen the shoulder and return to normal function.

If the beneficial effect of an injection is good for several months it could be repeated but if only short-lived or transient then there may be an underlying mechanical or structural anatomic reason for the persistent symptoms. In this situation it may be suggested that the soft tissues be investigated with a scan (ultrasound - a probe is moved over the shoulder with some jelly or an MRI - the patient lies still inside the body scanner tunnel) especially looking at whether there is damage to the rotator cuff tendons resulting in a tear which may require surgical repair (see information sheet on Rotator Cuff Tears).

Sometimes the effect of an injection is very beneficial for a limited period of time. This confirms the diagnosis and anatomical source of the pain and if all conservative measures have been tried without success then the last resort is to consider surgery called 'subacromial decompression'. Success rates vary but generally quoted to be 85% chance of improvement.

Subacromial decompression is usually performed as a keyhole operation called arthroscopy. This is almost always as a daycase under a short general anaesthetic although can sometimes be performed under a nerve block anaesthetic whilst the patient remains awake.

Through small stab holes the [shoulder surgeon](#) can look at all aspects inside the shoulder then use an instrument to remove the spur of bone and the thickened ligament from the undersurface of the roof of the shoulder as seen in Figure 6. In addition to removing the bone spur, the subacromial space can be cleared of inflamed bursa tissue as seen in Figure 7.

This allows the rotator cuff tendons to recover and with time and rehabilitation physiotherapy they can start to run smoothly under the roof of the shoulder once again. If performed for the correct reasons, the operation can be very successful in reducing painful symptoms and returning strength and function to normal.

The risks and potential complications of such surgery are small but include failure to achieve the desired outcome with persistent pain, weakness, stiffness (post-operative frozen shoulder), nerve or blood vessel damage (some bruising is normal), numbness, infection, further surgery for whatever reason, prolonged rehabilitation, the medical risks of any operation such as blood clots in the legs or lungs (DVT or PE), heart attack (MI) or stroke (CVA).

