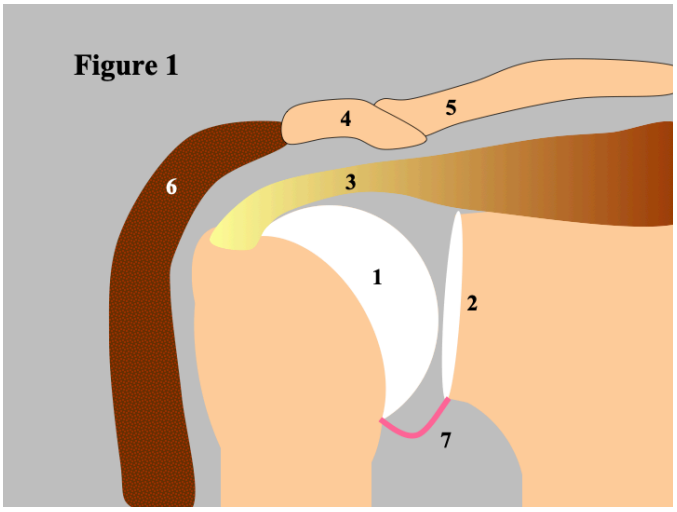
Rotator cuff tears and their treatment

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



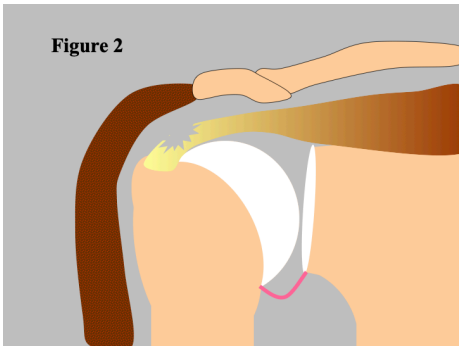
The Rotator Cuff is the term to describe the continuum of tendons attached to the bone around the front, top and back of the shoulder. The tendons come from the important muscles of the shoulder blade and contribute to the movement, strength and coordination of normal shoulder function.

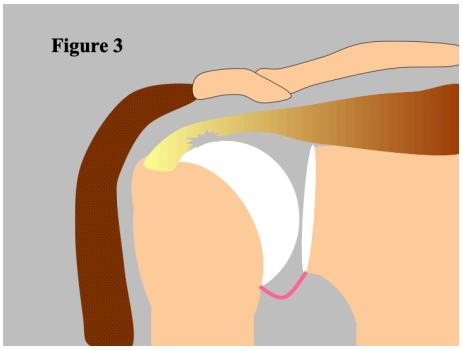
Damage to the tendons can either come about suddenly after an injury (an acute tear) to the shoulder such as jarring it in a fall, sustaining a direct blow or during a dislocation or more insidiously (a chronic tear) as a result of years of the tendon rubbing against a spur of bone from the roof of the shoulder (see information sheet on Subacromial Impingement).

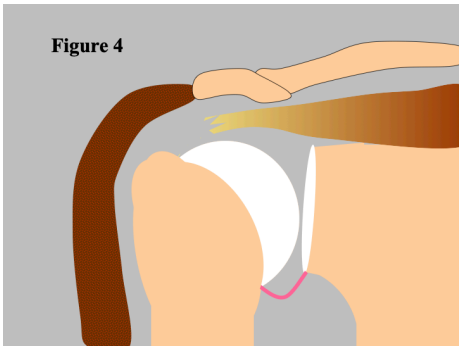
With an acute tear, patients have sudden pain and loss of shoulder function sometimes complete inability to lift their arm. If the rotator cuff tendons were a sock the analogy would be catching a new sock on a floorboard nail creating a hole in good sock material.

With a chronic tear patients 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. The analogy here is of an old sock getting thinner and thinner until a toenail breaks through and a hole develops in thin sock material.

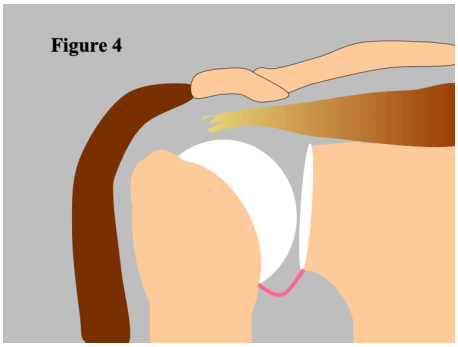
Unfortunately just as with holes in socks, holes in tendons never get smaller they only extend and get bigger with persistent symptoms such as worsening pain and deteriorating strength and function.

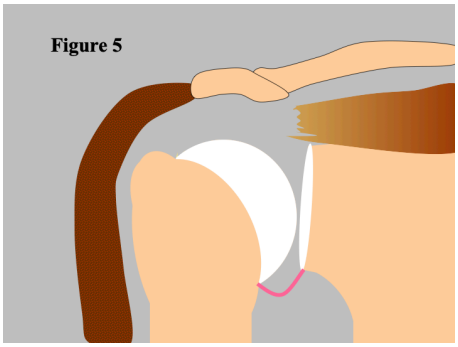


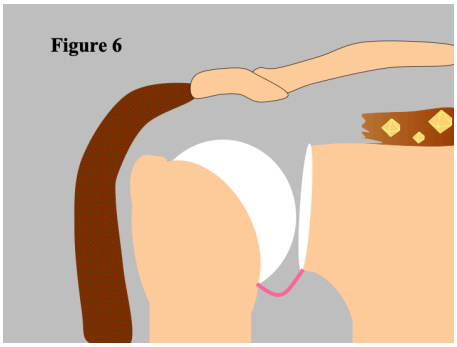




Tears can be partial or full thickness. Figure 2 shows a partial tear on the upper or bursal surface of the tendon. Figure 3 shows a partial tear on the under surface or articular surface of the tendon. Partial tears thin the tendon and can extend across the full thickness resulting in a hole in the tendon which becomes detached from the bone as in Figure 4.



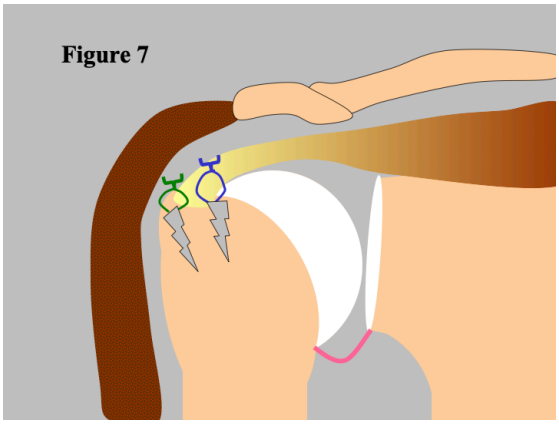




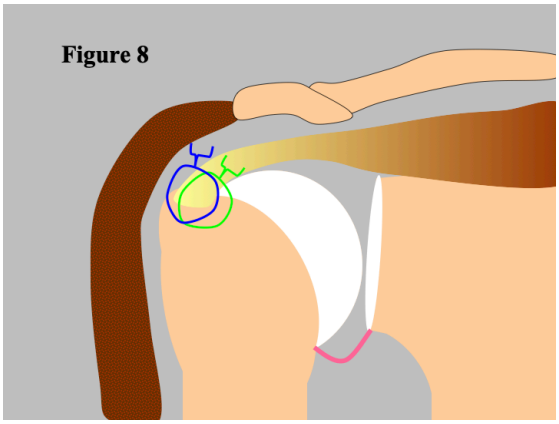
The concern is that a full thickness tear as in Figure 4 gets bigger extending and retracting to the situation in Figure 5 or worse still in Figure 6 where the muscle retracts further and starts to get thin and the muscle fibres get replaced with fat which is an irreversible change.

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 can all help break the pain and allow improvement in movement, strength and function but anyone suspected of having a rotator cuff tear should be investigated with X-rays and a scan such as an ultrasound (a probe is moved over the shoulder with some jelly) or an MRI (the patient lies still inside the body scanner tunnel) to confirm the diagnosis and assess the extent to guide treatment recommendations.

If the diagnosis of a rotator cuff tear is made the shoulder surgeon may offer surgery to repair this. Whilst the operation can be performed as open surgery the majority of Rotator Cuff Repairs are 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 around the shoulder the surgeon can look at all aspects inside the shoulder then using a variety of techniques the torn tendon is repaired back to the bone using bone anchors and stitches as seen in Figure 7 or simple stitches to repair tendon to bone or tendon to tendon as shown in Figure 8 or sometimes a combination of the techniques.



The aim is to allow the rotator cuff tendons to heal to the bone. For this reason there will be a period of rest in a sling following the operation and with time and rehabilitation physiotherapy the healed tendons 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).