

Unsticking the elbow

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ELBOW stiffness may be caused by trauma or it can develop insidiously (atraumatic).

The most common cause of elbow stiffness without trauma is osteoarthritis, but trauma can lead to elbow stiffness both directly and indirectly.

This is due to articular surface damage, intra-articular fractures, osteochondral defects, or loose bodies.



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It can also occur because of capsule, ligament and muscle contractures. Stiffness can therefore be:

- Within the joint
- Because of the joint, or
- Outside the joint.

The main function of the elbow is to position the hand in space.

It also acts as a stabiliser for carrying, throwing, pushing, pulling and lifting.

To perform these activities the elbow needs almost a full range of motion. The normal range of motion of the elbow is from zero degrees (fully straight) to 145 degrees (fully bent) of flexion.

For most people, 30—130 degrees will allow them to achieve 90% of their activities of daily living.

Some patients may not tolerate even a small loss of motion for high-level performance (such as a professional golfer).

Figure 1a. Elbow, anterior view.

Indication for surgery

Surgical release of a stiff elbow is typically performed when patients are no longer able to reach their hand to their mouth or when they lose more than half of their extension.

This operation is commonly performed in weightlifters, boxers and manual labourers.

It can be performed for a smaller loss of motion if this particularly affects an individual.

A careful clinical examination combined with x-rays and a fine-cut CT scan are used to plan the surgery.

Nowadays we have the technology to release soft tissue contractures effectively and this has shown us that most of the lost range of motion of the elbow can be restored if the joint surface itself is not damaged.

Stiff elbow releases can be done open or arthroscopically but the arthroscopic method allows much faster return to function.

If the patient flexes to only 90 degrees or less they will require an ulnar nerve decompression and release of the posterior band of the MCL as well.

If the loss of motion is outside the joint, such as heterotopic ossification, then an open release is required. While the risk of a complication is quite low with this type of surgery, the consequences of a complication can be significant. This is particularly true with regard to hand function.

Figure 1b. Elbow, posterior view.

Arthroscopy

In recent years, the role of elbow arthroscopy has expanded dramatically and is becoming a much more common procedure. There are few contraindications to elbow arthroscopy.

There are many situations, however, that might make the procedure more difficult or may preclude the use of certain portals for access to the joint.

This includes situations such as ulnar nerve transposition or prior surgery that alters normal elbow anatomy.

Generally, if the patient has had open surgery, it is safer to perform the release open as well.

The surgery often requires removal of excess bone and tissue which is preventing the joint from moving.

It is common for at least six portals to be used to visualise all parts of the joint.

After the surgery, aggressive therapy is required to maintain the patient's range of motion.

The muscles have often not been stretched to their full length for many years and will return to their shortened length if you let them.

This requires the use of nerve blocks and continuous passive motion machines in hospital and splints or a dedicated stretching program at home.

Recovery

Typically, patients resume all their normal activities including work and sport about six weeks after the surgery.

While there are risks involved with this type of surgery, the results are quite gratifying.

At least 80% of patients achieve a fully functional elbow and 90% of patients are within 10 degrees of this.

The preoperative range of movement does not necessarily dictate the final motion gained, although it does determine the complexity of the operation which is required.