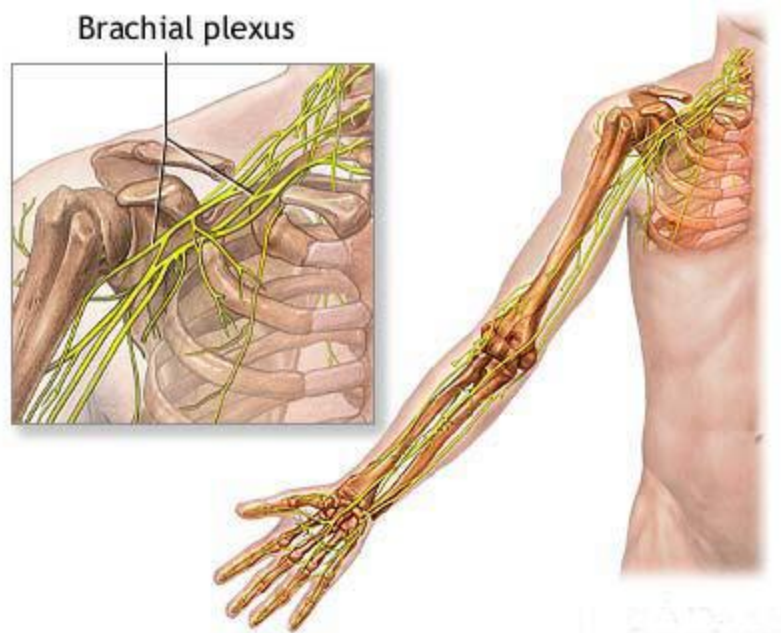


# Brachial plexus block for arm, hand or shoulder surgery

## What is the brachial plexus?

This is the name given to the bundle of nerves that supply your shoulder, arm and hand with feeling and power. These nerves start in the neck and travel via the armpit, eventually reaching the hand.



## What is a brachial plexus block?

Brachial plexus blocks may be used for surgery to the shoulder, arm or hand. The feeling and power of the shoulder, arm or hand can be blocked by placing an injection of local anaesthetic near to the nerves of the brachial plexus.

The injection may be placed in one of the following, depending on exactly what operation you are having:

- in the side of your neck
- above or below your collar bone
- in your armpit

## Benefits

Your anaesthetist or surgeon may suggest that a brachial plexus block should form part of your anaesthetic care for a number of reasons:

### 1. To avoid the risks of a general anaesthetic

It may be possible to have your operation performed with a brachial plexus block alone. This may be particularly important if you have particular health problems. You will be awake and pain free, although you may still be able to feel pressure and movement in the area.

## **2. For pain relief after your operation**

The brachial plexus block can be given as well as a general anaesthetic. It provides pain relief after the operation. This reduces the need for strong pain relief medicine after your surgery, which can make you feel sick and drowsy.

## **3. To reduce the risk of chronic pain states**

A brachial plexus block may assist in reducing the risk of ongoing discomfort which may be associated with some types of fractures or operations.

## **How is a brachial plexus block performed?**

The brachial plexus block can be performed with you awake, sedated or anaesthetised.

Firstly, the site of the injection is cleaned and if you are not anaesthetized, an injection of local anaesthetic is used to numb the skin. A needle is inserted, and by passing a small electric current through it, your anaesthetist can locate the nerves they wish to block. These days an ultrasound machine is often used for the same task and allows direct visualisation of the nerves to be blocked.

Local anaesthetic solution is then injected around the nerves. If you are awake at this time, a vague discomfort sometimes occurs. It may take up to 30 minutes after that for the block to be fully effective.

## **Recovery**

The effects of the local anaesthetic will last between 4 and 24 hours – on average about 10-12 hours. Your arm will be held in a sling until the strength has returned. This is vitally important as it would be possible to injure that arm and be unaware. The sling is to keep the arm “out of harm’s way”. Once full movement and sensation has returned, you may dispense with the sling unless instructed by your surgeon to continue using it.

## **Why numb my entire arm if I am having hand surgery?**

For pain relief after hand surgery, it is often possible to confine the local anaesthetic block to the hand and forearm. This is done by injecting the nerves of the brachial plexus further “downstream”, that is, as they travel through the forearm. Ultrasound is often used to aid this process.

Although in this situation, the arm will not lose its power, the hand may remain numb for many hours. However, it may be that despite the site of surgery, a more complete brachial plexus block is required.

## **Are there any risks to having a brachial plexus block?**

These procedures are performed with your safety in mind, and specific measures are taken to protect you. All medical treatments carry potential for risk, but where specific procedures are recommended, it is our belief that this is outweighed by the benefits.

### **1. Inadequate block**

Due to variations in individual patient's anatomy a block sometimes may be incompletely effective. In this case, your anaesthetist will revert to an alternate form of analgesia or anaesthetic.

### **2. Risk due to local anaesthetic**

Allergy to local anaesthetics is very rare, and less likely than those caused by general anaesthetics. However, where the local anaesthetic is absorbed too quickly or inadvertently finds its way into the blood stream, then serious problems can ensue. These include fits, and heart problems. Your anaesthetist is trained to deal with all of these, but fortunately, these occurrences are extremely rare.

### **3. Risk to nearby structures**

If the injection is placed in the side of your neck, occasional side effects include a hoarse voice, a droopy upper eyelid and sometimes a sense of breathing that feels "not right". These are all temporary and should get better when the block wears off.

If the injection is placed around the collarbone, there is a small risk of damage to the lung (1 in 1000 patients or less).

At all injection sites, there is a small risk of bleeding due to damage to a blood vessel. This can be treated by direct compression.

### **4. Nerve damage**

Not uncommonly, patients sometimes notice areas of residual tingling and/or numbness in the arm, shoulder or hand, when the rest of the nerve block has dissipated. This usually resolves within a few days or weeks. However, please bring it to the attention of your surgeon at your next visit or call your anaesthetist.

Nerve damage can occur because of direct injection into the nerve or because of bleeding or infection. However, the risk of permanent damage is extremely rare.

Other causes of nerve damage unrelated to the brachial plexus block include:

- Damage caused by the surgery (rare). Your surgeon will discuss this with you.
- Pressure on the nerves while they are anaesthetised due to your arm being placed in an awkward position necessary for the operation. Extreme care is taken to avoid very awkward positions.
- Use of a tourniquet on your arm. This is used for many hand and forearm operations. It is possible that compression of nerves occurs with the possibility of damage. The duration of tourniquet use and pressure is closely watched.
- Swelling of the area after your operation – this can place pressure on nerves and damage them. This is why we may ask you to keep your arm elevated after the operation.
- Other pre-existing medical problems eg. Diabetes.