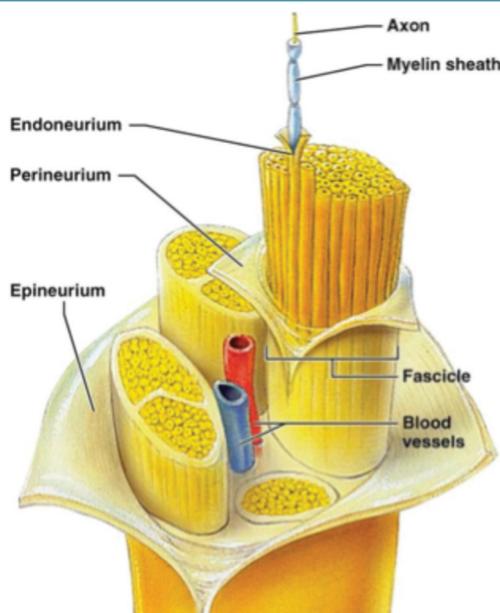




CONDITION

What are Nerve injuries?

The commonest way for a nerve to be injured is by compression, around a bone or under a ligament at various points in the body. In this section though we will be considering direct injuries to nerves such as when they are cut with glass or a knife.



A diagram of the inside of a nerve

What happens when a nerve is cut?

A nerve can be thought of almost exactly like an electric cable with 'wires' (the nerves themselves, called axons) surrounded by 'insulation' (the fatty tissue between the nerves, called myelin). The axons are bundled together into fascicles surrounded by connecting tissue (endo/peri/epineurium). When the nerve is cut the axons in the far end of the nerve die but the insulating myelin tubes remain. In the near end of the nerve the axons survive and can grow back down the myelin tubes, given the right environment and enough time.

What symptoms does a cut nerve give rise to?

Nerves supply sensation to our skin and power to our muscles. The exact location of your nerve injury will determine where you feel numb (if anywhere) and which muscles are not working (if any). If the nerve has only been partially damaged some function may persist. Patients often also describe peculiar, sometimes unpleasant, sensations after a nerve has been cut. These are probably caused by abnormal signals travelling back up the nerve from the site of injury. These peculiar sensations may persist during and after nerve healing has occurred and can be one of the most difficult aspects of a nerve injury to treat.

How is the diagnosis confirmed?

Knowledge of where all the nerves of the body are placed and what job each does in the body is necessary to work out whether or not a nerve is likely to have been damaged by a particular injury. This requires your surgeon to listen to your symptoms and carefully examine the injury site and the skin and muscles past the site of injury.

What is the treatment of nerve injuries?

Sharp cuts near a nerve with abnormal sensation or muscle power beyond the site of injury should be surgically explored to assess the damage and allow an early repair of any injury. Other injured structures can be treated at the same time and the wounds thoroughly washed out to reduce the risk of later infection.

The ends of the cut nerve are very gently held together with tiny stitches in the outside layer around the nerve.

What recovery can I expect?

Many factors affect how well a nerve re-grows after it has been cut. The best results are in children with sharp, straight cuts repaired within a few days of the injury. Injuries close to the part to be supplied also do better as the nerve has less far to re-grow.

In general the average patient will recover 'protective' sensation in the affected part – that means enough sensation to know if you are about to damage that area. The sensation is not usually perfect again, particularly in the fingers which are very sensitive. Recovery of muscle strength is more variable and can be disappointing. An end-to-end repair of a cut nerve usually avoids the formation of a neuroma which can be very uncomfortable. A neuroma is an over growth at the end of the cut nerve which is not properly lined up with the rest of the nerve. Touching an area of skin with a neuroma below it is often described as being like having an electric shock passing through that part.

A repaired nerve will not usually start re-growth for two to three weeks. On average the rate of nerve re-growth after that time period is often stated as being 1mm per day so you can see how long it might take for function to recover. After about two years it becomes very difficult for the re-growing nerve to attach to the tissue it should be supplying as that tissue will have lost the capacity to connect with a nerve. Further recovery of function after two years is therefore unlikely.