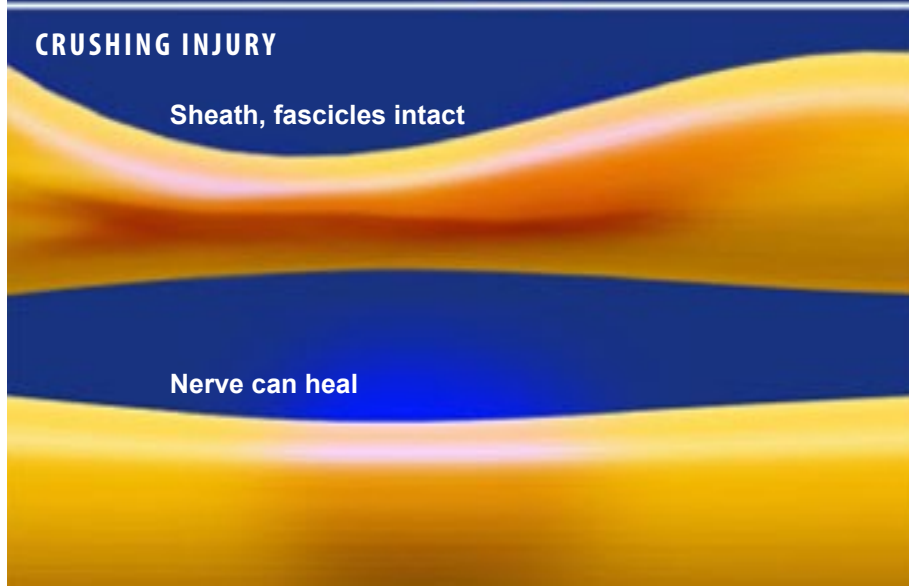
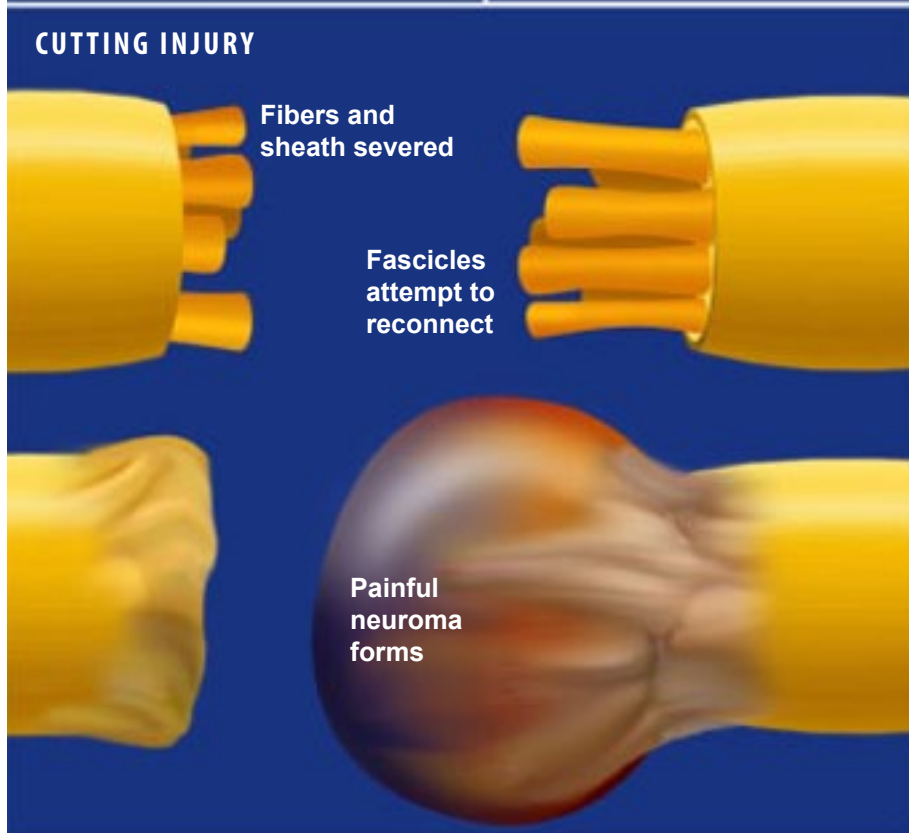
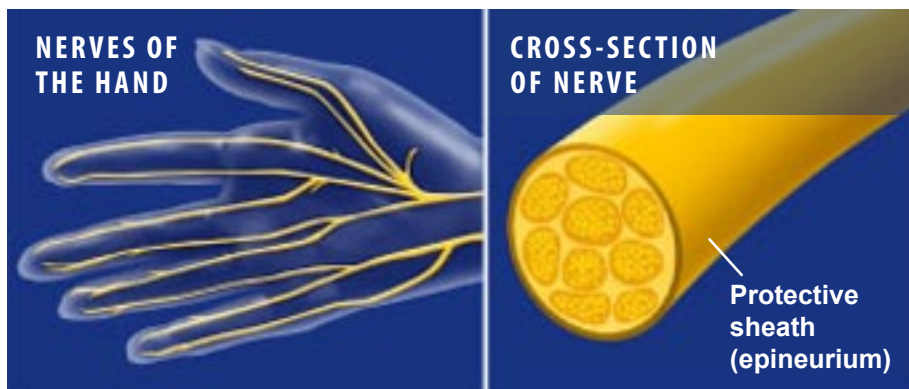


## NERVE INJURIES OF THE HAND



### Overview

The hand is one of the most complex structures of the body, designed to perform fine motor movements and to manipulate and experience the environment. The hand is woven with an intricate network of fragile nerves. Damage to any of these nerves can interrupt the normal functions of the hand and cause numbness and pain.

### Anatomy

Nerves are made of one or more bundles of nerve fibers called fascicles. The fascicles are enclosed in a protective outer sheath called the epineurium. Problems can occur when either the fascicles or epineurium are injured.

### Cutting Injuries

Cuts are the most common - and damaging - injuries to the nerves of the hand. When a nerve is cut, the sheath and fascicles are often completely severed. The two ends retract, forming a gap that prevents the nerve from functioning. Despite this gap, fascicles from one end of the severed nerve often try to grow and reconnect with the fascicles on the other side. Unfortunately, the presence of scar tissue and the lack of a nerve sheath can prevent such a reconnection, and the fascicles may instead form a painful ball of nerve endings called a neuroma. Even if the nerve is only partially cut, the severed fascicles may not reconnect properly and may form a partial neuroma at the site of the laceration.

### Crushing Injuries

Crushing injuries, or injuries that stretch the nerve, may injure the fascicles but leave the sheath intact. If the sheath is intact, it will guide the fascicles as they regrow, usually allowing the nerve to heal itself.

## NERVE INJURIES OF THE HAND



### Causes

Cutting injuries are commonly caused during food preparation, when grasping broken stemware, and while using saws and sharp tools such as box cutters. Crushing injuries most commonly occur on the job, especially in factories and garages. They can also occur in sports such as hockey and lacrosse when the hand is hit with a stick.

### Symptoms

Symptoms of acute injury to the nerves of the hand or fingers include numbness or tingling in the affected fingers and a sharp, radiating pain that can be felt when the laceration site is lightly tapped. A cut that involves the median or ulnar nerves or their muscle branches may interfere with the ability to move the thumb or fingers. As a nerve heals after a crush or stretch injury or surgical repair, sensitivity at the injury site may be present. The fingertips may also be sensitive to cold for several months.

### Treatment

Lacerated nerves require surgical repair to restore sensation and reduce the risk of neuroma. Surgery may involve suturing the ends of the nerve together or placing the severed ends in an absorbable tube that guides the fascicles as they regrow. Partial nerve lacerations that result in a neuroma may also require surgery to decrease the neuroma pain and facilitate healing. Crushed or stretched nerves often heal without surgical treatment. The hand or finger may be placed in a splint or cast to protect the injured nerve while it is healing. Hand therapy is usually recommended to address hypersensitivity and hand function while healing. After nerve repair, patients commonly experience a lasting difference in sensation and cold intolerance.