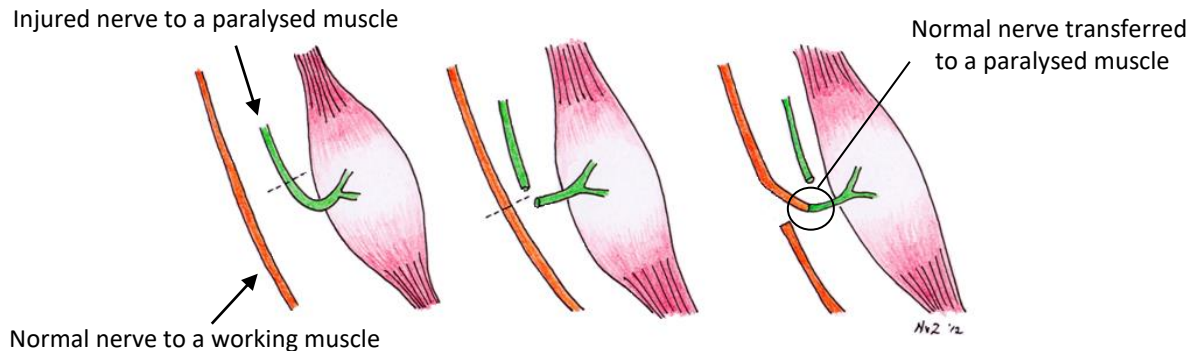


Nerve Transfers Following Cervical Spinal Cord Injury

What is a nerve transfer?

Nerve transfer surgery is when you take a nerve to a working muscle (donor nerve), cut it, and use it to re-animate a nerve that supplies a paralysed muscle (recipient nerve).



Who can have the surgery?

To be suitable for nerve transfer surgery, you need to have one or more suitable donor nerves. You are likely to have suitable donors if you have a C5 – C7 complete or incomplete spinal cord injury. This level of injury means that pre surgery you have movement in your shoulder muscles, you can bend your elbow up to your mouth and you can possibly extend your wrist upwards. If you do not have all these functions, you may still be a candidate for surgery but you will need further assessment. Ideally, you should be within 12 months of injury and in good health. Depending on the pattern of injury to the nerves it may be possible to do nerve transfers many years after injury but you will require testing to confirm that you are a candidate. You should be motivated to do a home exercise program and have family or carers available to assist you with it.

What movements will I be able to do?

Movements that can be restored include:

- straightening your elbow to reach (elbow extension),
- pulling your wrist up (wrist extension)
- opening your hand to place it around an object (finger and thumb extension)
- closing your fingers around an object to allow you to grip or hold it (finger flexion)
- closing your thumb against your index finger to pinch (thumb flexion)

The success of surgery will depend on your injury level, the type and extent of nerve damage, the time since injury, the flexibility of your joints, your health and your participation in exercises/therapy.

Will my hand work like it did before my spinal cord injury?

No, there are not enough donor nerves to power all the paralysed muscles of the hand. However, successful nerve transfers should improve your hand and arm function.

What does the surgery involve?

The surgery is performed by experienced plastic and reconstructive surgeons who specialise in restoring arm and hand function after cervical spinal cord injury. Surgery occurs under a general anaesthetic and takes three to eight hours. Nerve transfers may or may not be done in conjunction with selected tendon transfers. You will be in hospital for 1-3 nights following surgery.

What happens after surgery?

After surgery, you will wear an arm sling and splint for around 10 days. During this time your elbow, hands and shoulder movement will be restricted. You may need extra attendant care, a power wheelchair and/or a hoist. You will need to be able to attend Royal Talbot Rehabilitation Centre for review in person or via telehealth and complete daily exercises at home.

You will start resuming your normal function in two to three weeks. You will be given new exercises to complete three to five times a day until the nerve grows into the muscle. You will be reviewed by the surgeons and therapists in the Upper Limb Program clinic and also continue therapy in the community or at Royal Talbot with additional follow up as needed via telehealth and phone consults.

Recovery is slow as nerves take time to grow. Depending on which nerve transfers were performed it is likely to be 4 – 9 months before you see any flickers of new movement in previously paralysed muscles. It will take up to 2 years post surgery for you to reach the maximum strength that you will gain from the nerve transfer. The exercises will be adjusted by your occupational therapist as you improve.

During this post op period, you will also need to be able to attend Royal Talbot Rehabilitation Centre for review with the surgeons and for hand therapy. If you have a local therapist, they may be able to assist with some of the rehabilitation and Telehealth reviews with the surgeons and therapists can be organised to cut down on the need to travel. It is possible you will need further procedures in the future to maximise your hand function.

How much does surgery cost?

The surgery and therapy at Royal Talbot Rehabilitation Centre is performed within the Victorian public health system. No payment is required for patients who are eligible for treatment under Medicare or who have compensation. You, your insurer or NDIS would be responsible for transport to and from appointments, equipment hire and increased care needs immediately following surgery as well as exercise equipment and private therapy if used. Self-funded international clients or those not covered by Medicare can be treated by the team via the private healthcare system.

How do I organise an assessment?

Anyone with a cervical spinal cord injury can contact the Upper Limb Program occupational therapists to discuss their situation. If appropriate, you will be referred for an appointment at the fortnightly Upper Limb Program Clinic. Most Victorian or Tasmanian patients will be seen during their inpatient rehabilitation stay at Royal Talbot. South Australian and Northern Territory patients are generally seen by a Victorian surgeon at a twice yearly clinic in Adelaide.

At the clinic, you will meet the surgeons and the occupational therapists. They will assess your current arm and hand function and talk with you about your functional goals. The surgeons will answer your questions and discuss what procedures may be best for you. If nerve transfers are appropriate, you will need to attend the Neuroscience Laboratory at Austin Health for nerve conduction studies. These test results assist the surgeons in planning your surgery. Alternatively, the surgeons may suggest other procedures or treatments that may be more appropriate.

Where do I find out more information?

You can get more information by talking to your Spinal Rehabilitation Consultant or contacting the Upper Limb Program. Links to articles published by the team at Austin Health are available on this website as well as links to media coverage of the surgery and patient videos. The Upper Limb Program can also put you in touch with others who have had nerve transfer surgery, but remember every person is slightly different.

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