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Plastic and Reconstructive Surgery

Nerve Transfer Surgery
for Spinal Cord Injury

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Nerve transfer surgery is one of two types of surgery that can improve movement in the shoulders, arms, elbows, wrists and hands after cervical spinal cord injury (the other is tendon transfer surgery).

Effects of Spinal Cord Injury

- When cells in the spinal cord are injured, they cannot be regrown or repaired.
- In people with spinal cord injury, the nerves leaving the spinal cord above the level of injury continue to work. The person still has sensation and control over the muscles in that area.
- Nerves that leave the spinal cord below the level of injury are no longer connected to the brain, so there is no longer a signal from the brain to the nerve to the muscle to make it work.

Nerve Transfer Procedure

- A surgeon connects an extra working nerve to a damaged nerve. The transferred nerve can grow down a new path and can carry a signal to tell the muscle to move.
- This surgery can help improve movements such as straightening the elbow and wrist, and opening and closing the hands. This may help people with spinal cord injuries complete daily activities more easily.
- In some people, a nerve transfer is time-sensitive. In others, the nerve transfer surgery can often be done even years following a spinal cord injury.

Those Who Can Benefit

- This procedure can help some people with cervical level spinal cord injury.
- The size of the injured area must be short.
- This surgery will not help people with C1-C4 level injuries who have no arm function.

Before Surgery

- A study will be performed to confirm the size of the injured area.
- Your doctor will check your joints to ensure they are not stiff.
- Your doctor will confirm that you have appropriate donor nerves available.
- Physical, occupational and/or hand therapy must be arranged for after surgery.

Surgery and Recovery

- All surgeries are done under general anesthesia. You will stay in the hospital overnight.
- No splint or cast is needed.
- You can use your hand or arm right away for light activities.
- Weight bearing activities and sports can be started about one to three months after surgery, depending on healing.
- Although nerve transfers can improve arm and hand movement, it will not return to the same level as before the injury.

Other Procedures

- Not everyone is a candidate for nerve transfer surgery.
- You may be a candidate for other procedures such as tendon transfers, joint fusion or anti-claw procedures.
- Your physician can help determine what option might be right for you.

