

Electromyography/Nerve Conduction Studies

What is an electromyography/nerve conduction study (EMG/NCS)?

An electromyography/nerve conduction study (EMG/NCS) is a type of diagnostic test used to study the condition and function of peripheral nerves. Peripheral nerves are the nerves that carry messages from the brain and spinal cord to the rest of the body. These nerves work by sending electrical signals along the course of the nerve. The strength and speed of these electrical signals can be measured by the EMG/NCS to give information about a nerve's function.

What is an EMG/NCS used to diagnose?

- Compression syndromes such as carpal tunnel and cubital tunnel syndrome.
- Neck conditions such as cervical radiculopathy
- Nerve injuries
- Neuromuscular disorders

How is an EMG/NCS done?

There are two parts to the test:

- **Electromyography:** this part of the test is done to study the electrical activity of the muscles. Very small, very thin needles are inserted into the muscles to measure the amount of electrical activity in the muscle as it contracts and relaxes. Relaxed muscles have no electrical activity until it is contracted so abnormal amounts of electrical activity can show certain types of pathology.
- **Nerve conduction study:** this part of the test is done by applying electrodes (small sticky pads) attached to wires to your skin at certain points. An electrical signal is then sent down the nerve and the amount of time that it takes to travel from one point to the other is measured to look for areas where the signal slows down or stops due to nerve compression or other injury.



What do I do before and after the test?

There is no prep needed for this test but you should avoid the use of lotions or wearing jewelry on the area being evaluated. There is no recovery and you can resume normal activities after, but you may have minor skin irritation from the needles or electrodes which usually resolves quickly. Your study results will be reviewed with you by your provider and next steps discussed.