

Neurological Institute of Northern New Jersey

Electromyogram and Nerve Conduction Studies

(Also called 'EMG/NCS')

What is an electromyogram/nerve conduction study?

An EMG/NCS is a test that measures the electrical activity of the nerves and muscles. The study consists of two parts:

1. The first part of the test involves nerve conduction studies (NCS). This part measures the ability of nerves to transmit electrical impulses or messages to their respective muscles. This part involves a small and brief electrical stimulus.

An electromyogram measures the electrical activity in your muscles to determine the cause of muscle weakness, spasms, paralysis, or pain in the arms, hands, legs, feet and face.

2. The second part of the test is called needle electrode examination. This part examines and measures the electrical activity in muscles. This involves a very thin gauge needle that acts like a microphone when inserted into the muscles. Nothing is pushed in or pulled out through the needle. A number of muscles are examined this way, based on the clinical problem.

For both parts of the test, the patient may feel some uncomfortable sensations.

Why do patients need to have these tests?

An EMG can help physicians distinguish the cause of numbness or paralysis, muscle weakness or spasms, and the cause of pain in the arms, hands, legs, feet and face. The results will allow the ordering physician to be able to determine the course of treatment.

Things to know about an EMG/NCS:

- Patients have both NCS and needle examination when an EMG is ordered.
- The length of stay may be up to 3 hours for both parts of the test.
- Please plan to stay accordingly.
- **Precautions:** If any of the following precautions apply, please let us know:
- Duration of symptoms is less than 3 weeks.
- You are taking medications such as:
 - Mestinon (pyridostigmine bromide)
 - Coumadin (crystalline warfarin sodium)
 - Lovenox (enoxaparin)

-Heparin

- You have any bleeding disorder.
- You have any internal devices implanted (defibrillators, internal pain stimulators, deep brain stimulators, etc.)
- Patients will be asked to change into a gown but may leave undergarments on.
- Patients do not need to fast prior to this study.
- Hygiene: Bathing is recommended to make sure that there are no oils, lotions, creams, or perfume on the skin. Please do not apply any of these items before the test. This will ensure the best results during test.