

## Electromyography-NVC/EMG

Questions: 319-861-7778

### What is an NCV/EMG?

It's a two-part test consisting of nerve conduction velocities (NCV) or part 1 and Electromyography (EMG) or part 2. Although we routinely refer to it as an EMG, both parts are always done. It is a diagnostic test that looks for signs of nerve damage and/or muscle disease.

### Why should I have an NCV/EMG?

Here are a few reasons for having an NCV/EMG:

- Suspected Carpal Tunnel Syndrome
- Suspected cervical or lumbar radiculopathy
- Diffuse or wide spread nerve disease brought on by diabetes, thyroid disorders or other metabolic disorders
- ALS, Myasthenia Gravis, or Guillian-Barre Syndrome

### Procedure:

The patient is routinely asked to change into a gown and a staff member will check the temperature of the affected extremity. If it is felt the patient's arm or leg is too cool, measures will be taken to warm it such as soaking in the sink or a basin of warm water for several minutes. This is done to prevent false results as coolness can cause responses to appear abnormal and lead to misdiagnosis.

Technologists will perform the NCV portion of the study by applying recording electrodes over digits and muscles of the hand or muscles of the foot as the case may be. An electrical pulse is applied to a nerve at points along its' pathway with a stimulator. The pulse starts at zero intensity and is gradually increased until a maximum response is obtained from the muscle or digit. When this is done there will be some slight twitching of the muscle that is innervated by the nerve being tested.

Once the maximal response is obtained a picture of the response is captured and the stimulus is stopped. This is repeated for several different nerves for each extremity tested. Most patients perceive this as more of an annoying sensation rather than a painful one. Measurements of the time it took the nerve to conduct its' signal as well as the size of the response are recorded and stored digitally on computer.

A neurologist will perform the second part of the testing which is the EMG portion. Based on the findings during the NCV part and your referral diagnosis, the neurologist will examine some of your muscles with a fine, wire-like "pin" electrode.

The electrode will be inserted into various muscles and you will be asked to activate each of the muscles in order to generate electricity that naturally occurs within them. The tip of the pin electrode records this activity and displays it on a computer screen as a sine wave. The electrical activity is presented as an audible sputtering and popping sound that comes from a speaker attached to the computer. The neurologist looks and listens to the activity coming from within the muscle to determine how wide spread the nerve damage is and to rule out any muscle disease process that could also explain your symptoms.

All testing will be completed within 30 minutes to an hour. There are no side effects from the test. The neurologist will relay the results to you verbally before you leave and a formal report will be mailed to the referring physician as soon as it is available. Your physician will go over those results with you and determine a course of follow up care for you.

**Preparation:**

ALL PATIENTS: Please refrain from using any skin lotions on the extremity being tested.

**Please bring a photo ID**

**Outpatient Registration:**

**Please arrive 5 minutes prior to your scheduled procedure.** Park in the Mercy Medical Center Parking Ramp, located at the corner of 8th Street and 8th Avenue SE. Enter through the North Entrance, take elevator C to the 4th floor, and go to your left, where you will see signs for "Neurodiagnostic." Please check in with the receptionist, to sign registration paperwork.

**Your appointment date and time:**

Procedure date: \_\_\_\_\_

Procedure time: \_\_\_\_\_