



Electromyography (EMG) and Nerve Conduction Studies (NCS)

What is an EMG and NCS

Electromyography and NCS are a test that are performed to diagnose neuromuscular disorders (medical conditions that affect the nerves and muscles). These tests record the electrical signals that travel from nerves to the muscles in the arms and legs. It is performed for people experiencing certain symptoms, such as tingling, numbness, muscle weakness, muscle pain or cramping. These tests are used to diagnose a variety of neurological conditions, such as carpal tunnel syndrome, pinched nerves in the neck or low back, diabetic polyneuropathy, or a variety of other peripheral neuropathies

How the Test is Performed?

The test takes roughly 30-60 minutes, depending on the nature of the symptoms. There are two parts to the testing. The first part, called nerve conduction studies (NCS), involve small patches (surface electrodes) that are placed on the skin over nerves at various locations. A stimulator is used to apply an electrical impulse to the nerve being tested and the nerve's resulting electrical activity is recorded by the surface electrodes. The distance and time it takes for impulses to travel between electrodes are used to determine the speed of the nerve signals.

The second part of the testing is the EMG portion. This involves a physician inserting a very thin wire electrode into the muscle. The electrode works like an antenna and picks up the electrical activity given off by your muscles. This activity appears on a nearby monitor and may be heard through a speaker. There are no electrical stimulations during this part of the study. After placement of the electrodes, you may be asked to contract the muscle, for example bending your arm. The electrical activity seen on the monitor provides information about how your muscle is working.

Why the Test is Performed?

This test is used to understand nerve and/or muscle function.

How to Prepare for the Test?

Preparation is minimal. Eat normal meals and take your normal medications. Dress comfortably as the procedure requires access to your skin. You may be asked to change into a gown or shorts. A chaperone can be provided upon request any time during the test.

You should NOT use any form of creams, lotions, or perfumes on any part of the body the day of the test, otherwise, there are no special preparation is necessary. Cold body temperature can affect the results of this test so you may be asked to place your hands or feet on a heating pad (which will be provided) prior to starting the testing.

You should inform the physician if you are taking any blood thinners, if you bruise easily, are very susceptible to infections, have a history of hepatitis or HIV/AIDS or have a pacemaker.

How the Test Will Feel?

The stimulations may feel like electric impulses. Depending on how strong the stimulus is, you will feel it to varying degrees, and it may be uncomfortable but tolerable. You may feel some discomfort when the wire electrode is inserted, but most people are able to complete the test without significant difficulty. Rarely, the muscle may feel tender or bruised for a day.