

WHAT IS AN EMG/NCS?

An electromyogram (EMG) measures the electrical activity of muscles at rest and during contraction. Nerve conduction studies measure how well and how fast the nerves can send electrical signals.

Nerves control the muscles in the body with electrical signals called impulses. These impulses make the muscles react in specific ways. Nerve and muscle problems cause the muscles to react in abnormal ways.

If you have leg pain or numbness, you may have these tests to find out how much your nerves are being affected. These tests check how well your spinal cord, nerve roots, and nerves and muscles that control your legs are working.

WHY IT IS DONE?

An EMG is done to:

- Find diseases that damage muscle tissue, nerves, or the junctions between nerve and muscle. These problems may include a herniated disc, amyotrophic lateral sclerosis (ALS), or myasthenia gravis (MG).
- Find the cause of weakness, paralysis, or muscle twitching. Problems in a muscle, the nerves supplying a muscle, the spinal cord, or the area of the brain that controls a muscle can cause these symptoms. The EMG does not show brain or spinal cord diseases.

A nerve conduction study is done to:

- Find damage to the peripheral nervous system, which includes all the nerves that lead away from the brain and spinal cord and the smaller nerves that branch out from those nerves. This test is often used to help find nerve problems such as carpal tunnel syndrome or Guillain-Barré syndrome.

HOW SHOULD I PREPARE?

Tell your doctor if you:

- Have any immune system problems.
- Have any bleeding problems or take blood-thinning medications, i.e., Coumadin, Plavix, Xarelto or Eliquis. Please hold blood thinners /anticoagulants for three days before your exam if permitted by your prescribing physician. Aspirin is permitted without change.
- Have hemophilia, a blood-clotting disorder that causes prolonged bleeding.
- Have a heart pacemaker/implanted defibrillator or any other electrical medical device.

- Have had neck or back surgery.

TEST TIPS

- Eat a normal meal on the day of the test.
- Take your routine medications, unless advised not to.
- Do not smoke for 3 hours before the test.
- Do not eat or drink foods that contain caffeine (such as coffee, tea, cola, and chocolate) for 2 to 3 hours before the test.
- Wear loose-fitting clothing so your muscles and nerves can be tested. You may be given a hospital gown to wear.
- Take a shower or bath before your exam to remove oils from your skin.
- Do not apply creams, lotions, and oils on hands, arms, legs, and feet.
- Remove all jewelry (rings or bracelets) and wrist watch.
- Please try to keep your hands and feet warm before the test.

WHAT ARE THE RISKS OF EMG/NCS TESTING?

EMG is a low-risk procedure, and complications are rare. There is a small risk of bleeding and infection where a needle electrode is inserted.

HOW IS THE EMG PERFORMED?

An EMG is done in a hospital, clinic, or doctor's office. It may be done in a room that stops any outside electrical interference. The test may be done by an EMG technologist or a doctor.

You will be asked to lie on an exam table with a blanket over you. You may have one or both of the following:

Electromyogram (EMG)

The skin over the areas to be tested is cleaned. A needle electrode that is attached by wires to a recording machine is inserted into a muscle.

When the electrodes are in place, the electrical activity in that muscle is recorded while the muscle is at rest. Then the technologist or doctor asks you to tighten (contract) the muscle slowly and steadily. This electrical activity is recorded.

The electrode may be moved a number of times to record the activity in different areas of the muscle or different muscles.

The electrical activity in the muscle is shown as wavy and spiky lines on a video monitor and may also be heard on a loudspeaker as machine gun-like popping sounds when you contract the muscle. The activity may also be recorded on video.

An EMG may take 30 to 60 minutes. When the test is done, the electrodes are removed and those areas of the skin where a needle was inserted are cleaned. You may be given pain medicine if any of the test areas are sore.

Nerve conduction studies (NCS)

In this test, several flat metal disc electrodes are attached to your skin with tape or paste. A shock-emitting electrode is placed directly over the nerve, and a recording electrode is placed over the muscles controlled by that nerve. Several quick electrical pulses are given to the nerve, and the time it takes for the muscle to contract in response to the electrical pulse is recorded. The speed of the response is called the conduction velocity.

The same nerves on the other side of the body may be studied for comparison. When the test is done, the electrodes are removed.

Nerve conduction studies are done before an EMG if both tests are being done. Nerve conduction tests may take from 15 minutes to 1 hour or more, depending on how many nerves and muscles are studied.

WHAT WILL I EXPERIENCE DURING AND AFTER THE PROCEDURE?

During an EMG test, you may feel a quick, sharp pain when the needle electrode is put into a muscle. With the nerve conduction studies, you may feel a quick, burning pain, a tingling feeling, and a twitching of the muscle each time the electrical pulse is given. It feels like the kind of tingling you feel when you rub your feet on the carpet and then touch a metal object. The tests make some people anxious. Keep in mind that only a very low-voltage electrical current is used, and each electrical pulse is very quick (less than a split-second).

Before you leave, all the electrodes will be removed. You can then get back to your normal routine. If you feel tired or have some discomfort, take it easy. If you were told to stop taking any medication for your test, ask when you can start taking them again. Your doctor will let you know when your results are ready.

WHAT SHOULD I EXPECT AFTER AN EMG/NCS TEST?

You may experience some muscle soreness and temporary minor bruising where the needle electrode is inserted into your muscle. This bruising should fade within several days. If it persists, contact your primary care doctor.

A report that includes the results and an interpretation will be sent to your doctor who will discuss the results with you at your next follow up visit.

WHO INTERPRETS THE RESULTS AND HOW DO I GET THEM?

A physician will analyze the results and dictate a report with the findings from the exam. The results from EMG and nerve conduction studies are used along with your medical history, symptoms, physical and neurological exams, and the results of other tests to help your doctor find out what the problem is or see how a disease is changing.

IMPORTANT

Please arrive 15 minutes before your scheduled appointment. If you arrive more than 20 minutes late, your EMG appointment will be rescheduled. If you no-show or cancel your appointment for your diagnostic testing within 24 hours, a fee of \$50 will be assessed to your account. To reschedule, you must satisfy this balance. Children are not permitted in the exam room and may not be left unattended in the waiting area. Please call our office in advance if you are not able to make your scheduled appointment at 813-978-9700 extension: 7991.