

Why the tests were ordered?

You are being sent to the electromyography (EMG) lab because you have numbness, tingling, pain, weakness, or muscle cramping. Some of the tests that may be helpful to diagnose your symptoms are nerve conduction studies (NCSs) and needle EMG

How should I prepare for the tests?

Tell us if you are taking aspirin, blood thinners (like Coumadin®), have a pacemaker or VNS, or have difficulties with stopping bleeding (like hemophilia). Take a bath or shower to remove oil from your skin. Do not use body lotion on the day of the test.

How long will these tests take?

The tests usually take 30 to 90 minutes. You can do any of your normal activities, like eating, driving, and exercising, before the tests. There are no lasting side effects. You can also do your normal activities after the test.

When will I know the tests results?

The test physician will discuss your test results with you and will send them to the doctor who ordered the test. Because she is the physician who is doing the test, she will not discuss with you the results in the context of management of your symptoms. After the exam, please check with the doctor who sent you to the lab for the next step in your care.

Nerve conduction studies

NCSs show how well the body's electrical signals are traveling to a nerve. This is done by applying small electrical impulses to the nerve and recording how the nerve works. These impulses cause a quick, mild, tingling feeling. Have you ever rubbed your feet along a carpet or gone down a plastic slide then touched someone? Do you remember that little shock? That is what this test feels like. Several nerves may be tested and several shocks per nerve will usually be needed. The shocks start off really small then increase a little each time. Electrodes with wires will be placed on your skin. They are either stickers or stuck on with medical tape. The wires are attached to the machine to record the signals.

If you are still nervous, you will have the choice of having the doctor demonstrate this part of the test on herself, her helper, or your parent (if your mom and/or dad are willing).

Needle EMG

Nerves and muscles must communicate with each other so that an action can be done. You cannot hear their conversations without amplifying them (making them louder). When their conversations are made louder through a speaker, you will hear their language: pops, crackles, and sometimes buzzes. In order for us to hear them, we need to put a tiny microphone into the muscles. This is usually in the form of a thin wire or needle that is much smaller than the ones that are used to draw blood or start an IV. We place this "microphone" in several muscles to see if there are any problems. A new needle is used for each patient and it is thrown away after the test. There may be a small amount of pain when the needle is put in. The doctor tests only the muscles necessary to decide what is wrong. She will ask you to move your muscles to make noises. Sometimes she will ask you to stay still. This is to hear if the muscles and nerves are "talking out of turn."

During the EMG test the doctor will be able to hear and see how your muscles and nerves are working by the way electrical signals travel from the needle to the EMG machine. You will also be able to hear your muscles. You will notice that when you move your muscles, the noises that are made change when you are moving them slightly and when you are moving them more strongly. The doctor then uses her medical knowledge to figure out what could be causing your problem.

Can I be sedated (made to sleep) during the test?

Typically, this test is done without sedation because you have to be able to move your muscles voluntarily. However, if you are very anxious about the pain, ask if a numbing cream can be applied to the places where the wire will be placed at the time the appointment is made. There will still be discomfort with the numbing cream but to a lesser extent. Using numbing cream adds approximately 30-60 minutes to the study time because it takes at least 15-30 minutes for the cream to seep in. If you and your parents feel that this test cannot be done without sedation, arrangements can be made. Discuss this with the physician ordering the test.

What if the test is too painful and I want to stop?

We will ask that you have as much of the test done as possible. The performing doctor will tell you which of the tests hurt and which generally don't. Every child is different and perceptions of pain are different. We understand this. We understand and respect the feelings of patients. The information of the test is really important. However, if the pain is too hard to take, ask the performing doctor to stop. She may ask you if you want to take a couple of minutes and try again. But if you really want the test to stop, she will not proceed with the test and arrangements can be made for a sedated examination if more information is needed. Adapted from the AANEM EMG patient pamphlet written for adults.

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