Neuromuscular Research Center

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EMG AND NERVE CONDUCTION TESTING

Electromyography (EMG) measures the electrical impulses of muscles at rest and during contraction. Nerve conduction studies measure the velocity or how well individual nerves can transmit electrical signals. Nerves control the muscles in the body using electrical impulses and these impulses make the muscles react in specific ways. Nerve and muscle disorders cause the muscles to react in abnormal ways.
Measuring the electrical activity in muscles and nerves can help detect the presence, location, and extent of diseases that can damage muscle tissue or nerves.
*Electromyography is done to diagnose diseases that damage muscle tissue, nerves, or the junctions between nerve and muscle and to evaluate the cause of weakness, paralysis, involuntary muscle twitching or other symptoms.
*Nerve conduction studies are done to detect and evaluate damage to the peripheral nervous system and identify the location of abnormal sensations, such as numbness, tingling or pain.

Electromyography (EMG)

The skin over the areas to be tested is cleaned with an antiseptic solution. A small, thin, sterile disposable needle will be inserted into several muscles to measure the level of activity. The needle will be repositioned within the muscle and you will be asked to contract the muscle while the needle is within the muscle. No electrical stimulation is applied during this part of the exanimation. The electrical activity in the muscle is displayed as wavy and spiky lines on a monitor and is recorded for the report. The physician reads these signals and interprets them.
You will feel a brief discomfort each time the needle electrode is inserted into the muscle.
Some people find this part of the test very uncomfortable.

Nerve Conduction Studies

A probe on the surface of the skin will electrically excite a muscle or nerve. Small surface electrodes, needles or wires will be applied to the skin or through the skin to record the response to the electrical stimulation. Repeated, brief electrical pulses are administered to the nerve and the time it takes for the muscle to contract in response to the electrical pulse is recorded.
You will feel a brief, tingling sensation and a twitching of the muscle, but it is completely safe and well tolerated. There is no lasting effect and each electrical pulse is very brief.
Electromyography (EMG) is very safe. There may be bruising, swelling and bleeding at the site of the needle placement. If continued bruising is seen, please contact the physician who performed the testing. The needles are sterilized, so there is very little chance of developing an infection. There are no risks associated with nerve conduction studies.
You may request the testing be discontinued at any time if you are unable to tolerate the examination.

In preparation for this testing:

- wear comfortable clothes that permit access to the muscles and nerves to be tested. You may be asked to wear a hospital gown. If you are unable to do this by yourself, please ask for help.
- wash your skin well and do not apply any skin lotion the day of the test
- If the weather is cool, wear warm clothing. Maintaining the temperature in the extremity being tested is an important component of the test.
- You do not need to restrict your food or fluids

At the time of the testing, you need to inform the physician if you are taking:

- Any blood thinners, Coumadin or have a bleeding disorder
- have a pacemaker or internal defibrillator.

The testing takes between 15 and 60 minutes depending on your neurological problem. The test results will be forwarded to your referring physician as soon as possible. The results of your test have to be evaluated by your referring physician and he will provide you with the information about the results.
VA patients, worker's compensation or medico legal related EMG reports will not be available for patients. If patients require a copy they will have to contact the referring institution.

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