# Health

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# Electromyography (EMG)

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Electromyography (EMG) measures muscle response or electrical activity in response to a nerve's stimulation of the muscle. The test is used to help detect neuromuscular abnormalities. During the test, one or more small needles (also called electrodes) are inserted through the skin into the muscle. The electrical activity picked up by the electrodes is then displayed on an oscilloscope (a monitor that displays electrical activity in the form of waves). An audio-amplifier is used so the activity can be heard.EMG measures the electrical activity of muscle during rest, slight contraction and forceful contraction. Muscle tissue does not normally produce electrical signals during rest. When an electrode is inserted, a brief period of activity can be seen on the oscilloscope, but after that, no signal should be present.

After an electrode has been inserted, you may be asked to contract the muscle, for example, by lifting or bending your leg. The action potential (size and shape of the wave) that this creates on the oscilloscope provides information about the ability of the muscle to respond when the nerves are stimulated. As the muscle is contracted more forcefully, more and more muscle fibers are activated, producing action potentials.

A related procedure that may be performed is nerve conduction study (NCS). NCS is a measurement of the amount and speed of conduction of an electrical impulse through a nerve. NCS can determine nerve damage and destruction, and is often performed at the same time as EMG. Both procedures help to detect the presence, location, and extent of diseases that damage the nerves and muscles.

## About the procedure (EMG)

### Before the procedure:

- Your doctor will explain the procedure to you and offer you the opportunity to ask any questions that you might have about the procedure.

- Generally, fasting is not required before the test. In some cases, cigarettes and caffeinated beverages, such as coffee,

## Request an Appointment

Maryland
410-955-5000 (tel:410-955-5000)

Outside of Maryland
855-695-4872 (tel:855-695-4872)

International
+1-410-502-7683 (tel:+1-410-502-7683)

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