



Texas Orthopedics,
Sports & Rehabilitation Associates
www.txortho.com

Electromyography (EMG) and Nerve Conduction Study (NCS)

To help diagnose peripheral nerve damage, 'pinched' nerves in your neck or back, or compressed nerves in your arm or leg, an Electromyographic study has been requested. The following information has been provided to help you understand what the test will include and why it was ordered.

There are two parts to an Electromyographic study: Nerve Conduction and EMG.

1. Nerve Conduction.

Based on measurements of thousands of patients, standard ranges of nerve conduction have been published. A nerve conduction is how the information is sent from your brain to your arm or leg that allows you to walk or reach and hold objects. The speed and number of nerve fibers are evaluated in this section of the test.

Measurements will be made and marked on your skin. A recording pick up, made of a small metal disk or sticker is placed on your fingers or foot. A stimulator is placed at the measured mark and when activated, the recorder displays an image on the computer screen. The waveform is then analyzed for speed and formation.

Most patients do not find this portion of the test uncomfortable. The activation of the stimulator has been described as feeling like 'static electricity,' as when a person rubs their feet on a carpet and then touches another person. If pain is experienced, it will not be continuous and will last a very short time, less than a second.

2. EMG

A small pin is placed into your muscle and the examiner 'listens' to the sounds of that muscle at rest and during activation. The theory is to determine if the muscle is working with or without the help of your nerves. The examiner is trying to see if a muscle fiber is activated on its own or with cooperation of the nerve.

Most patients do not find this portion of the test painful, but it will be slightly uncomfortable. In most cases, the pin placement into your muscle will not cause bleeding. However, just as immunizations or a medication shot can cause bleeding, it can easily be controlled with pressure from the examiner's hand and a cotton pad.

An example of the pin placement can be thought of as follows: If one had a microphone (the pin) in the center of a basketball court (the muscle) and wanted to hear only the females (a muscle fiber) speak, it would be very difficult. If the microphone were then brought to a section and then to a particular row, hearing the females would be more accurate. The examiner will position the pin in your muscle to find fibers in different sections and different rows.

To determine if a muscle can contract normally, if the examiner is focusing on your upper leg muscle (quadriceps), you will be asked to slightly straighten your leg. While the pin is in your muscle, you will hear a recording machine 'pop' and 'snap' much like popcorn in a microwave. This is a muscle fiber 'firing' to move your leg. You will then be asked to straighten your leg very hard so that more muscle fibers can be examined at one time. You may need to have up to 10 muscles examined for proper diagnostic information to be collected.

If, for any reason, you feel that you cannot continue with the study, do not hesitate to **tell the examiner to stop**. The information provided will help determine a diagnosis and guide your prognosis. The examiner may ask if you can tolerate further testing. If you cannot this is understood and you will not be forced to continue. This information was provided in the hopes of decreasing anxiety or concerns you may have, and to help you understand how this test is performed so that you can complete the entire study.

Austin: Northwest
439-1000

Austin: Central
439-1002

Cedar Park
439-1009

Round Rock
439-1004

Westlake
439-1005

Marble Falls
877-966-7846