Electromyogram (EMG) and Nerve Conduction Studies

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 nerves and the nerves in your arms and 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.