

*This patient page is excerpted from an article by Venu Akuthota, MD. Find more about electrodiagnostic testing, spine conditions, and treatments at [knowyourback.org](http://knowyourback.org).*

### **What are electrodiagnostic studies?**

Electrodiagnostic (EDX) studies (sometimes called EMG for electromyography) are a commonly used technique to test the function of muscles and nerves. They are usually two parts: one testing nerves (referred to as "nerve conduction studies") and the other testing muscles (referred to as "electromyography"). These studies allow the NASS physician to learn how nerve and muscles are functioning. This testing process often helps to narrow down the possible causes of back/body pain and muscle weakness.



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### **Nerve conduction studies**

Doctors perform these studies by placing sensors over nerves in the arms and legs and then stimulating those nerves with small electric sensations. Most patients report that these studies are uncomfortable but not necessarily painful. The doctor is able to see how fast or slow nerves are functioning. Comparisons are made to averages to see if the nerves are working properly.

### **Electromyography (EMG)**

EMG is performed by placing small needles in the muscles of the arm, leg or back to directly evaluate the electrical activity caused by a muscle contraction. Most patients state that the needles feel like a small cramp or a splinter in the muscle. EMG allows the doctor to evaluate how well muscles are functioning. In addition, the EMG study can help determine if muscles are receiving the proper signal from nerves.

### **When would I receive an EDX?**

Electrodiagnostic studies are considered when the reason for pain, tingling or weakness isn't clear. Studies can also be used to determine the severity of a nerve injury or how badly a nerve is being pinched in the neck or back. Occasionally other conditions can mimic a pinched nerve in the back or neck. Electrodiagnostic studies can also help determine if other conditions are occurring.

### **What should my doctor know about me to determine if I should have an EDX?**

The doctor performing the electrodiagnostic test will ask questions about the nature of your pain, tingling and weakness. This will help them determine which nerves and muscles to test. The physician may also ask questions about other conditions which may affect the nerves and muscles, such as diabetes and thyroid problems. Your doctor should know if you have ever had a neck or back surgery.

### **Are there any reasons I should not have an EDX study?**

If you are on blood thinning medications, such as aspirin, plavix, heparin or warfarin (Coumadin), the physician may not perform certain portions of the test. If the information from an EDX study is absolutely necessary, you may be asked to stop blood thinning medication prior to the electrodiagnostic test. If you have a pacemaker or similar device, certain portions of the test may not be able to be performed.