

# Electromyogram (EMG) and Nerve Conduction Studies: About These Tests

## What are they?

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An **electromyogram (EMG)** measures the electrical activity of your muscles when you are not using them (at rest) and when you tighten them (muscle contraction).

**Nerve conduction studies (NCS)** measure how well and how fast the nerves can send electrical signals.

EMG and nerve conduction studies are often done together. If they are done together, the nerve conduction studies are done before the EMG.

## Why are they done?

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You may need an EMG to find diseases that damage your muscles or nerves or to find out why you can't move your muscles (paralysis), why they feel weak, or why they twitch. These problems may include a herniated disc, amyotrophic lateral sclerosis (ALS), or myasthenia gravis (MG).

You may need nerve conduction studies to find damage to the nerves that connect the brain and spinal cord to the rest of the body. (This is called the peripheral nervous system.) These studies are often used to help find nerve disorders, such as carpal tunnel syndrome.

## How do you prepare for these tests?

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- Wear loose-fitting clothing. You may be given a hospital gown to wear.
- The electrodes for the test are attached to your skin. Your skin needs to be clean and free of sprays, oils, creams, and lotions.
- You may be asked to sign a consent form that says you understand the risks of the test and agree to have it done.
- Tell your doctor ALL the medicines, vitamins, supplements, and herbal remedies you take. Some may increase the risk of problems during your test. Your doctor will tell you if you should stop taking any of them before the test and how soon to do it.
- If you take a medicine that prevents blood clots, your doctor may tell you to stop taking it before your test. Or your doctor may tell you to keep taking it. (These medicines include aspirin and other blood thinners.) Make sure that you understand exactly what your doctor wants you to do.

## How are the tests done?

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You lie on a table or bed or sit in a reclining chair so your muscles are relaxed.

### For an EMG:

- Your doctor will insert a needle electrode into a muscle. This will record the electrical activity while the muscle is at rest.
- Your doctor will ask you to tighten the same muscle slowly and steadily while the electrical activity is recorded.
- Your doctor may move the electrode to a different area of the muscle or a different muscle.

### **For nerve conduction studies:**

- Your doctor will attach two types of electrodes to your skin.
  - One type of electrode is placed over a nerve and will give the nerve an electrical pulse.
  - The other type of electrode is placed over the muscle that the nerve controls. It will record how long it takes the muscle to react to the electrical pulse.

## **How does having electromyogram (EMG) and nerve conduction studies feel?**

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During an EMG test, you may feel a quick, sharp pain when the needle electrode is put into a muscle.

With nerve conduction studies, you will be able to feel the electrical pulses. The tests make some people anxious. Keep in mind that only a very low-voltage electrical current is used. And each electrical pulse is very quick. It lasts less than a second.

## **How long do they take?**

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- An EMG may take 30 to 60 minutes.
- Nerve conduction tests may take from 15 minutes to 1 hour or more. It depends on how many nerves and muscles your doctor tests.

## **What happens after these tests?**

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- After the test, you may be sore and feel a tingling in your muscles. This may last for up to 2 days.
- If any of the test areas are sore:
  - Put ice or a cold pack on the area for 10 to 20 minutes at a time. Put a thin cloth between the ice and your skin.
  - Take an over-the-counter pain medicine, such as acetaminophen (Tylenol), ibuprofen (Advil, Motrin), or naproxen (Aleve). Be safe with medicines. Read and follow all instructions on the label.
- You will probably be able to go home right away. It depends on the reason for the test.
- You can go back to your usual activities right away.

## **When should you call for help?**

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Watch closely for changes in your health, and be sure to contact your doctor if:

- Muscle pain from an EMG test gets worse or you have swelling, tenderness, or pus at any of the needle sites.
- You have any problems that you think may be from the test.
- You have any questions about the test or have not received your results.

**Follow-up care is a key part of your treatment and safety.** Be sure to make and go to all appointments, and call your doctor if you are having problems. It's also a good idea to keep a list of the medicines you

take. Ask your doctor when you can expect to have your test results.

## Where can you learn more?

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Go to <https://www.healthwise.net/patiented>

Enter **W484** in the search box to learn more about **"Electromyogram (EMG) and Nerve Conduction Studies: About These Tests"**.

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