

# Pudendal Nerve Studies

## Nerve conduction study (NCS) and electromyography (EMG) and Evoked potential test

Information and advice for patients

### Neurophysiology

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Pudendal nerve studies are carried out for conditions causing pain in the genital and anal region, known as pudendal neuralgia. This may also be carried out when pudendal nerve testing is needed as part of other nerve and muscle diseases elsewhere.

Pudendal Nerve studies usually, but not always, involve performing two tests, which will be performed one after the other on the same day in the same location. These are:

1. Nerve conduction study (NCS) and electromyography (EMG)
2. Evoked potential study.

### What is a nerve conduction study?

A nerve conduction study (NCS) is a test to check how your nerves are working; in this case the pudendal nerve. It involves using pads/rings to electrically stimulate your genital region and then recording how your nerves respond. You may feel a tingling/tapping sensation and a little twitching movement. After the NCS an electromyography (EMG) test is usually performed.

### What is an EMG?

An EMG is a test to check how your muscles are working. To test the muscles associated with the pudendal nerve, a very small needle is inserted into the muscle around the anus.

### What is an evoked potential test?

An evoked potential test records how your brain responds to light, sound or touch. When we see, hear or touch something our brain responds by making certain types of brain waves called evoked potentials.

An evoked potential test involves having small discs (electrodes) attached to your scalp using paste, which record the brain waves on a computer.

### Pudendal Nerve Evoked Potential

This records the electrical activity of the brain in response to short electrical impulses administered to your genital region. You will feel a tapping, pulsing sensation from the electrical impulses which may cause slight discomfort.

## **What are the benefits of the tests?**

The benefit of the tests is that they will show how your nerves and muscles in the area are working. This will help your doctor to diagnose any problems so that he/she can advise you on appropriate treatment if needed.

The benefit of an evoked potential test is that it will help your doctor to diagnose if there are any problems along the nerve pathway in the spinal cord and to the brain and they will then be able to advise any appropriate treatment.

## **What are the side effects and risks of tests?**

You may feel discomfort on the electrical stimulation as the perineal and genital areas are generally sensitive. Also, where the needle is inserted you may feel pain but this temporary. In very exceptional cases there may be a slight risk of bleeding and bruising, which usually resolves quickly.

If you are having an evoked potential test, there is a minor chance that you may experience some reddening of the skin or soreness where the paste is applied to your scalp, or from the tacky glue on the back of the stimulating electrodes.

## **What are the risks of not having the tests?**

If you choose not to have the NCS, EMG and/or evoked potential, this may delay or make it impossible for your doctor to confirm the diagnosis and find out what is causing your symptoms and therefore may delay treatment.

## **Are there any alternative tests?**

There is no alternative to the NCS and EMG tests that will give your doctor the information they need. The pudendal nerve evoked potential will add additional diagnostic information. However, it does not provide the same information as the NCS and EMG. Whether there are any suitable alternative tests will depend on what information your doctor needs from the test. In some cases scans (such as an MRI scan) may provide some of the information, but not always. Please discuss this with your referring doctor.

## **Preparing for the tests**

- Have a bath or shower prior to the test to ensure the genital region is clean.
- Removal of genital hair prior to the test may improve ease of performing the test, making the process quicker and more comfortable when removing the electrodes. It can also aid in testing your level of sensation, as the hair follicles are attached to different nerve endings which can confuse sensation results.
- Arrive with clean, dry hair free from grease, hair spray and lacquers etc.
- Have something to eat within 1½ hours before your appointment.
- You will be required to remove all clothes from your bottom half, including underwear, for the test.
- Continue to take any medicines as usual and bring a list of these with you to the appointment.

- Contact the department on 0121 507 4319 if you are taking blood-thinning medications such as warfarin as you may need more information.

## **During the tests**

The NC and EMG test usually takes up to 45 minutes. The pudendal nerve evoked potential test usually takes about 1 hour, but due to the technical challenges of the test you should allow additional time. We recommend you allow for the whole morning for your appointments, as duration is variable.

## **NCS**

The NCS test will be performed by a consultant neurophysiologist. This is what happens:

1. Some sticky electrodes (for females) or sometimes ring electrodes (for males) will be applied to the external genital region. Short electrical impulses will then be administered. This produces a tapping sensation and possibly some slight twitching movements for a few minutes.
2. In order to make sure the nerve is being stimulated appropriately the doctor may insert a lubricated finger into the anus to assess the twitching movement.
3. For females the opposite side will then be tested.

## **EMG**

If you also need an EMG this will be performed after the NCS and is carried out by a consultant neurophysiologist. This is what happens:

1. A very fine needle will be placed into the anal sphincter muscle.
2. You will be asked to make the muscle move (for example by squeezing or bearing down).
3. The needle will record how the muscle is working.

The needle will be in place for a few seconds and will be quickly withdrawn if you feel any discomfort.

## **Pudendal Nerve Evoked Potential**

It is important that you relax during the test so your brain waves can be recorded clearly.

1. The person doing the test will start by measuring your head. They will then rub your scalp and stick some small discs to it using sticky paste. You will be asked to remove all clothing from the waist down and to lie down on a bed and relax. You will be given a sheet to cover yourself with.
2. If you are having nerve conduction studies/EMG this test will be performed at this point. Please refer to the separate nerve conduction/EMG section of this leaflet for further information.
3. The genital region may be cleaned externally using cotton wool and warm water and then dried.
4. Some sticky pads/rings will be applied to the external genital region. Short electrical impulses will then be administered. This produces a tapping sensation and possibly some slight twitching movements for a few minutes.

5. For females the opposite side will then be tested.
6. Please note several recordings will be taken to obtain the best results.

### **What do I feel during the tests?**

You will feel a tapping, pulsing sensation from the electrical impulses in your genital region during the NCS. You may feel a brief sharp scratch from the EMG needle and sometimes the tapping sensation.

### **After the tests**

After the NCS and EMG tests you will normally continue on to have the evoked potential test. This will be performed in the same room as the NCS/EMG.

After the evoked potential test the electrodes on your head will be removed with warm water. Your hair may be sticky and damp and some of the paste may be left in your hair afterwards; this will wash out and you will probably need to wash your hair after the test.

There may be some sticky residue left from the stimulating electrodes, which will be cleaned with warm water, but you may need to wash the region on returning home.

There are no lasting effects from the electrical stimulus. You will be able resume your normal daily activities straight after the test.

### **After the test**

After the test the electrodes on your head will be removed with warm water. Your hair may be sticky and damp and some of the paste may be left in your hair afterwards; you will probably need to wash your hair after the test.

There may be some sticky residue left from the stimulating electrodes; but you may need to wash the region on returning home.

There are no lasting effects from the stimulus. You will be able to return home or to school/work and resume your normal daily activities straight after the test.

### **When will I get the results?**

After the test the data will be analysed by the consultant. The report will be sent to the doctor who referred you for the test after about 2 weeks. He/she will then arrange to discuss the results with you. The report doesn't go to your GP unless your GP has referred you directly.

### **Safeguarding**

If you are having nerve conduction studies/EMG this will be performed by a male specialist neurophysiology consultant. For the pudendal nerve evoked potential, the test will be performed by a clinical physiologist. A chaperone will be present throughout all tests. You are welcome to bring someone with you as your chaperone if you wish.

## Contact details

You will be able to ask any questions or tell us any concerns before the test is carried out but if you would like to contact us before your appointment please call us on:

Tel: 0121 507 4319

Monday – Friday, 9am – 5pm

If you are unable to keep this appointment please contact us on 0121 507 4319 so that alternative arrangements can be made and the appointment can be given to another patient waiting for the test.

Before the test we will ask you if you have read and understood this information and whether you consent to go ahead with it. We will also answer any questions you have.

## Further information

For more information about our hospitals and services please see our website [www.swbh.nhs.uk](http://www.swbh.nhs.uk) or follow us on X @SWBHnhs you can also like us on Facebook [www.facebook.com/SWBHnhs](https://www.facebook.com/SWBHnhs).

## Sources used for the information in this leaflet

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