

# Nerve conduction study (NCS) and electromyography (EMG)

Information and advice for patients

## Neurophysiology

### What is a nerve conduction study?

A nerve conduction study (NCS) is a test to check how your nerves are working. It involves pads/rings being placed on your skin which cause a tingling/tapping sensation and then recording how your nerves respond.

After the NCS you may also need an electromyography (EMG) test, but it is not always necessary.

### What is an EMG?

An EMG is a test to check how your muscles are working and involves having a needle placed into the muscle to record this.

### What are the benefits of the tests?

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

### What are the risks of tests?

There is a risk that you may feel slight tenderness where the needle was inserted after an EMG, but this only occurs very occasionally. In very exceptional cases there may be a slight risk of bleeding and bruising, which resolves quickly.

The tests may affect the older generation of pacemakers so if you have a pacemaker please contact us on 0121 507 4319 so we can discuss this with you.

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

If you choose not to have the NCS and/or EMG, this may delay your doctor finding out what is causing your symptoms and therefore a delay to treatment.

### Are there any alternative tests?

There is usually no alternative to this test that will give your doctor the information they need. In some cases scans (such as an MRI scan) may provide some of the information, but not always. An EMG is the only way to check muscle function from inside.

# Nerve conduction study (NCS) and electromyography (EMG)

Information and advice for patients

## Neurophysiology

### Preparing for the tests

- Wear clothes that allow easy access to the tops of your arms and legs otherwise you may need to change into a hospital gown.
- Do not wear too much jewellery as you may need to remove it all for the test.
- Continue to take any medicines as usual and bring a list of these with you to the appointment.
- Try and make sure your hands and feet are warm for the test by wearing gloves and socks.
- Do not apply creams or ointments on the day of the test as they can make it difficult to get a good reading.
- Contact the department on 0121 507 4319 if you have a pacemaker or are taking blood-thinning medications such as warfarin as you may need more information.

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.

### During the tests

The tests take 30 minutes - 1 ½ hours depending on the problem being investigated.

#### NCS

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

1. Pads or rings will be placed on your skin.
2. You will feel a tingling or tapping sensation from the pads/rings.
3. The response of your nerve is then recorded from a pad placed further along the nerve.
4. Different nerves are tested to compare and see which, if any, are affected.

# Nerve conduction study (NCS) and electromyography (EMG)

Information and advice for patients

## Neurophysiology

### EMG

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

1. A very fine needle will be placed into the muscle.
2. You will be asked to make the muscle move (for example by bending your arm).
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.

### What do I feel during the tests?

The tests may be slightly uncomfortable but are usually easily tolerated.

### After the tests

After the test you will be able to go back to your normal activities.

### When will I get the results?

You won't get the results straight after the test as they need to be analysed by the consultant. A full report will be sent to the doctor who referred you for the test after about 2 weeks and they will contact you to discuss the results.

### 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 – 4pm

### Further information

For more information about our hospital and services please see our website [www.swbh.nhs.uk](http://www.swbh.nhs.uk), follow us on Twitter @SWBHnhs and like us on Facebook [www.facebook.com/SWBHnhs](http://www.facebook.com/SWBHnhs).

# Nerve conduction study (NCS) and electromyography (EMG)

Information and advice for patients

## Neurophysiology

### Sources used for the information in this leaflet

- Boon, A. J., Gertken, J. T., Et Al., (2012). Hematoma risk after needle electromyography. *Muscle & nerve*, 45(1), 9-12.
- American Association of Neuromuscular & Electrodiagnostic Medicine (AANEM) (2014) *Risks in electrodiagnostic medicine*. Available at: <https://www.aanem.org/getmedia/653e87b3-f930-4951-9bd8-dde95c291ce2/risksinEDX.pdf> (Accessed: 22 August 2020).
- Kane, N. M., & Oware, A. (2012). Nerve conduction and electromyography studies. *Journal of neurology*, 259(7), 1502-1508.
- LaBan, M. M., Petty, D., Hauser, A. M., & Taylor, R. S. (1988). Peripheral nerve conduction stimulation: its effect on cardiac pacemakers. *Archives of physical medicine and rehabilitation*, 69(5), 358.

If you would like to suggest any amendments or improvements to this leaflet please contact SWB Library Services on ext 3587 or email [swbh.library@nhs.net](mailto:swbh.library@nhs.net).



A Teaching Trust of The University of Birmingham  
Incorporating City, Sandwell and Rowley Regis Hospitals  
© Sandwell and West Birmingham Hospitals NHS Trust

ML5573

Issue Date November 2020

Review Date: November 2023