

# Nerve Conduction Studies (NCS) & Electromyography (EMG)

**This leaflet explains about Nerve Conduction Studies (NCS) & Electromyogram (EMG), including the benefits, risks and any alternatives and what to expect when you come to St George's Hospital to have this procedure. If you have any further questions or concerns, please speak to the staff member in charge of your care.**

## **What are Nerve Conduction Studies (NCS) & Electromyography (EMG)?**

These are routine diagnostic tests performed in specialist hospitals. They are used to find out how well your nerves and muscles are functioning and to help determine if any weakness or other symptoms are caused by nerve damage or muscle disease.

NCS tests the nerves in your hands, arms or legs (and occasionally elsewhere in the body).

EMG records the electrical activity occurring naturally within your muscles.

You may need just one of these tests or both, depending on the reason for your referral and the findings of the initial test. They are known collectively as an EMG/NCS study.

## **Are there any alternatives?**

There are no other tests available to find out this information.

## **What should I do before the test?**

- Before you come for the test you can eat and drink as normal.

- Please continue to take your medication as usual. Please bring a list of all your medications to your appointment.
- Please wear loose fitting clothing so that your limbs, back and shoulders can be accessed easily. Please remove any jewellery (a wedding ring can still be worn).
- Ensure that your skin is clean and dry and avoid the use of moisturisers or oils as they can interfere with obtaining a good recording.
- Please also ensure that your hands and feet are kept warm beforehand so do wear gloves and thick socks if necessary.

**NOTE:**

**Please contact us in advance if you have a cardiac pacemaker or implanted cardiac defibrillator (ICD) as we may need to contact our cardiology team beforehand.**

**If you are taking blood-thinning tablets such as Warfarin, Rivaroxaban or Apixaban we will need to know your latest blood results (INR values should be <3).**

**If you are taking Pyridostigmine (Mestinon®), Rivaroxaban or Apixaban this should be stopped 24 hours before your test if this is safe to do so (please take advice from your doctor).**

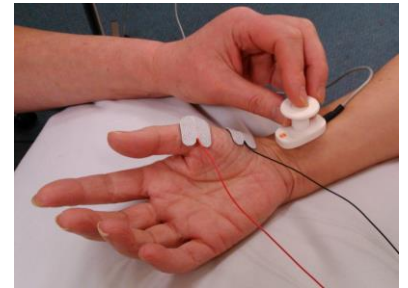
**If you have any queries related to your medication, please ask the doctor who referred you.**

**What happens during the test?**

Your test will be carried out by either a Consultant Neurophysiologist or Clinical Physiologist. They will explain the investigation and obtain your consent for the procedure. They will also answer any questions you may have and obtain a clinical history from you.

## **NCS**

Small pads will be attached to the appropriate area being investigated as per the picture opposite. A small electrical stimulus will be applied, which will stimulate the nerve. You may feel a strange tingling or tapping sensation and some twitching of your hand or foot. This is quite normal.



The stimulation can be uncomfortable but should not be painful.

## **EMG**

This involves inserting a very fine needle similar to an acupuncture needle into the appropriate muscle. It will feel like a short pinprick and should not be too uncomfortable. You will be asked to make some movements so that the muscle activity can be recorded while the muscle is in use but also while the muscle is at rest.

## **Magnetic Stimulation**

An additional test performed on a small number of patients is magnetic stimulation. The magnetic stimulation involves a coil being held over the part of the body to be stimulated. The stimulation is performed by a series of pulses which provide a response like the NCS described above. The magnetic stimulation cannot be carried out if you have pacemakers implanted or if you have any fragments of metal in the eye or elsewhere.

### **How long will the test take?**

Depending on the complexity of the problem, the test usually takes 45 minutes. Whilst we try to keep to appointment times, very occasionally there can be a delay.

### **Are there any risks?**

Both EMG and NCS may feel slightly uncomfortable but should not be painful. With the EMG test, the needle may cause a small amount of bleeding and there is a small chance of localised bruising.

Please contact us in advance if you have been fitted with a cardiac pacemaker or implanted cardiac defibrillator (ICD). It is still safe to have the test but please bring details of your pacemaker with you to the appointment.

### **After the test**

Once the investigation has been completed, you can return home / to work / to school and carry on your day as normal.

### **How long until I get the results?**

The results of the investigation will take two weeks and a full report will then be sent to the referring clinician. You will NOT get the results on the day of your appointment.

### **Contact us**

If you have any further questions or would like some more information regarding these tests then please contact the Neurophysiology Department at St George's Hospital on 020 8725 4624.

**If you are running late or cannot make it in to hospital for your test, please contact us as soon as you can.**

### **Main points to remember**

- Please continue to take your current medication. It would be helpful if you could bring a list of all the medications you are currently taking.
- If you are taking blood-thinning tablets such as Warfarin you should tell the Consultant Neurophysiologist before the test starts.
- Please contact us in advance if you have a cardiac pacemaker or implanted cardiac defibrillator (ICD) as we may need to contact our cardiology team beforehand.

### **Disclaimer**

Please note this is a generic St George's Hospital information sheet. If you have specific questions about how this relates to you, please ask

your doctor. Please note this information may not necessarily reflect treatment at other hospitals.

## Reference Sources

Patient Information Leaflets/ Websites:

Guy's & St Thomas / The Walton Centre, Liverpool / St Peter's Hospital, Chertsey

**For more information leaflets on conditions, procedures, treatments and services offered at our hospitals, please visit [www.stgeorges.nhs.uk](http://www.stgeorges.nhs.uk)**

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## Additional services

### Patient Advice and Liaison Service (PALS)

PALS can offer you on-the-spot advice and information when you have comments or concerns about our services or the care you have received. You can visit the PALS office between 9.30am and 4.30pm, Monday to Friday in the main corridor between Grosvenor and Lanesborough wings (near the lift foyer).

**Tel:** 020 8725 2453 **Email:** [pals@stgeorges.nhs.uk](mailto:pals@stgeorges.nhs.uk)

### NHS Choices

NHS Choices provides online information and guidance on all aspects of health and healthcare, to help you make decisions about your health.

**Web:** [www.nhs.uk](http://www.nhs.uk)

### NHS 111

You can call 111 when you need medical help fast but it's not a 999 emergency. NHS 111 is available 24 hours a day, 365 days a year. Calls are free from landlines and mobile phones. **Tel:** 111

### AccessAble

You can download accessibility guides for all our services by searching 'St George's Hospital' on the AccessAble website ([www.accessable.co.uk](http://www.accessable.co.uk)). The guides are designed to ensure everyone

– including those with accessibility needs – can access our hospital and community sites with confidence.



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