

Sleep electroencephalogram (sleep EEG): information for families

Electroencephalogram (EEG) is a test that looks at the function of the brain. The brain works by a series of nerve impulses, which cause electrical signals. These signals (also called brainwaves) can be recorded through the scalp. This information sheet from Great Ormond Street Hospital (GOSH) explains the procedure for a Sleep EEG test and what to expect when your child has one. An Easy Read information sheet is included for your child.

A digital video recording will also be made during the test. More information about how we use video recordings is available in the accompanying information sheet.

Having a sleep EEG means your child will be encouraged to sleep for a period of time during the EEG test. There are two methods to facilitate sleep that we recommend at GOSH – you can opt to sleep deprive your child or to give them a medicine called melatonin. More information about these methods can be found below.

How is a sleep EEG used?

Recording the EEG during drowsiness and sleep can be useful to identify brain activity which may not be present while your child is awake. It can be carried out on patients of all ages and abilities, making it a good way to get an overall view of the function of the brain. It is helpful as part of general investigations and more specific problems, such as blackouts and seizures.

When you receive your appointment letter

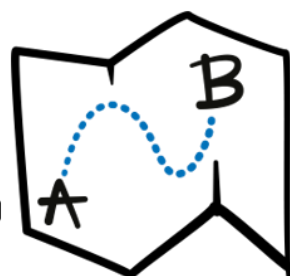
If you are unable to keep this appointment, please inform the department as soon as possible beforehand. Sometimes, we can offer the appointment to another child on the waiting list.

As so many children and young people need to use our services, we have had to introduce a policy where if a child cancels or does not attend two appointments in a row, we will inform their GOSH consultant and close their referral.

The person bringing your child to the sleep EEG should have 'Parental Responsibility' for them. Parental Responsibility refers to the individual who has legal rights, responsibilities, duties, power and authority to make decisions for a child. If the person bringing your child does not have Parental Responsibility, we may have to cancel the test.

Getting ready for the test

It is helpful if you make sure that your child's hair is clean before the test, with no mousse, gel, oil or hairspray. If your child is taking medicines, you should continue to give them as normal.



If you have other children, it is better if they could be looked after at home or by another adult if they come with you. We are unable to supervise them during the test.

As we need your child to sleep during the test, we suggest two methods of facilitating sleep:

Sleep deprivation: We ask you to keep your child up past their bedtime for two hours on the evening before the test and then wake them up two hours earlier on the day of the test. It is also important that you do not let your child fall asleep on the way to the hospital.

Melatonin: This is a naturally occurring hormone found in the brain and is thought to be important in the production of sleep. We use a manmade version of the hormone that comes as a liquid, tablet or capsule. There are no known risks associated. It is also important that you do not let your child fall asleep on the way to the hospital.

The day of the test

Your child will have a Sleep EEG in the Department of Clinical Neurophysiology which is on Level 4, Southwood Building.

Once you are in the EEG department, check in with reception and soon there will be a Clinical Physiologist (CP) present who will confirm your and your child's details and take you to the recording room.

They will explain in more detail how the test will take place, discussing any worries you may have. They will also ask you to give permission for any stimulus (activation procedures) used, such as flashing lights or over-breathing, video recording and sleep deprivation/melatonin by signing a consent form.

Students and trainees

As we are a teaching hospital, on occasion you might be asked if you would agree to a trainee to perform the test under direct or indirect supervision. Sometimes other healthcare

professionals or students might ask to observe the test as well. Refusing this will not affect your child's treatment.

What does the test involve?

The CP will attach a number of small silver discs (electrodes) to certain points on your child's head using a soft past. Sometimes, they will measure the head beforehand and mark the points with a soft pencil before attaching the electrodes. Extra electrodes will also be applied on the shoulders to record your child's heart rate and muscle activity. Sometimes, additional electrodes may be applied to other areas in order to get more information.

As each electrode is attached, the CP will clean the area of the scalp with a cotton bud and some cream. This does not hurt but some children do not like it. This should take around 20 to 30 minutes. While all the electrodes are being applied, your child can sit on a chair, the bed or your lap, and can play with toys – we have many toys in the department but feel free to bring your child's own favourite book, toy or comforter.

The electrodes are attached by wires to a 'headbox' and then to the recording machine. The CP will record your child's brainwaves on to the computer and monitor them on a screen – they look like wiggly lines. Your child will not feel anything while the sleep EEG is being recorded. At the same time, the digital video recording of your child will be made – this is helpful for the doctor to observe any symptoms, changes in behaviour or movements that could be associated with seizure activity on the recording.

The test will hold two parts:

Wakefulness: We will record activity for 20 to 30 minutes while your child is awake. During this part of the test, the CP may ask your child to lie or sit quietly if possible or continue to play.

If your child is old enough, s/he may also ask them to do some tasks, such as close their eyes for short periods of time, take deep breaths by



blowing on a windmill (over-breathing) or look at flashing lights (intermittent photic stimulation).

Your child will be continuously monitored throughout the test and these stimulus will be stopped if necessary.

Sleep: Your child will be encouraged to sleep by turning the room lights off, lying on the bed or on your lap. Once they fall asleep, 20 to 30 minutes will be recorded. Your child will be woken up after this. If you opt for melatonin, this will be given to your child at the start of the test. This is usually administered as a liquid with the help of an oral syringe.

How long does the test last?

The test takes between 90 and 120 minutes, depending on the information required. There are plenty of toys to play with and another member of staff to help if needed. A bottle or a drink might be helpful for younger children.

Are there any risks?

No. The sleep EEG test is painless and there are no after effects. Melatonin has been reported to provoke some sleepiness, but this will not last for long. Your child can go back to school or nursery after the test if you wish.

Further information and support

If you require more information about the test or have any questions, please contact the Department of Clinical Neurophysiology on 020 7813 8471, Monday to Friday between 9am and 5pm.

CBeebies "Get Well Soon Hospital" series has an episode about having an EEG – Series 2, Episode 5 at www.bbc.co.uk/iplayer/episode/b09204fx/get-well-soon-hospital-series-2-5-eeeg

How to find us

Come in through the Main Entrance and walk through Main Reception. At the glass doors, turn right and then first on the left (you are entering Southwood Building). Walk through the corridor until you find the stairs and the lifts. Come up to Level 4 and walk through the double doors and then down the corridor until you find another double doors. EEG Reception is on your right.

What happens if my child has a seizure during the test?

If your child has a seizure during the test, their safety will be our first priority and we will take care of them, making sure your child is well enough to leave.

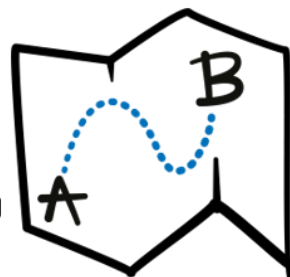
After the test

The CP will remove the electrodes from your child's head. This will not hurt as the paste stays soft and is easy to remove. They will also clean your child's hair but it may feel a bit sticky to the touch until you wash it. Once all the electrodes have been removed, you will be free to go if no other tests or appointments have been planned.

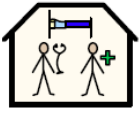
If your child took melatonin to help them sleep, it is unlikely that this will cause sleepiness on the way home from hospital. If you are at all concerned, please tell us so we can arrange for one of our doctors to check that your child is well before going home.

Getting the results

You will not be given the results during the appointment. A detailed report of the test results will be written and sent to your child's consultant, in time for their next appointment.



Having a sleep EEG



You are coming to hospital for a Sleep EEG test. An EEG records your brain waves. This helps the doctors work out how to look after you.



You might need to take some medicine to make you sleepy.



You will have this test while you are awake and then asleep.



We will clean small areas of your head then fix some silver discs with stickers and paste. This will not hurt.



We will join the stickers to the EEG machine with wires. This will not hurt.



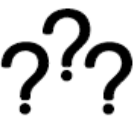
We will also make a video of you. This will show us if you move around in bed. When you have been sleeping for about 30 minutes, we will wake you up.



We will take off the stickers and wipe your head again.



If you are not having any other tests, you can go home.



Please ask us if you have any questions.

