

## Information about E.E.G.

### What does EEG stand for?

EEG stands for **E**lectro **E**ncephalo **G**ram.

- This is Greek: electro = electricity, encephalo = brain, gram = recording.
- The EEG is a test that records the small electrical signals that the brain produces all the time.
- These patterns are digitally recorded on a special computer.

### Who does it?

Neurophysiology technicians who are specially trained in this field.

### Why do an EEG?

- An EEG shows the electrical activity in the brain of your child (brain waves).
- The EEG is done to look for abnormalities of these brain waves which can sometimes be seen between seizures in children with epilepsy.
- Some of these abnormalities are seen only in sleep, others are seen in the awake and drowsy states. It is therefore preferable to record the brainwaves in your child when they are both awake and asleep.
- The EEG records brain waves for 20 to 45 minutes, which is only a small amount of time. Abnormalities do not occur all the time but things can be done to increase the chance we will pick up abnormalities during the recording time. These are called activation procedures and include sleep deprivation, deep breathing (hyperventilation), flashing lights (photic stimulation) and opening and closing eyes.
- EEGs are routinely videoed. This helps with the interpretation of the EEG. Once the EEG has been reported most of the videos are not saved unless there has been an event of interest recorded.

### How is the EEG performed?

- It is painless and harmless.
- The EEG will take up to 1hour 30 minutes.

#### Sleep-deprived EEG

In some areas EEGs are routinely sleep deprived (your child has less sleep than usual). The EEG department will let you know if they would like the EEG to be sleep deprived and give you information as to how to sleep deprive your child.

Sleep deprivation does two things:

1. It increases the likelihood that your child will sleep during the EEG.
2. It increases the likelihood that if there are any abnormalities they will be seen during the recording.

#### At home preparing for the EEG

- Your child can have a meal and medicine as usual.
- Please bring a bottle for a baby and if travelling a distance, a light snack and drink for an older child is a good idea.
- If the child has a special toy, or book or cuddly please bring this too. These will help reassure and settle your child.
- Please wash your child's hair the day before the test.

*Illustration of abnormal brain activity on an EEG*





### At the hospital before the EEG

- Please allow plenty of time to find the department so that you arrive at least 5 minutes before your appointment time.
- The technologist will ask about medications, the reason your child has been sent for the test and any other relevant information which will help the doctor report the EEG.

### During the EEG Recording

- Parents / guardian / caregiver will be able to accompany their child into the recording room and will be able to help the technologist in getting their child's full co-operation. It is best that no more than 2 adults accompany your child and generally it is best if **other children do NOT come** as they can distract your child having the test.
- Babies /toddlers will be able to sit on their parents lap and be fed. Older children will be asked to lie on a bed.
- Please inform the technologist if your child has any allergies to products applied to the skin or any skin condition.
- The child's head will be measured and the electrode positions marked with a special crayon. Then approximately 24 small silver discs are attached to the head with either paste or tape. These are placed in various positions on the head, forehead and earlobes and one on each shoulder to record the heart. Some EEG departments use a rubber cap (like a net) or some gel is used to keep the electrodes in place
- It will take approximately 15 - 20 minutes to apply the electrodes and it is very important that the child remains fairly still during the whole process as well as during the recording.
- During the electrode placement and the recording you may read to your child.
- During the recording your child will be asked to keep still and not talk. They will also be asked to open and close their eyes for short periods. This can be practised at home. It is important to lie still and be in a relaxed state.
- The technologist will also ask the child to breathe in and out deeply and quickly for 3-4 minutes (hyperventilate). This may be done twice. This deep breathing **is very important** but is quite difficult for a child so plenty of encouragement is needed. You may need to do it with your child to keep them going. Breathing deeply makes you feel dizzy and light headed. This dizzy feeling means that it is being performed well. It may be an idea to practise a little at home for 20 seconds at a time.
- After the deep breathing your child may become sleepy. This is good as the lights will be dimmed and your child will be encouraged to sleep at this time.
- Finally, after a short sleep, a special light is flashed in front of the child and they will be asked to look at the light while opening and closing their eyes when asked.

### After the EEG recording

- The electrodes are removed as carefully as possible using a cold liquid, which does not smell very nice but evaporates really quickly.
- Your child will need another hair wash on returning home.
- Here is a link to a Youtube video for kids which explains what happens in an EEG:  
<https://www.youtube.com/watch?v=TNifQCrluo4>

### Will we get the result straight away?

The recording needs to be examined by a neurologist. A copy of the report will be sent to the doctor who requested the EEG as soon as possible. This should occur within several weeks.