

## EEG examination, children aged 0 to 16 years old

You can find illustrated EEG examination instructions comprehensible for children (in Finnish) at <https://hoito-ohjeet.fi> using the search term "Retki aivojen maailmaan".

### Purpose of the Examination

The electrical activity of the cortex is recorded in an EEG (electroencephalography) examination. EEG is used to diagnose central nervous system diseases, such as epilepsy, other seizure symptoms, or infectious diseases. It is important to record both sleep and awake states in a child's EEG examination. Because of this, the child is usually kept partly awake during the night before the examination day.

### Preparing for the Examination

- **To ensure that the child sleeps during the examination, he/she should be kept awake** according to the following instructions:

0 to 1 year olds: the child should be awake for one feeding period

1 to 2 year olds: wake up at 5 am, no naps before the EEG examination

2 to 7 year olds: allowed to sleep between 11 pm and 4 am

8 to 16 year olds: allowed to sleep between 11 pm and 2 am

**The child should be kept awake also on the way to the examination**, for example, in a car.

- The child should have clean and dry hair when coming to the examination.
- It is recommended to have breakfast before the examination. Coffee, tea, cola, energy drinks and other refreshing beverages are allowed in the evening but not after midnight.
- Regularly taken medicine can be taken normally, unless the attending physician has instructed otherwise.
- Small children might require items necessary to fall asleep, for example, a milk bottle, a dummy, a sleeping rag or a plush toy.

### Examination Process

The examination does not cause pain and it lasts for about an hour and a half. The child is asleep for a part of the examination. A nurse cleans the child's head and face with a moist towel

at the beginning of the study. The child wears an elastic measurement cap, with measurement sensors attached to it. In addition, measurement labels are attached on the surface of the skin on the chest and the face. Water-soluble conductor paste is applied between the sensors and skin. The sensors and the cap are attached to an EEG device.

The electrical activity of the brain, eye movements, heart rate, and the muscle tension in jaw muscles, are recorded in the examination. The examination is also recorded on video.

The child might be presented with bright lights blinking at various frequencies during the recording. In addition child is normally asked to breathe deep briefly. The child should be kept awake during the beginning of the examination, but he/she is allowed to sleep later on.

### **After the Examination**

The conductor paste is washed from hair and face with a moist towel. Possible residue from the conductor paste will be washed away when you next time wash the child's hair.

A clinical neurophysiologist will analyse the examination and write a report. The report is directed to the clinic that ordered the examination. They will inform you of the examination results and any possible follow-ups.