Let's Talk About...

# EEG (Electroencephalogram)

An EEG, or electroencephalogram (eh-leck-tro-en-SEF-uh-low-gram) is a recording of the electrical activity of the brain (brainwaves). Many children with seizures or epilepsy have different brainwave patterns. A doctor can look at the EEG and get information about how the brain is working. This can help diagnose your child's health problem or help select the best treatment.

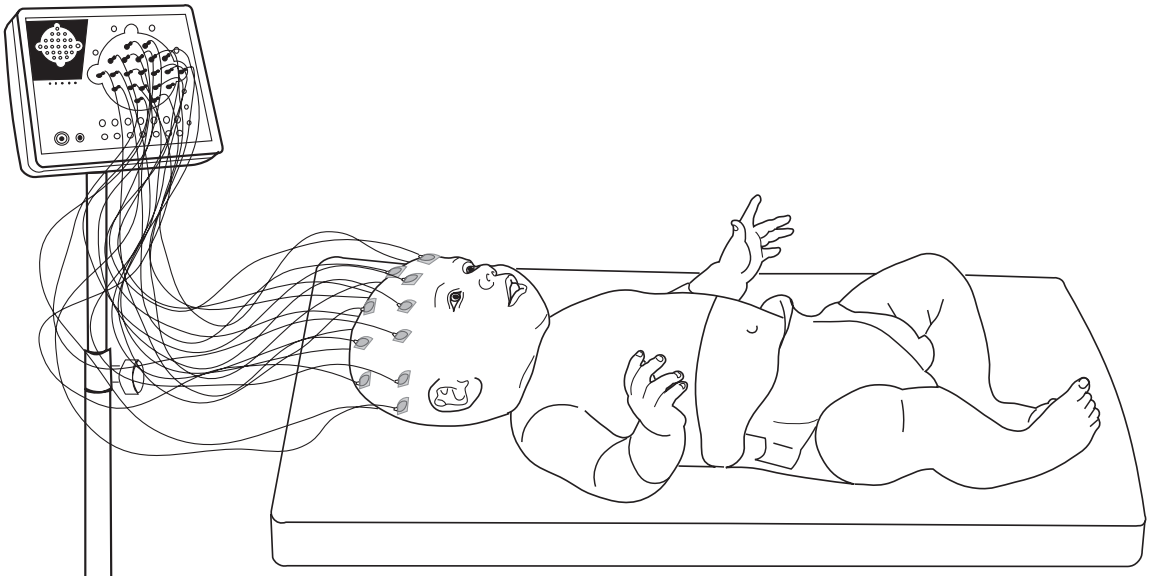
The brain gets information from all parts of the body. For example, the brain gets information from the eyes about light, from the ears about sound, and from the skin about touch. The brain also sends information to all parts of the body (for example, to control breathing, control how fast the heart beats, coordinate muscles). This information back and forth from the brain to the body is sent with small electrical messages. The brain's electrical messages also control thinking and memory. The EEG helps the doctor look at these messages and see if they are working well.

## Who does the EEG?

A skilled EEG technician will perform your child's EEG. Each EEG technician knows the machine very well, and is concerned about your child. A doctor, called a neurologist, will look at the EEG and let your child's doctor know what the EEG shows.

## How does an EEG work?

The EEG technician will put small metal tabs (electrodes) on your child's head. These do not hurt and do not give a shock, but just sit on the skin. These electrodes sense the brain's electrical messages and the EEG machine records these electrical messages as a little squiggly lines on a computer screen. This is stored on the computer so the doctor can look at it later.



## How do I prepare my child for the EEG?

- Give your child all the medicine that his doctor ordered, unless the doctor tells you to not to.
- Shampoo your child's hair before the EEG. You can do this the night before the EEG. Do not use conditioners or other hair products.
- Do not give your child any sugar or caffeine the day of the test.
- For best results, your child should fall asleep for part of the test. So, it is best if he is sleepy. Have your child sleep less than normal the night before the test. Please keep him awake on the way to the test and in the waiting room.

## How can I help my child to be sleepy for the EEG test?

### Infants

The EEG lab will try to schedule your baby during a naptime or a time you think he will sleep. Please bring a diaper, bottle, pacifier, familiar blanket, pillow, or anything that may help your child relax to sleep. Try to keep him awake for at least 1-2 hours before the test.

### Toddlers

The EEG lab will try to schedule your child during a naptime. If your child has a familiar stuffed animal, toy, or blanket, bring it to the EEG test. Keep your child awake two hours past his usual bedtime the night before, and wake him up two hours earlier than normal. Try your best to keep your child awake before the EEG.

### Younger children (5-9 years)

Keep your child up well past bedtime the night before the EEG. Make sure he has no more than 6 hours of sleep before 4:00 AM. Wake your child up at 4:00 am and keep him awake and active until the EEG.

### Older children (10 and over)

Keep your child up well past bedtime the night before and wake him by 4:00 AM. Keep your child awake and active until the EEG. It is best if your child sleeps less than 5 hours the night before the EEG.

## Will my child get medicine during the EEG?

Your child may need medicine to help him sleep during the EEG (sedation). This might be needed for a good EEG test. If your child has medicine to help him sleep, he will need special scheduling and preparation. If the doctor thinks your child needs to have medicine to sleep during the EEG, the hospital will call and tell you what to do. It will take longer to get a clinic visit for this type of EEG.

## How will the technician prepare my child for the EEG?

The EEG technician will put about 23 small electrodes (metal tabs or discs) on your child's head. This most often takes 15-30 minutes.

1. The technician will clean the places on your child's head where the electrodes will be. This will be done with a cotton-tip swab and special cream. The technician does this so the electrodes can notice the brain electrical activity.

2. Next, the technician will put the electrodes on your child's head.

   **For Routine Outpatient Studies** (most often less than an hour or two): A little bit of conductive cream is put on each electrode (the small metal discs). The technician parts the hair and places the electrode on the scalp. Then the technician puts a small piece of tape on the electrode to hold it in place. Then the technician will wrap your child's head with gauze to keep the electrodes in place during the EEG.

   **For long-term or some EEGs in the hospital** (many hours or several days): The technician will part the hair, and put each disc on a prepared area with a small amount of cream under each disc. The technician then puts a small amount of glue on a square of gauze around each disk and dries it with a small air hose. Note: The glue on the disc doesn't smell good, something like fingernail polish, but is not harmful. Then the technician will wrap your

child's head with gauze to keep the electrodes in place during the EEG.

**Note:** When the EEG technician puts the electrodes on your child's head, it does not hurt, but it frightens some children. Your child will need to stay still while the EEG technician puts the electrodes on his head. This can be hard for small children. There are Child Life Specialists at the hospital who can play with and reassure your child while the technician puts the electrodes on his head. You can help and stay with your child while the electrodes are put in place.

## What happens during the routine EEG?

The routine EEG takes about 1 to 1½ hours. Your child can fall asleep during part of the EEG.

During part of the EEG, the technician may ask your child to do some simple tasks like:

- Open and close his eyes.
- Repeat simple words.
- Breathe fast and deeply for 3-4 minutes. This is most often done by blowing on a pinwheel.
- The technician will put a flashing light few inches away from your child's head and it will flash faster and slower.
- Other simple instructions and questions.

The EEG measures small electrical signals from the brain. There are no electric shocks or other electricity sent to your child's body. It doesn't hurt and there are no risks to your child from the EEG. There is a chance your child will have a seizure during the EEG. If he does have a seizure, it will show on the EEG. This will help the doctor diagnose and treat your child. The EEG technicians and nurses are trained to help children who have seizures. All of the equipment needed to help your child if he has a seizure is kept very close by.

## What happens after the EEG?

After the EEG, the technician takes the discs off. There will be small amounts of glue or paste left in your child's hair. The technician will gently clean the electrode sites with a warm wet washcloth. You can clean any leftover paste with soap and water, and you may need to comb your child's hair. If the technician used glue on the electrodes, the technician will remove most of it. If there is any glue left when you get home, brush your child's hair and let the glue flake out. The glue will turn white and will look like dandruff or cradle cap. You can also remove glue by brushing your child's hair completely with a small amount of baby oil or conditioner before shampooing. You may need to repeat this more than once to get all the glue out. For routine EEGs, your child's doctor can tell you the EEG results in a few days. If the EEG was a long one that took several days, it may take several weeks for you to get the results.

## Where do I go the day of the EEG?

- **For routine EEGs:** On the day of the EEG, go to Primary Children's Hospital on the first floor, outpatient Clinic B (first floor, south end of hospital).

  If someone from the hospital called you before the EEG to preregister, arrive at Clinic B at your child's EEG appointment time.

  If you no one called you from the hospital to preregister before the EEG, arrive at Clinic B about 20 minutes before your child's appointment time.

- **For long-term monitoring EEGs:** Go to Inpatient Admitting at the main entrance found at the north end of the hospital 30 minutes before your child's appointment. If you cannot keep your child's appointment or have any questions, call the EEG department at 801.662.1755.

- **Note:** If there is an emergency EEG, the technician will have to take care of the emergency first. Sometimes, an appointment is delayed or has to be rescheduled. The EEG staff will let you know if there is a delay, and will reschedule your child's EEG, at your convenience.

## What if I have other questions?

Call your doctor, or call the Primary Children's EEG department at 801.662.1755.

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