



KAISER PERMANENTE®

Electroencephalogram (or EEG)

An electroencephalogram, or EEG, is a recording of electrical activity generated by the brain cells. It is not painful. An EEG is most commonly done to look for seizures, such as those that occur from Epilepsy. Specifically, seizures are electrical abnormalities in the brain cells.

Ideally, the EEG is conducted during three different stages of consciousness: while awake, while drowsy, and while asleep.

The waking EEG is recorded with special notation of when the patient has the eyes open versus when the eyes are closed. For patients old enough to cooperate, an attempt is also made to have the patients breathe rapidly for a minimum of three minutes. And, at some point during the waking recording, flashing lights will be placed near the patient's face. The rate at which the lights flash varies from 3 to 34 times per second.

In the best of circumstances, the patient is also recorded during the transition from wakefulness to drowsiness and then from drowsiness into sleep. The sleep recording is generally recorded long enough to see the patient into a deep phase of sleep.

The electrical activity of the brain is picked up with the help of small metallic discs attached to the scalp. Because poorly placed electrodes can lead to inaccuracies in the recording of the electrical activity, the scalp must be cleaned well at the time when the technician is putting the electrodes into place. Part of this cleaning process includes applying a special agent to the scalp using a Q-tip. A gel is then applied in the area where the electrode disc will be placed to hold the electrode in place. Once the scalp is measured and the location of the electrodes is determined, the electrode wires are then connected to the recording machine and the machine is adjusted to make sure that all of the wires are operating properly.

To make it possible to record patients in a drowsy and sleeping state, it is often required that patients be sleep-deprived. This means that patients are only allowed to sleep a maximum of four to five hours during the night prior to the EEG recording. This degree of sleep deprivation is usually not required for patients under the age of six to eight months old; their EEG recording can be arranged during a normal nap time.

And speaking of infants, it is very important that the parents are aware of what to expect if their child is tested. Many infants will cry when the electrodes are put in place. This does not mean that the child is experiencing any pain, however. You might consider bringing a favorite small toy or food item to help distract the child during this time.

When the EEG is finished, the technician will remove all electrodes from the scalp. Be aware that there will be some residual paste in the scalp afterwards, so you'll need to shampoo the hair

when you get home.

The EEG technician will not be ready to give a reading of the EEG to the patient or family upon completion of the test. The EEG test is first reviewed by a neurologist and then sent to the referring primary care physician. You will generally hear the results of the EEG within a week after completion.



For additional health information you can trust:

- Log on to our members-only Web site at www.kaiserpermanente.org/california, then click the "Kaiser Permanente Members Only" button
- Visit your local Kaiser Permanente Health Education Center
- Check your Kaiser Permanente Healthwise Handbook
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To get your free Handbook and Healthphone Directory, call 1-800-464-4000.

The information presented here is not intended to diagnose health problems or to take the place of professional medical care. If you have persistent health problems or if you have additional questions, please consult with your doctor or other health care professional.

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REGIONAL HEALTH EDUCATION