

# NIH Clinical Center Patient Education Materials

## Evoked Potentials (EP) Test

An evoked potentials (EP) test measures how certain parts of the brain respond to being stimulated with electrical currents. The brain makes natural waves that can be measured. The EP test studies the waves made by the parts of the brain controlling your sight, your hearing, and your somatosensory nerves (nerves outside the brain and spinal cord). Analyzing these waves can help your care team diagnose you.

An EP test is similar to an EEG, because electrodes will be placed on your scalp to record brain waves. For an EP test, however, electrodes will be placed only over certain areas. Your care team might place other electrodes on your body to track signals as they travel to your brain. Sometimes, individuals receive sedation to improve the quality of test results.

### Preparation

- You may wash your hair, but do not use hairsprays or oily scalp products 24 hours before the test. If possible, eat a meal or light snack within 4 hours of your EP test. Avoid caffeinated drinks.
- It is easier to do hearing and somatosensory EP tests when you are relaxed and drowsy, so your doctor may ask you to stay awake for all or part of the night before these types of EP tests.
- You must be fully alert and attentive for the visual EP test. If you are scheduled for a visual EP, try to get plenty of rest the night before.
- Your technician will ask you to go to the EEG laboratory at a specific time. Once there, you may need to wait before the test begins.
- Your technician will either measure your scalp and mark the spots where small discs will be placed or fit you with a special cap containing discs. For the somatosensory EP test, your technician will place other types of discs on your neck, shoulders, back, and legs to track signals to the brain.
- Scalp sites will be rubbed with a mild, scratchy cleanser that may cause mild and temporary discomfort.
- Your technician will attach discs to your body with a cream or gel. Your technician may secure the discs to your skin with an adhesive. Please inform your technician if you have allergies to adhesives.

### Procedure

- You will lie on a bed or in a comfortable chair to ensure a relaxed recording. During the visual EP test, you will look at a checkerboard pattern on a television screen. During the auditory EP test, you will hear clicking noises, which your technician will send through headphones that you will wear during the test. The somatosensory EP test is done by stimulating a nerve with a mild, harmless electric pulse. Each eye, ear, or nerve will be tested separately.
- From time to time, the technician may ask you to open and close your eyes and to do a breathing exercise. A light may be flashed over your eyes.
- The EP lasts 1 to 2 hours.

## Risks

- Looking at the checkerboard pattern during the visual EP test carries a very small risk of provoking a seizure. The EP test will be stopped immediately if your technician sees any hint of a seizure.
- The auditory EP test has no known risks.
- During the somatosensory EP test, you will feel tingling in the areas that are stimulated. The amount of electrical current used is very small and is not harmful.

## After the procedure

Your technician will remove the gel with water. The adhesive will be removed with a special cleanser. Shampooing will rid your hair of any other material. Some patients are mildly sensitive to the gel or cream or get irritation from the rubbing of their scalp. There are no other side effects or precautions needed after the test. If you have questions about the procedure, please ask. Your nurse and doctor are ready to assist you at all times.

## Special instructions:

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10/2015 7SWN/OP 5 Nursing  
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