

# Evoked potential tests

Information and advice for patients

## *Neurophysiology*

### **What is an evoked potential test?**

An evoked potential test records how your brain responds to light, sound or touch. When we see, hear or touch something our brain responds by making certain types of brain waves called evoked potentials.

An evoked potential test involves having small discs (electrodes) attached to your scalp using paste, which record the brain waves on a computer.

There are 3 types of evoked potential tests and your appointment letter will tell you which one(s) you are having:

1. **Visual evoked potential (VEP)** - This records the nerve pathway between your eye and brain and involves staring at an image on a screen.
2. **Brainstem Auditory Evoked Potential (BAEP)** - This records the electrical activity of the brain in response to clicks from a set of headphones placed over your ears.
3. **Sensory Evoked Potential (SEP)** - This records the electrical activity of the brain in response to short electrical impulses administered to a nerve in your arm or leg. You will feel a tapping, pulsing sensation from the electrical impulses which may cause slight discomfort.

### **What are the benefits of an evoked potential test?**

The benefit of an evoked potential test is that it will help your doctor to diagnose if there are any problems with how your brain is responding and he/she will then be able to advise any appropriate treatment.

### **What are the risks of an evoked potential test?**

There is a minor chance that you may experience some reddening of the skin or soreness where the paste is applied.

### **Are there any alternative tests?**

Whether there are any suitable alternative tests will depend on what information your doctor needs from the test. In some cases scan such as an MRI can give similar information, but not always.

### **What are the risks of not having the test?**

If you don't have the evoked potential test there may be a delay in getting a diagnosis.

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### **Preparing for the test**

- Have something to eat within 1½ hours before your appointment.
- Arrive with clean, dry hair free from grease, hair spray and lacquers etc.
- Continue to take any medicines as usual and bring a list of these with you to the appointment.
- Bring glasses or contact lenses with you if you wear them and are having a visual evoked potential.
- Wear comfortable, loose clothing.

If you are unable to keep this appointment please contact us on 0121 507 4319 so that alternative arrangements can be made and the appointment can be given to another patient waiting for the test.

Before the test we will ask you if you have read and understood this information and whether you consent to go ahead with it. We will also answer any questions you have.

### **During the test**

Each evoked potential test takes about 45 minutes. It is important that you relax during the test so your brain waves can be recorded clearly.

The person doing the test will start by measuring your head. They will then rub your scalp and stick some small discs to it using sticky paste. This is what happens next:

#### **For a Visual Evoked Potential (VEP)**

1. You will be asked to sit down and a patch will be placed over one of your eyes.
2. You will then be asked to stare at/concentrate on a little red dot on a video monitor which has a chequer board pattern on it, for short periods of time.
3. Then the patch will be removed and placed over your other eye and you will need to stare at the red dot as before.
4. Occasionally we may also perform an additional test called Pattern Electroretinogram, which records the electric activity of the retina (part of the eye).

#### **For a Brainstem Auditory Evoked Potential (BAEP)**

1. You will be asked to lie down on a bed and relax.
2. Some headphones will be put over your ears.
3. Clicking noises are then played into the headphones.

#### **For a Sensory Evoked Potential (SEP)**

1. You will be asked to lie down on a bed and relax.

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2. If your legs are being tested some more electrodes will be applied behind your knees.
3. Short electrical impulses will then be administered to your wrist or ankle. This produces some twitching movements for a few minutes.
4. The opposite wrist/ankle will then be tested.

### **After the test**

After the test the discs will be removed with warm water. Your hair may be sticky and damp and some of the paste may be left in your hair afterwards; this will wash out and you will probably need to wash your hair after the test.

You will be able to return home or to school/work and resume your normal daily activities straight after the test.

### **What do I feel during the test?**

You will feel a cold rubbing sensation on the scalp when the discs are being applied, but there are no sensations during the recording.

During SEP you will feel a tapping, pulsing sensation from the electrical impulses which may cause slight discomfort but this is usually easily tolerated.

### **When will I get the results?**

The report will be sent to the doctor who referred you for the test after about 2 weeks. He/she will then arrange to discuss the results with you. The report doesn't go to your GP.

### **Contact details**

You will be able to ask any questions or tell us any concerns before the test is carried out but if you would like to contact us before your appointment please call:

#### **Neurophysiology**

0121 507 4319

Monday – Friday, 9am – 5pm

### **Further information**

For more information about our hospitals and services please see our websites [www.swbh.nhs.uk](http://www.swbh.nhs.uk) and [www.swbhengage.com](http://www.swbhengage.com), or follow us on Twitter @SWBHnhs and Facebook [www.facebook.com/SWBHnhs](http://www.facebook.com/SWBHnhs).

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### Sources used for the information in this leaflet

- International Society for Clinical Electrophysiology of Vision (ISCEV), 'ISCEV standard for clinical visual evoked potentials', 2009
- American Clinical Neurophysiology Society, Guideline 9A 'Guidelines on Evoked Potentials', 2006
- Ernst Niedermeyer and Fernando Lopes De Silva, 'Electroencephalography: Basic principles, clinical applications and related fields', 5th edition, 2005
- Colin Binnie et al 'Clinical Neurophysiology: EMG, Nerve Conduction and Evoked Potentials', Volume 1, 2004
- Keith Chiappa, 'Evoked potentials in clinical medicine', 1997

If you would like to suggest any amendments or improvements to this leaflet please contact the communications department on 0121 507 5420 or email: [swb-tr.swbh-gm-patient-information@nhs.net](mailto:swb-tr.swbh-gm-patient-information@nhs.net)



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