

## THE SCAN

1. As stated previously, if your visit to the Functional Imaging Laboratory is in conjunction with an MRI study you must carry out the mandatory safety checks prior to the scan.
2. The technologist/researcher will now prepare you for the EEG recording. Outdoor clothing should be removed as the test requires a moderate amount of time spent sitting still, so comfort is paramount.
3. For particular studies, you may need to wear headphones, view a computer monitor, press buttons on a keypad or be monitored using special equipment. If you wear glasses please bring them with you on the day.
4. The electrode cap (seen on page 4) will be placed on your head and measured for accuracy of fit. Alterations will be made to its position to ensure your comfort and correct recording location. The cap has two comfortable straps which tie under your arms to ensure stability during the recording. The pre-set electrode position sites on the cap will then be gelled with the water-soluble conductive paste. The recording electrodes will then be pressed into place. The application of the cap will take about 30 minutes.
5. You will then be asked to move to the shielded room where the recording will take place. Electrical potentials from the scalp are very small and thus can be influenced by other sources i.e. power cables, lighting etc. For this reason you will be placed in this room which is very quiet and allows the best possible data to be collected. Communication within this area is via

a two way intercom, which will be fully explained by the functional technologist/researcher. This intercom can be used at any time if you do not feel comfortable or sure of the task being carried out.

6. Once the setting up process has occurred you will then be again fully instructed by the researcher of the following tasks that you need to perform. Please ensure you understand the tasks involved, do not hesitate to ask the researcher if you are unsure. Failure to perform the tasks correctly dramatically affects the data obtained. The testing will last up to one hour.
7. All we ask, is that you carry out the tasks as explained, keep your head very still at all times, stay awake and most importantly, try to relax!

## A LITTLE ADVICE

- If you are on any MEDICATION please INFORM YOUR RESEARCHER, so that they can make any necessary arrangements.
- Try to reduce how much you drink before the scan that day. You will be in the recording room for some time.
- Check with your contact Research Fellow exactly how long the scan will take.
- Wear comfortable clothing
- Remember to ask your Researcher's permission to bring a relative or a friend.



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## EEG INFORMATION

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## Hello!

Thank you for your interest. This leaflet will help you with some of the practical considerations involved in an EEG.

### WHAT IS EEG?

EEG is an acronym for electroencephalogram, the graphical representation of electrical activity from the brain. EEG has been used in the clinical environment and research for many years.

It reads the scalp electrical activity generated by the cerebral cortex, the outer layer of the brain. These minute amounts of electricity are recorded by placing small electrodes on the surface of the head built inside a cap. This cap fits over the scalp with each recording electrode containing a water soluble conductive paste. The volunteer will be seated for the duration of the recording. The test is painless with no known side effects.

### WHEN IS EEG USED?

EEG is used to give a functional display of how brain cells are working. EEG is used in both research and the clinical environment. The main reason that EEG research is carried out is that it helps us to understand more about the function of the brain in health and how it is affected by different conditions. The EEG has been used as a medical imaging technique for many years. It has many uses both in research and within the clinical environment and is able to monitor alertness, sleep patterns, biofeedback situations, cognitive engagement, and brain development, but first and foremost, provide extensive information for epileptic and seizure origin.

### HOW DOES EEG CONTRIBUTE TO MEDICAL RESEARCH?

EEG is shedding light on some of the fundamental workings of the human brain. Studies that involve normal volunteers form the basis of this and are a vital part of our research program. Through such work, we are learning about normal brain function in areas such as language, vision, movement, memory, thought and emotion.

### THE WELLCOME DEPARTMENT

The Wellcome Trust Centre for Neuroimaging is funded by the Wellcome Trust and Leopold Muller Trust and consists of researchers who try to understand how the brain generates different types of behaviour and then relate them to the disturbed behaviour caused by different kinds of illnesses. All of the research that goes on contributes to a growing 'data-base' about brain function and brain activity, so that our understanding is progressing more and more.

### PREPARATION REQUIRED FOR THE EEG

Your hair needs to be clean, dry and free from all lacquers, oils, gels and sprays, as these can affect the quality of the EEG recording. Hair length does not affect the recording. If you are also having an MRI study in conjunction with the EEG you MUST perform a MRI safety check form.

### WHAT WILL I HAVE TO DO?

Each recording session will be part of a specific study relating to speech, language, emotion, vision, memory or problem solving. The Researcher will explain in detail exactly what tasks you will have to carry out whilst being scanned. Most of the tasks are very simple, such as

looking at pictures, thinking about what you are viewing, moving fingers etc. Images may be presented on a screen within the recording room or you may have a switch to signal responses to a verbal instruction. We can carry out a number of data acquisitions in a recording session, during which you are asked to keep as still as possible, this is easiest if you relax. The entire recording will last no more than 2 to 2 1/2 hours from start to finish. All that we need you to do is to keep still and perform the task to the best of your ability. During the study you will be constantly monitored by a functional technologist and the Researcher, who will also ensure your comfort.

### ARE THERE ANY RISKS INVOLVED?

There are no known side effects to the EEG. The water soluble paste that is used during the recording will be removed within the department after the study with shampoo. (The department has a limited range of shampoos so please feel free to bring your own personal variety). However when you leave the department small little pressure marks on your head will be seen where the electrodes have been lightly pressed on the scalp. These will remain for a while, especially on the forehead where there is less of a hair covering.

### HOW LONG WILL IT TAKE?

The examination that we perform generally last approximately 2 hours in total. The first thirty to forty-five minutes or so will be spent setting up the equipment and making sure that the electrode cap is fitted correctly and comfortable. The actual recording session lasts up to an hour during which you will not feel anything, the best thing to do is just relax.