

Near Infra Red Spectroscopy Information Sheet

We will use a brain imaging technique called near infrared spectroscopy (NIRS). Just like brain scanners that you may have seen in the media, this technique measures how the amount of oxygen changes in the blood supply to the brain, but this one is easy to use in research with babies. Such research is very important as it can teach us how the brain develops. It will also enable us to learn which areas of the brain are involved in different behaviours.

NIRS shines weak rays of light onto the head and measures the colour of the light reflected back. If your brain is busy responding to something and is using lots of oxygen, your blood will be red. If your blood has less oxygen it will be a more blue colour. By measuring these colour changes while your baby does an activity or watches something on the television, we can see which part of the brain is active. The fibres that carry the light to the head and back are embedded in a small hat that your baby can wear comfortably.



This technique is completely safe and has increasingly been used to study the infant brain all over the world. Although the hat may look like something from a science fiction film, there is no risk associated with measuring brain activity by this technique. Just like natural light does not change objects when it is reflected on them, the weak red light rays that we use do not have any effect on the brain.

If you are happy for us to proceed with the NIRS study, this is what will happen:

- You will be with your baby at all times during the study.
- First we measure your baby's head circumference with a soft tape measure so we can adjust the hat for your baby.
- Then we place the hat on your baby's head. While we do this, we play with your baby to keep him/her entertained, and then we can adjust the hat so that it fits your baby perfectly and comfortably. Generally babies are quite happy having the hat on and enjoy watching the screen, but if your baby becomes fussy at any point, we can take the hat off straight away.
- The fibres from the hat are then connected to the machine that generates the light rays and measures the light that comes back from the head.
- We will also give you a Polaroid photograph of your baby wearing the hat as a souvenir to take home.