

Cortical Auditory Evoked Potentials

What is the test?

The test is known as Cortical Auditory Evoked Potentials (CAEP) or Aided Cortical Auditory Evoked Potentials (ACAEP) testing. This depends on whether we are testing your child without hearing aids, or while wearing their hearing aids. Evoked potentials are small electrical signals that are produced by the hearing pathways in the brain. The response is measured from the brain. They can be recorded from the surface of the head. Several different speech sounds (like 'm', 'g' and 't') are presented through a loudspeaker at a range of levels. Evoked responses to the sounds are recorded from the surface of the head recorded via electrodes and analysed on a computer.

Why is it recommended?

If a young infant or a child who is difficult-to-test has a hearing loss, it is difficult to know from observing their behaviour whether hearing aids have been fitted and adjusted optimally. Cortical evoked response audiometry can be used to test hearing without requiring an active behavioural response and consequently are ideal for evaluating the responses to speech at normal spoken levels in young infants or difficult-to-test children.

How is the testing done?

Three small sensors (electrodes) are attached to the surface of your child's head with surgical tape and paste or gel. The electrodes do not cause discomfort but it is possible that this procedure may cause a little reddening of the skin that may last for 24 hours because we stick the electrodes on with a kind of sticky tape. While this is safe, the reddening may occur from peeling them off much like when you remove a band-aid

Will it hurt my baby/child or their brain?

No. There is no danger. We are simply measuring the activity that is happening in your baby/child's head all the time. If your baby is very young, this testing is very similar to the ABR that your baby had while in hospital.

Additional Tests

We may do some additional tests to help interpret the results of Cortical Evoked Response Audiometry. Both otoacoustic emission and tympanometry procedures are used routinely by clinical audiologists to test infants.

We may check your child's middle ear (the ear drum and space behind) using "tympanometry". This test involves placing a plug in the ear and measuring whether the eardrum moves in response to a small change in air pressure by bouncing sound off the eardrum.

How long does the appointment take, and how many appointments will there be?

A typical appointment will take from 1½ to 2 hours. During this time we place electrodes on your child's head, wait for them to settle by rocking them, feeding them etc and then record the cortical evoked responses. It may even include time for your baby to have a short nap.

We aim to complete testing in a single appointment, but as with any test on young children, it may be necessary to arrange another appointment if we were not able to gather all the information we needed at one time.

What do you need to do?

*Please bring your baby's/child's hearing aids to the test appointment.
Please do not use oil or moisturiser on your baby's head for a couple of days prior to testing.*

Babies and children need to be awake, relaxed and quiet for the test and it will be conducted over one or two appointments.

If you think your child will want to be fed or may like particular toys/books/DVDs to look at, please bring it with you. If it is possible to bring a second adult to help with entertaining your child, this could be very helpful too. While we are testing, we need you and any helpers to be quiet as any extra noise can be recorded in the response. If you need to move around or change a nappy etc, we can interrupt the testing.

How long do I have to wait for the results?

We may be able to tell if there is a response straight away, however, we may need some time to compare some of the results.

We know you will be anxious for information on the results so we will process the information as quickly as we can.

Where is the testing done?

The testing needs to be carried out in a quiet room or a sound-treated booth. As the sounds are presented through a speaker into the room, the quieter the better.

Thank you for taking the time to read this. If there are any other questions or concerns, please feel free to discuss them with your audiologist.