Electrical response audiometry (ERA)
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Explanation of terms
ABR is Auditory Brain Response, an objective test of hearing

BSER Brainstem Electric Response or Brainstem Evoked Response. This is another term for ABR.

Auditory Brain Response
ABR provides information about hearing threshold without a consciously made response from the child. To be reliably undertaken, the electrical activity of the brain (EEG) must be quiet as in a natural sleep or during general anaesthesia. It is therefore readily undertaken on babies under four or five months of age where behavioural tests to threshold are not possible. It can also assist in the objective assessment of older children including those with complex needs, but sedation or general anaesthesia may be required.

Surface electrodes must be attached to the scalp to record electrical activity from the brain (EEG). Click stimuli are presented through a headphone triggering electrical activity along the auditory pathway up to the brainstem. The electrical activity occurs at a specific time from the onset of the click and is said to be time-locked to the stimulus. By repeatedly collecting these time-locked responses, the random brain activity (EEG) can be calculated using computer averaging techniques, and the response to the sound extracted. In threshold assessments, 1000-2000 clicks are presented and the response builds up in the form of a waveform.


ABR only gives information about the high speech frequencies, therefore much care has to be taken when using this information to fit a hearing aid. There is also a small group of children with very complex needs whose results may not give a true picture of their functional hearing when tested in this way. It is therefore essential that the ABR result is considered together with other information before coming to any conclusion about threshold levels. Very young babies’ and premature babies’ results can also give unreliable information. The experience and expertise of specially trained staff is required to apply the test and to interpret the results.