

The Brainstem Auditory Evoked Response or BAER test may hold some mystery for those who have never seen it. This test is used to detect electrical activity in the cochlea and auditory pathways in the brain.



Puppy having right ear tested

Puppies are tested individually with an assistant or the owner holding them during the test. A set of small electrodes is inserted under the skin of the scalp, and a small earpiece is placed on one ear. A “dummy” earpiece is sometimes placed in the other ear to mask external sounds. The computer generates a stimulus click that enters the ear through the earphone. This auditory stimulus is an

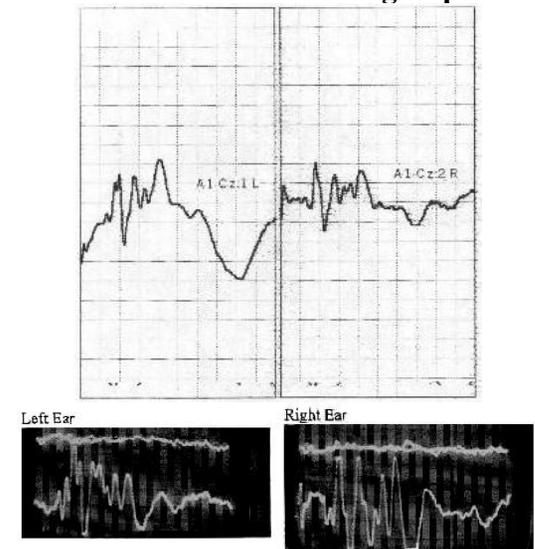
air-conducted click sound. The BAER test uses the computer to measure the brain’s electrical response to the stimulus. Several hundred clicks are rapidly produced and the computer averages the brain’s electrical response to these stimuli to produce the tracing.

A “hearing ear” will produce a readout with a series of peaks and valleys. This spiked line indicates that a puppy is able to hear with that particular ear. A flat line or a line without clearly defined peaks and valleys indicates that the ear being tested is non-functional and the puppy is deaf in that ear.

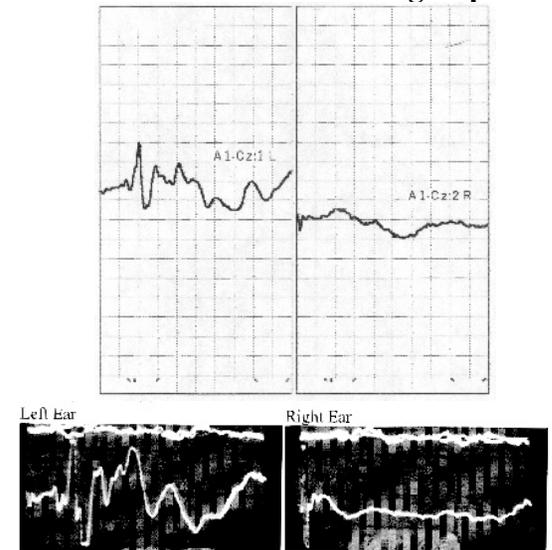
If both ears produce a spiked line, the puppy is able to hear *bilaterally* or with both ears. If the graph line is flat in *one* ear, the puppy hears *unilaterally*. This can be referred to as unilaterally deaf or unilaterally hearing. If the graph line is flat from *both* ears, the puppy is *bilaterally deaf*. This is generally referred to simply as deaf.

Examples of BAER test tracings can be seen in figure 1 and 2.

**Figure 1 – Examples of BAER tracings from Bilateral Hearing Pups**



**Figure 2 – Examples of BAER tracings from Unilateral Hearing Pups**

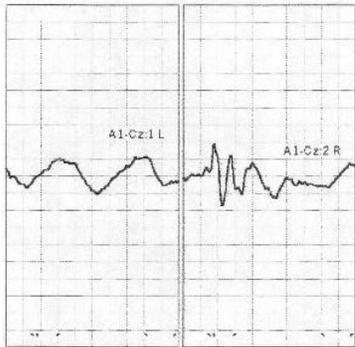


The test is usually pain-free and generally no sedatives need to be used. Printouts of the waveform of

both ears should be given to the breeder. Puppies should not be tested before they are 5 weeks old. Many breeders and veterinarians/technicians prefer to wait until puppies are 6 weeks old to ensure developmental changes have time to occur.

Figure 3 is of an unusual uni hearing trace:

**Figure 3 – Example of an unusual BAER tracing from a Unilateral Hearing Pup**



The above example shows that the graph line is not always a completely flat line. But the clearly defined peaks and valleys of a normally hearing ear are lacking, indicating that this is probably a non-hearing ear.

The BAER test should be repeated if an inconclusive result is produced. If the tracing pattern is random, it means that the ear probably does not hear. If the same inconclusive pattern is produced repeatedly further testing

is warranted. Questionable puppy BAER tests should be repeated 3 to 6 months later.

Another test that can be done on a questionable ear is called the bone stimulator test. This is used when there is suspected conductive hearing loss that can be caused by earwax buildup, infection, etc. For a more detailed explanation of the Bone Stimulator go to Dr Strain's web site and check out his article: <http://www.lsu.edu/deafness/bone.htm>

It should be noted that, unlike human hearing tests, BAER testing only tells whether an ear can hear or not hear. It does not quantify how well a particular ear hears.

As with any diagnostic test the results of a BAER test are subject to interpretation by the tester. If the breeder has any question about the results of a particular dog's test they should seek a second opinion.

For more information on BAER testing and deafness in Dalmatians go to the DCA's official web site hearing section at: <http://www.thedca.org/hearing.html> or Dr. George Strain's web site at: <http://www.lsu.edu/deafness/deaf.htm>

# A Primer for BAER Hearing Testing



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