



Australian Shepherd Health & Genetics Institute, Inc



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Deafness in Australian Shepherds

Deafness in Australian Shepherds which are not old dogs is usually related to an excess of white markings on or around the ears. White color in a dog's coat is caused by an absence of pigment in the hair. Not every form of deafness in dogs is pigment-related. However, this is the most likely cause of congenital deafness in Aussies.

Dogs who have two merle parents and have inherited two copies of the merle gene (double merles) are usually mostly white. Dogs that are not double merles or even merle at all may have half or fully white heads or white markings on or around the ears. White on and around the ear is associated with deafness in many breeds of dog. Most double merles with white on or around the ears are deaf, usually in both ears. Occasionally, Aussies that are not double merles who have these markings will be deaf in one or both ears.

The deafness is caused by lack of pigment in the inner ear. The genes which determine white markings impact pigment cells wherever they occur in the body, not just in the coat. White on or near the ears is an indicator that pigment may be lacking in the inner ear as well. Pigment cells play an important part in the process of translating the mechanical vibration of a sound wave into the electrical impulse which travels via nerves to the brain. A tiny organ in the inner ear called a cochlea contains fluid and is lined with hair-like structures called cilia. When sound vibrates the air, those vibrations travel through the ear canal and vibrate the fluid which wiggles the cilia. The cilia connect with nerve endings through pigment cells. These cells translate the mechanical vibration of the cilia into electrical impulses that travel the nerves to the brain. If the pigment cells are absent, this translation can't take place and the dog will be deaf in that ear. A BAER test will determine whether your dog is deaf due to a lack of pigment within the ear.

BAER Testing

BAER stands for Brainstem Audio Evoked Response. This test must be done by a vet who has the proper equipment. It will measure involuntary nerve response to an auditory signal. It can detect whether the dog is deaf in one or both ears. If you suspect your dog can't hear the BAER test is the best way to be sure. The test is non-invasive and non-painful. Not every veterinarian will have the equipment, so if you suspect a dog is deaf it may be necessary to get a referral.