

What is a Merle?

We talk about merle a lot in this handout, so it seemed like a good idea to explain what it is (and isn't). The most important thing to remember is that merle is a color pattern, not a color by itself. Merle dogs can come in a variety of colors.



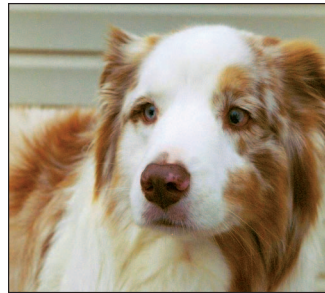
The most commonly seen variation is called blue merle (this is the coloring often considered "typical" of Australian Shepherds). A blue merle is actually

a black dog, with the black broken up into irregularly shaped patches by gray. Merle is the gray (lighter part) of the coat's coloring, not the black patches. The lighter part of the coat can vary considerably, from very light (powder blue) to very dark, almost black (steel blue).

Some dogs will be heavily merled, where most of their coat is gray, with only a few patches of black. Other dogs will be lightly merled, where their coat is mostly black, with small areas of merle. These dogs are often referred to as "phantom (or cryptic) merles" because they appear at first glance to be a solid color. These dogs are still genetically merle though, and will reproduce as such.

Merles are also commonly red (brown), and any merle dog may or may not have copper (tan) points and white trim. It is also possible to have merle in other colors (such as sable, yellow, fawn, and dilute blue or red), but they are harder to identify as such without experienced help. All of the above information applies to any color of merle dog. Harlequin Danes are also merles, even though only the solid color remains.

What is a Double Merle?



Double Merle is the common term for homozygous merles (dogs with 2 copies of the merle gene). These dogs are also sometimes (inaccurately) referred to as lethal whites (this is

considered by many to be a derogatory term). Merle is a dominant gene. A dog needs only one copy to have a merled coat. When it has two copies, instead of producing only partial lightening, the effect is doubled, causing some to most of the coat to turn white.

Double Merle pups are born when both of the parents are merle (it doesn't matter what color or breed). Statistically, 25% of the pups from two merle parents will be Double Merles.

Is This a Problem?

Often, but not always, Double Merles will be deaf. As with Pattern White pups, if the excess white does not affect inner ear pigmentation, they will be able to hear, or have only minimal hearing loss.

Double Merle dogs may also have a variety of eye defects that can occur in any color eye. Often, this is the best way to determine whether a dog is a Pattern White or a Double Merle. Some of the eye problems are visible, but others are within the eye and require an exam by a veterinary ophthalmologist to be diagnosed. Many dogs will have multiple eye defects, and most of those will have some vision loss, sometimes to the point of blindness. The defects are generally stable, so if a pup has functional vision, that will probably not change as it matures, unless affected by another condition (unrelated to the merle gene).

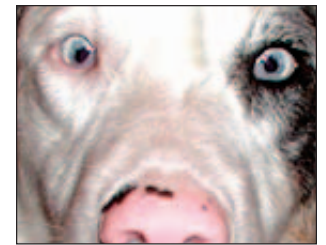
The dog on this page and the next both have all of the eye defects mentioned in the following section.

Eye Defects in Double Merles

Some dogs will have an irregularly shaped pupil. The pupil may have spiky projections (called "starburst") or jagged/irregular edges (called "eccentric"). This is not the same as a coloboma, which can occur in the eye of a dog (or human) of any color or pattern. This can make their eye very light sensitive if the pupil doesn't react as well as it should.

Be aware that some dogs with no vision defects can have darker pigment in their iris which can resemble a misshapen pupil, so look closely to be sure what you are seeing. Often, it is best to get the opinion of an ophthalmologist.

Their pupil can also be subluxated (called "dropped pupil"), where the pupil is not centered in the iris. When the pupil is off just a bit, the dogs



seem to cope well, but can have trouble when the condition is more pronounced.

Microphthalmia, or an abnormally small eye, is the most common eye defect seen in homozygous merles. This can vary from just noticeable to appearing to have no eye at all. Usually, the smaller the eye, the more of the third eyelid that is permanently visible, and the more vision trouble they have.

Are There Other Problems?

No. Although you may hear otherwise, these are the only known health problems proven to be associated with homozygous merles. Stories abound about "internal organ" problems, or allergies, or immune system problems, or a shortened life span. The fact of the matter is that many of their normally pigmented kindred suffer from the same problems.

Remember though, that not all double merles are deaf, and not all are blind (and very few are both).

Where do White Aussies come from?

There are basically two ways for Australian Shepherds to have too much white in their coats. The first is commonly called Pattern White, and the second is called Double Merle. Neither one is a form of albinism.

What is a Pattern White?

Pattern White and Mismark Aussies are one and the same. Pattern White pups simply have more white than they should. They can be either merle or solid. They may have “too much” white trim, one side of their face (or both) may be white, or they may have color on their head, but very little



anywhere else on their body. On rare occasions, they can even be completely white. Most often, they are born into litters where one parent is a merle and the other is a solid, but can occur in other litters as well. Sometimes it is possible to predict that there may be Pattern White pups in the litter (based on the amount of white on the parents), but it can also come as a complete surprise.

Is this a problem?

It can be. In order for any animal to be able to hear, the tiny hairs in the inner ear need to be pigmented. If these hairs are not, the nerve endings will atrophy and die in the first few weeks of life and deafness (full or partial) will result. Note that you cannot tell the color of hairs in the inner ear by looking at any visible part of the dog's ears (including the hair around the ear canal). Some Pattern White pups will be deaf (or have partial hearing loss), while others won't, depending on where the pigment ends up.

Some of the Dog Breeds that carry the Merle gene Include:

- Alapaha Blue Blood Bulldogs
- American Cocker Spaniels (not a recognized color for the breed, and often misidentified as Roan)
- American Pit Bull Terriers
- American Staffordshire Terriers
- Australian Shepherds
- Beauceron
- Bergers des Pyrenees (Pyrenean Shepherds)
- Border Collies
- Cardigan Welsh Corgis
- Catahoula Leopard Dogs
- Chihuahuas
- Collies (Rough and Smooth)
- Dachshunds (known as “dapple” instead of merle)
- German Collies (Koolies)
- Great Danes
- Hungarian Mudi
- Mixes
- Norwegian (Dunker) Hounds
- Old English Sheepdogs
- Pomeranians
- Shetland Sheepdogs

Resources

Deaf Dog Education Action Fund • www.deafdogs.org
Owners of Blind Dogs • www.blinddogs.com

(Note that while both of these organizations maintain lists of dogs looking for homes, neither one of them is a rescue and cannot take dogs in.)

Australian Shepherd Health & Genetics Institute, Inc.
www.ashgi.org

White Aussies Web Site • www.whiteaussies.com

7/04

An Introduction to

White Aussies



What makes them so special?