

## Merle Chihuahuas- time to call a halt – By Dr. Malcolm Willis

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Coat colour in the Chihuahua is quite complex because a range of colours is acceptable in both varieties. One colour that does not exist naturally in the breed is Merle.

Merle is a gene that causes patches of lighter colour (usually greyish blue) to appear in the coat. There are two alleles which are termed  $M^M$  (merle) and  $M^+$  (non merle) with merle being dominant to non merle. All breeds carry the merle gene but most have the non merle  $M^+$  in duplicate and are thus homozygous for non merle. The dominant merle gene is found in Shetland sheepdogs, Rough Collies, Border Collies, Australian Shepherds, Dachshunds (where it is called dapple) and a few other breeds. A variant exists in Great Danes and Australian Shepherds carry Tweed which is a variant of merle. The Chihuahua does not have  $M^M$  and all Chihuahuas should be  $M^+M^+$ .

Recently a number of Chihuahuas that carry merle have appeared in USA and are gaining some credence as fashion accessories and the like. Most reputable breeders are against the gene and it would be fair to say that it must have come in through a crossing... probably with Dachshunds. Since the AKC would not register crossbreeds as Chihuahuas one has to conclude that somewhere Dachshunds have appeared in pedigrees as Chihuahuas... with false names? Crossbreeding for a specific purpose, such as Dr Cattanch's work seeking to bring a docked tail into the Boxer, needs to be done under KC approval and supervision so that pedigrees remain correct even if more than one breed is involved. I have no evidence of that in the Chihuahua merle situation.

In case some of you feel that another colour would be fine it is crucial to point out that merle is a dangerous gene. The homozygous merle  $M^M M^M$  is usually white and has very often impaired hearing and sight. For this reason some Kennel Clubs do not recognise merles and many KC's and breeders do not mate merle to merle. Merle to merle would be  $M^M M^+$  to  $M^M M^+$  which would give rise (in large numbers) 25%  $M^M M^M$  50%  $M^M M^+$  and 25%  $M^+ M^+$  and clearly there are serious problems with the 25% homozygous merles. The popular belief is that heterozygous merles  $M^M M^+$  are quite normal.

However some thirty years ago Hannover workers showed eye problems in merle Dachshunds (Wegner and Reetz, 19751 Dausch et al, L977) sperm imperfections (Treu et al, 1976) and impaired hearing (Reetz et al, 1977). These problems were found in homozygous merles and also heterozygous merles. Hearing faults ranging from complete deafness to slight hardness of hearing occurred in 54.6% of homozygous merles and 36.8% of heterozygous merles. Based on this work and their own work on eye failings Klinckmann et al (1936) suggested restricting the breeding of merles on welfare grounds.

This means that the long held belief that  $M^M M^M$  dogs had problems but not  $M^M M^+$  is not true and thus merle is a gene that would be best eliminated as a defect and certainly not introduced to new breeds where it does not really exist such as the Chihuahua.

The KC should ban merle as a colour in Chihuahuas and not register any merles on the grounds that it is a serious defect but also because any merle Chihuahuas may have false pedigrees later back if the crossing with Dachshunds is how the gene was introduced. It may be impossible to prove this but DNA testing might be helpful. On the other hand non merle dogs  $M^+ M^+$  regardless of ancestry are safe as regards merle because they cannot have it. If a dog has all four grandparents merle but is non merle then it cannot carry the merle gene. On the other hand if it carries Dachshund "blood" it will run the risk of carrying Dachshund problems that may not exist in Chihuahuas at present.

Aside from fashion accessory (God save us!) there is no gain and some loss to be made from the merle in the Chihuahua and thus it needs a combined effort by all kennel clubs to eradicate the gene from the breed.

Let me state that I have a vested interest in that my wife has Chihuahuas!

\* Since writing the above article I have come into possession of a report issued by the Board of Directors of the Chihuahua Club of America Inc to members of that club (dated 1st May 2004). This has also been circulated to members of the British Chihuahua Club.

The report highlights the fact that historically the breed has permitted any colour. I am in favour of such policies which contrasts with some breeds where specific colours are frowned upon or disqualified for no logical reason beyond historical legacy or personal dislike. Thus the Newfoundland standard accepts black-and-white and

brown but not brown-and-white, or Tibetan terriers should not be liver. There is no logic in such rules but merle is biologically dangerous and not like any other colour.

A colour associated with eye and hearing defects should be selected against, however attractive some people may consider the merle variant. Moreover, the argument that it has been around about 10 years plus does not explain whence it came. There are suggestions that merle can lie hidden (camouflage merles) but merle is a dominant and thus any merle must have at least one merle parent, however pale the pattern is expressed. There is a need to DNA test merles and compare these with DNA tests on Dachshunds whence it appears the colour infiltrated the Chihuahua breed. Are we to breed Chihuahuas or crossbreeds?

#### REFERENCES

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