A Quick Update on Taurine

A few weeks ago, I posted about taurine and, more specifically, about some breeds which might be less efficient in producing it (you can read everything here).

As taurine deficiency can lead to DCM (dilated cardio miopathy) I think all those owning a breed at risk should assess their dogs. I eventually tested Briony and her results fell in the normal range: she eats an homemade diet and, apparently, despite my poor cooking skills, she is getting enough methionine and cysteine that she can convert into taurine.

As said above, her results are within the normal range, but I showed them to a nutritionist (Lucia Casini, Professor of Veterinary Nutrition at the University of Pisa, School of Veterinary Medicine) asking her whether Briony should benefit, like other athletes, from any taurine supplements during the hunting/shooting season and she said yes, to supplement with **500 mg a day** (she weighs around 20 kgs) in these periods.

Some of the laboratories testing for taurine in Europe are: Idexx, Laboklin and San Marco.

Considering that most of my readers own working dogs (read about the Gundog Research Project!), let me also add that these athletes might need more taurine than the average dog. The web is full of articles on taurine and DCM in dogs, go and read them if you want to know more, I am just here to spread the word and raise some awareness.

Own a dark dog? Read this!

Black dogs sometimes turn rusty brown. People tend to attribute this to "too much sun" but, indeed, some black dogs never turn brown, while some others are brownish all year round, winters included. I owned a black dog only for a couple of months: he was a rescued Greyhound and he was, indeed, brown but this was caused by severe anemia and leishmaniasis. We all known systemic diseases can affect coat colour, but nutrition can as well.

Yesterday, my friend Lucia Casini, who is professor of Veterinary Nutrition at the University of Pisa, shared this study with me "Tyrosine supplementation and hair coat pigmentation in puppies with black coats – A pilot study."

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Tyrosine supplementation and hair coat pigmentation in puppies with black coats – A pilot study

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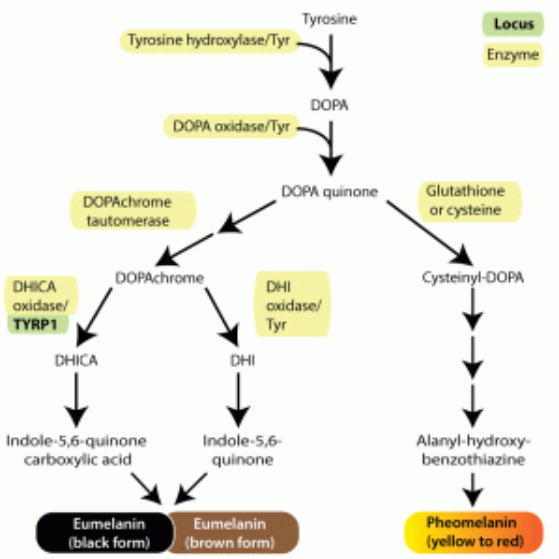
Abstract

The appearance of a red hue to the hair in black coated cats and dogs has previously been reported as a "red hair syndrome". Such changes in hair colour are related to an alteration in the proportions of two types of pigments produced by melanocytes; black eumelanin and brown pheomelanin. In black cats, it has been demonstrated that higher levels of phenylalanine + tyrosine (Phe+Tyr) than those recommended for growth are required to support eumelanin synthesis. The purpose of this study was to evaluate if a similar observation could be made in dogs. Twelve black coated puppies (Black Labrador retrievers and Newfoundlands) were divided into 3 groups of 4 and fed 3 diets with increasing concentrations of Phe+Tyr (A: 4 g/Mcal; B: 5.8 g/Mcal; C: 7 g/Mcal) for a period of 6 months. Quantification of plasma amino acids (Phe, Tyr, Cys) and spectrocolourimetry of hair samples from the Labrador retrievers (as the a* dimension of CIE Lab system) were performed at the beginning, during and at the end of the study. There was a significant negative linear relationship between plasma Tyr levels and a* values of hair in Labrador dogs on diets A and B, suggesting that a diet with total Phe+Tyr content of 6 g/Mcal (higher than the growth recommended allowance) was necessary to ensure an optimal black coat colour in these puppies and that levels up to 7 g/Mcal can lead to a more intense black coat colour. Moreover, similar to what was found in kittens, plasma levels of Tyr up to 54 µmol/l did not guarantee an optimal black colour coat and led to the "reddish hair" appearance in black coated puppies.

The study, as you can read in the abstract, suggests that dogs with darker coats need twice the amount of tyrosine the average dogs needs – according to the NRC guidelines.

Furthermore, the longer the coat, the higher the requirements for tyrosine. She also explained that the role of tyrosine and coat colour has been studied more in cats, but added that some commercial foods, especially those poor in proteins of animal origins, do not contain enough tyrosine for black dogs. Phenylalanine seems to play a role too and they are both essential aminoacids, hence they must be introduced through the diet.



Some biochemistry…

Meat, especially pork and poultry, is a good source of tyrosine. The National Research Council (USA) recommends: 2g of tyrosine each 1000 kcal for adult dogs and 3,5 g for puppies, but darker coated dogs requirements seem to be double.