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DEAR FELLOW ENTHUSIASTS AND CLUBS

We, The Finnish Schapendoes Club, would like to shed light on our health situation regarding the previous and share our views on the matter.

Hyperuricosuria HUU

In Finland we have been testing for HUU since Genoscoper validated the test for the Schapendoes in 2017. The validation is mentioned in a scientific article ("Frequency and distribution of 152 genetic disease variants in over 100,000 mixed breed and purebred dogs" by Donner et al. 2018) as follows:

"Increased risk for urate urolithiasis conveyed by a well known hyperuricosuria (HUU) associated variant in the SLC2A9 gene was reported in several breeds lacking recent common ancestry [9]. Therefore, awareness and genetic testing for the variant is likely to be relevant in additional discovered breeds (Table 3) where the mutation frequency is reasonably high (e.g., Greater Swiss Mountain Dog). Outside of our primary study population, we further report the discovery of a high carrier frequency of 31%, and genetically affected frequency of 8.5%, in the Schapendoes breed. Through owner-submitted medical records, we confirm at least one Schapendoes case showing urine sediment containing urate crystals, further highlighting the diagnostic value of genetic testing for the SLC2A9 variant across breeds."

Since the validation we have been recommending the test for all dogs who are to be bred. This is only a recommendation, since we don't have any mandatory testing in Finland by The Finnish Kennel Club which is responsible for registration.

All in all we have tested over 200 dogs and results have been published for 180 dogs by their owner. To date 98 (53%) of them are clear, 77 (43%) are non-affected carriers and 7 (4%) are affected. In this case "affected" meaning they have both abnormal alleles of the gene, resulting in predisposition to uroliths. Public data on this can be seen here on our website.

Hyperuricosuria is a reccessive trait, meaning that a dog needs two "faulty" alleles to be affected by HUU, in the same way as gPRA. It differs a bit from gPRA in the way that an affected dog won't necessarily develop uroliths, but is in high risk for this. Clinically the uroliths caused by HUU (ammonium urate) may be very hard to manage. Recurrence of the stones is relatively common and medical or nutritional management may not keep them away.

I’m sure we all agree with trying to keep the population as diverse as possible. This is possible even if we are testing for HUU, since the carriers can also be used for breeding with clear partners, as goes with gPRA. Also asymptomatic affected individuals can be used for breeding with clear partners, since the ”affected”-status doesn’t necessarily mean that the dog has the clinical disease, i.e. uroliths.

Inbreeding

In the last 5 years (2015-2019) our average COI (coefficient of inbreeding) has been 1,32%, counted with 5 generations. This is relatively low and has been accomplished even with extensive health testing.

Other concerns

Another concern that has been rising among owners, is an unknown disorder affecting the dog’s muscles and liver. Typical symptoms are weight loss, gastrointestinal symptoms, muscle weakness and tension, fatigue, tremor and heat and exercise intolerance. Symptoms have progressed so that some dogs have been euthanised. The dogs usually have high CK, AST and ALT in their bloodwork. CK and AST stem from the muscles while ALT (and AST to a lesser amount) from the liver. For this we have also a public database here.

For this disorder we have ongoing research with a well-known canine genetic research group in the University of Helsinki (lead by prof. Hannes Lohi), who research various breeds and their genetic conditions. We don’t have a definitive diagnosis for the dogs, two of which have been euthanised and have aided the research with sampling and a full pathology report. Still, there have been promising candidates as to where the underlying gene would be. Hopefully in the future we can tell you more about this.

With best regards on behalf of our club and breeding committee,

Tiina Sipilä, DVM
Chairman of the breeding committee