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Short Communications

Canine hip dysplasia in Irish water spaniels: two decades of gradual improvement

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CANINE hip dysplasia (CHD) results from incorrect coxofemoral joint development in dogs. Although CHD has been described in many breeds of dog, it is generally regarded as being associated with larger breeds. The breed-susceptibility of the condition prompted the suggestion that there may be genetic component associated with CHD, which has led to a number of investigations being undertaken to calculate heritability values for CHD in a range of breeds of dogs (eg, Wood and others 2000, Wood and others 2002, Lewis and others 2010). The values obtained reiterate the belief that CHD results from a combination of polygenic interactions, where each gene possibly makes variable contributions to the final phenotype (Wilson and others 2011). Various papers have resulted in different heritability scores for different breeds, for example, labrador retrievers (Wood and others 2002) and Gordon setters (Wood and others 2000); maternal versus paternal effects (Wood and others 2000); and some reporting symmetry of hip scores (Wilson and others 2011) and others a difference between left and right hips (eg, Tsai and others 2007). Hence, it is possible that there may be slight differences in the major causal genes/alleles in different breeds, and in order that a better understanding may be obtained for CHD generally, an argument could be made for individually studying as many breeds as possible. The current work makes a contribution to the understanding of this disorder by investigating hip dysplasia in the Irish water spaniel.

Anonymised breeding records (ie, all names were removed and animals were assigned a number) were obtained for all dogs registered with the UK Irish Water Spaniel Society on or before August 28, 2009, or whose ancestry could be traced from 1901 onwards. Totally, records for 5225 dogs were obtained, of which scores generated as part of a routine screening programme were available for 676 animals. Based on the scoring method of the British Veterinary Association/Kennel Club (1991), where each hip is scored on a scale of 0–53, these animals had a mean combined hip score of 15.3 (sd=10.2). Although there has been a trend towards a small drop in the mean between the combined hip score value for older animals at the time of this publication, the value for sires was much closer to the value obtained for the mid-parental value. The difference in the sire/dam single parent values versus the mid-parent values may be a reflection of a small number of sires (relative to the number of dams) being used, or it may be due to some of the parental hip scores only being available for one of the parents, and so not being included in the mid-parent calculations.

In conclusion, work presented here reiterates the fact that CHD is a complex trait, which is almost certainly governed by multiple gene interactions. This is best evidenced by examples in the current work where, historically, two dogs with moderate effects were mated and produced offspring with low scores. This particular breed society has managed to achieve a reduction in the mean score over approximately the last 20 years, but due to the complexity of the condition, the problem has still not been eradicated.

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