

What kind of dog is that? Accuracy of dog breed assessment by canine stakeholders

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It is common for animal shelter staff, veterinarians, dog owners, and others to guess the breed of dogs based on physical appearance. Breed identification is used on legal forms, in searching for lost dogs, and for prediction of behavioral and health traits. Previous studies suggest that visual breed identification in animal shelters is unreliable, but it is unknown what the reliability among other canine stakeholders is. The purpose of this study was to determine the accuracy of visual breed identification compared to DNA breed profiles.

DNA breed signatures for 100 shelter dogs were developed using single nucleotide polymorphism genotypes (Mars Wisdom Panel), followed by a Bayesian generative model to infer each dog's heritage. Self-identified "dog-experts," including breeders, exhibitors, trainers, groomers, behaviorists, rescuers, shelter staff, veterinarians, and veterinary technicians were recruited to complete an anonymous Internet survey in which they selected the most likely breed from a drop-down menu for 20 randomly selected dogs depicted in photographs. Breed identification was considered correct if a breed representing at least 25% of a dog's genetic makeup was selected.

A total of 5,922 respondents representing all US states and territories completed the survey. Respondents correctly identified a prominent breed an average of 27% of the time. Each of the dogs had an average of 53 different predominant breeds selected. No one correctly identified a breed for 6% of the dogs, and 22% of the dogs had the correct breed chosen less than 1% of the time. Only 15% of the dogs were correctly identified more than 70% of the time.

These results indicate that, regardless of profession, visual identification of the breeds of dogs with unknown heritage is poor. Faulty breed identifications may have lasting consequences, especially in areas where certain breeds are regulated or prohibited. An alternative method for describing the appearance of dogs should be developed.