



Management and personality in Labrador Retriever dogs



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ABSTRACT

Canine personality is of keen interest to dog owners and researchers alike. The regular human contact with them makes dogs an ideal species to use in the investigation of animal personality. This study specifically focused on Labrador Retrievers, consistently one of the most popular breeds both in the UK and around the world. Using surveys completed by dog owners, data was gathered on the behaviour of the dogs, in addition to the physical characteristics and management characteristics of the dogs ($n = 1978$). Twelve personality traits were identified and investigated for associations with the demographic data. It was found that the working status of the dog was more commonly associated with differences in personality than other analyzed factors. Gundogs had higher scores for 'fetching tendency' and 'trainability' than Showdogs or Pets ($P < 0.05$). Chocolate dogs were more 'agitated when ignored' and showed more 'excitability' than black dogs, and lower 'trainability' and 'noise fear' than both yellow and black dogs (all $P < 0.05$). Dogs exercised for longer periods showed less aggression, less fear of humans and objects and lower separation anxiety than dogs that were not as active. The effects observed in this study may be due to the experience and training of the dogs, the work-related genetic strain of Labrador Retriever or most likely, a combination of both influences.

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1. Introduction

It is commonly observed that individual animals show consistency in the way they respond to situations, and that the intensity of the response varies between individuals. In farm animals this phenomenon is termed temperament (Burrow and Corbet, 2000; Hoppe et al., 2010). However, in dogs it is often called personality (Svartberg et al., 2005; Ley et al., 2008), and this is the convention that we will follow for this paper.

An animal's personality arises from the influences of both genetics and its environment, including previous experience. Prenatal experience has been shown to have long term effects on personality and other traits. Zebra finch eggs injected with testosterone produced birds that habituated quicker to novel food (Tobler and Sandell, 2007). Sows born to mothers that experienced social stress during pregnancy show more restlessness and aggression toward their own piglets (Jarvis et al., 2006). There are also many postnatal influences that determine an animal's personality. Critical periods in early life are known to affect the long-term behaviour of the dog (Scott and Marston, 1950). The time at which a puppy is introduced to humans is critical, with earlier introduction resulting in more positive reactions towards humans in adulthood (Freedman

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et al., 1961). Svartberg et al. (2005) also found that dogs' reactions to some tests changed following later repetition, such as tests intended to provoke aggression using unusual stimuli. Although the individual dogs' reactions changed, the relative ranking of the dogs remained the same. Since personality is unique to each individual animal, it can be influenced by other factors and experiences in the animals' life history. Kutsumi et al. (2013) found that puppy training classes improved long term obedience as well as response to strangers. McMillan et al. (2013) found that puppies obtained from pet stores scored less favorably on a personality assessment than puppies from non-commercial breeders, such that pet store dogs showed higher aggression and separation-related problems than dogs purchased from breeders. Later retesting produced similar results, showing that early experience has a long-term effect on the personality of the dogs.

The genetic influence on animal personality has often been studied in terms of breed differences. Differences in temperament were found between breeds of cattle which were raised in identical environments (Hoppe et al., 2010). These differences are presumably due to genetic differences, since other variation had been removed. Dog breeds are well known to show differences in personality (Hart and Hart, 1985). Dachshunds and Chihuahuas have shown higher aggression toward humans, while Akitas and Pit Bull Terriers show higher dog-directed aggression (Duffy et al., 2008). Personality traits, including aggression, have also been shown to be heritable in dogs in a number of studies (Liinamo et al., 2007; Mackenzie et al., 1986; Goddard and Beilharz, 1983; Saetre et al., 2006), which could have implications for breeding programmes. This is especially true for working dogs, since an appropriate personality is important to fulfilling their duties. Additionally, Svartberg (2006) found that recent selection pressures have affected personality, with personality being more highly correlated with the current role of the dogs than with the breed's original purpose. For instance, breeds that are currently popular as house pets show higher playfulness regardless of the breeds' original purpose. The same experience is likely to affect genetically different individuals in different ways (Stamps and Groothuis, 2010).

As personality traits have been shown to be influenced by both genetic and non-genetic ('environmental') factors, it is of interest to determine the relative importance of these different factors. In this case, 'environment' is defined as the management and housing conditions experienced by domestic dogs. 'Physical' traits, such as age, sex and bodyweight, are also likely to influence personality. Therefore the aim of this study was to determine how personality traits are affected by physical and management factors in dogs. In order to account for the complexity of the study a large sample size was needed. In order to accomplish this, surveys were sent to several thousand dog owners. The Canine Behaviour and Research Questionnaire (C-BARQ), developed at the University of Pennsylvania, was used for this study (<http://vetapps.vet.upenn.edu/cbarq/>). Originally developed as a method for evaluating and predicting the success of guide dogs (Serpell and Hsu, 2001), this survey can be filled out by any dog owner. It covers many behavioural responses which are categorized into

different aspects of animal personality. The survey responses are recorded on a 1–5 scale of the intensity of behavioural response to various situations. This is very similar to the approach of Svartberg and Forkman (2002), except the ratings are made by owners instead of a separate observer, and the behaviours recorded are elicited by normal interactions instead of induced by the test setup. The C-BARQ has been translated and used successfully in Japan (Nagasawa et al., 2011), Taiwan (Hsu and Sun, 2010), and the Netherlands (van den Berg et al., 2003), further demonstrating its generality. It has been used in the past to identify problematic behaviours being exhibited by individual dogs (Hsu and Serpell, 2003). It has also been used to study variation in specific traits among dogs. Using the C-BARQ, Duffy et al. (2008) found that levels of aggression towards people versus aggression towards dogs varies within and between breeds.

For this study the issue of between-breed variation was eliminated by only studying a single breed, Labrador Retrievers registered with the UK Kennel Club. The overall aim of the study was to test for associations between the animal's physical characteristics, lifestyle, potential genetic differences, and personality.

2. Materials and methods

2.1. Surveys

A survey was created to gather demographic and management data on the dogs participating in a larger study investigating the factors associated with canine hip dysplasia. It included 38 questions on physical traits such as weight, coat colour and health, as well as management data related to activities, housing, management and feeding (further details given below).

The C-BARQ questionnaire consists of 102 questions pertaining to dog behaviour, divided into seven sections. The sections pertain to Training and obedience (8 questions), Aggression (25), Fear and anxiety (19), Separation-related behaviour (8), Excitability (6), Attachment and attention seeking (6), and Miscellaneous (Barking, chasing, unusual behaviours, etc.) (28).

The demographic survey was sent by the UK Kennel Club to the owners of 12,408 registered Labrador Retrievers which had known hip scores. Of these, 3071 surveys were completed and returned. The Canine Behavioural Assessment and Research Questionnaire (C-BARQ) surveys were distributed to the 2974 of those who had completed the first survey and also agreed to take part in the personality assessment. C-BARQ surveys were received for 2020 dogs.

2.2. Personality trait analysis

C-BARQ responses were recorded as letters A–E, with A representing a low or infrequent display of the behaviour in question, and E representing a high or frequent response. The C-BARQ data was transformed to numerical values, with A = 1, B = 2, C = 3, D = 4, E = 5, and non-responses (N/A or Unanswered). Histograms were plotted for each question which were used to examine response variation for each question. Values for questions 6–8 (regarding

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