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## Canine Research

## Labrador retrievers are more attracted to water than to social stimuli: A pilot study

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## ABSTRACT

The Labrador retriever is a breed of domestic dog (*Canis lupus familiaris*/*Canis familiaris*) of great importance to our current society. This breed was selected to be an excellent water dog and to work with fishermen. Because of its origins, the popular belief is that Labrador retrievers are “keen water lovers.” However, the extent to which this is true, and whether recent selection pressures might have changed the breed is unknown. In this pilot work, we investigated the relative importance of water as a behavioral stimulus for the modern breed. The study was conducted in an arena with a swimming pool to evaluate differences in the frequency of approach behaviors and the duration of interaction behaviors toward 3 stimuli: water, dog, and human. The behaviors were measured during 2-minute periods for each Labrador retriever ( $N = 10$ ), in 3 trials, with all the stimuli present at the same time in the arena. The dogs interacted significantly longer with the water stimulus than with the dog and the human stimuli. The median of the frequency of approach to the water stimulus was significantly different from the median frequency of approach to the dog stimulus. The water appeared to be a positive stimulus for this group of Labrador retrievers and the most appealing of the 3 stimuli in the specific test condition. With this pilot study, we sought to introduce novel research in terms of needs and preferences of specific dog breeds, with particular relevance of regular contact with swimming water to the welfare of this breed.

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## Introduction

There are hundreds of recognized breeds of domestic dog (*Canis lupus familiaris*/*Canis familiaris*) differing in morphologic and behavioral characteristics. All breeds are the result of artificial selection through selective breeding (Stafford, 2006; Svartberg, 2006). Intentional selection by humans has shaped most dog breeds to excel in specific tasks in specialized environments or conditions. The desired function determined the required skills for the breed. Breed-specific behaviors are seen as the result of past selection (Stafford, 2006; Miklósi, 2007). Although some original characteristics and predilections of the breeds are preserved today, others might have changed and continue changing due to modern

selection pressures during recent decades (Svartberg, 2006). The new selection pressures result from the fact that the task of many breeds today is different from their original one, that is, the one the breed was selected to perform.

The Labrador retriever is one of the most popular dog breeds in the world (Stafford, 2006). It was originally selected to work with fishermen in Newfoundland, helping to retrieve nets and fish (Wiles-Fone, 2003). The breed is now widely held as companion pets, show dogs, and assistance dogs, for example, guide dogs, rescue dogs, and drug detection dogs (Weiss and Greenberg, 1997; Jones and Gosling, 2005; Maejima et al., 2007). Labrador retriever dogs have physical characteristics that allow them to be excellent water dogs, such as weather-resistant coat, unique otter-shape tail, and webbed toes. These dogs have been described as “keen water lovers” (Davis, 2008), but the extent to which this stereotype is accurate is unknown for present-day Labrador retrievers. Prior election for individuals displaying enthusiasm and satisfaction for interacting with water should have influenced both working and breeding. Now the breed is not always engaged in water-related activities, and common housing or management conditions may

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not offer opportunities of interaction with water (e.g., no swimming pool or natural water stream accessible to the dogs).

The special origin of Labrador retrievers raises the hypothesis that regular swimming water contact may be an important feature for the welfare of these dogs. It is increasingly important to study the welfare of working dog breeds for ethical reasons and for improvement of training and work output ability (Rooney et al., 2009). The ability to perform a social task has been shown to be related to the welfare of the individual animal (Vincent and Leahy, 1997). The welfare of an animal may be impaired if it is unable to engage in some behavior for which they are highly interested or motivated, and may have been selected. Deprivation of behavioral needs can cause stress, suffering, pain, and pathology, all of which involve compromised welfare (Dawkins, 1988, 1990; Jensen and Toates, 1993). Prevention of negative states must be accompanied by ensuring access to positive states for the animals (positive welfare). Positive states (experiencing positive feelings and accessibility to resources that an animal needs—what the animal “likes” and “wants”) are now considered goal components for good welfare (see review in Boissy et al., 2007 and Yeates and Main, 2008). For many dogs, performing the specific function they were bred for provides a strong positive emotion of pleasure (Stafford, 2006). It is challenging to distinguish the truly beneficial positive emotions from the neutral positive emotions that will not improve the quality of life of the animals (Phillips, 2009), but by testing whether interacting with swimming water is a behavioral need for Labrador retrievers, we investigated whether swimming water could be a positive stimulus to ensure positive experiences and good welfare to this breed.

To our knowledge, the current validity of the “water lover breed” stereotype has never been investigated for the modern breed. The aim of this study was to perform a preliminary evaluation of the importance of swimming water for the modern lineage of the Labrador retriever breed, investigating if different Labrador retrievers prefer to approach and/or interact with swimming water when in the presence of other appealing stimuli. To achieve this, we created an open-field arena test with nonaversive (positive) stimuli. Presenting the dogs with different positive stimuli in this arrangement allowed measuring which stimuli the dogs actively selected to approach more frequently and interact with more time. Such test indicates which stimulus has a higher preference score and is preferred over the others (Walsh and Cummins, 1976). The relative preference does not quantify how much an animal is willing to work to access a resource, but it is crucial for revealing relevance and designing future studies upon animal preference, willingness to participate in the study and needs.

## Materials and methods

### Subjects and housing

Ten Labrador retrievers (7 females and 3 males) were used in this study. The group included dogs with ages ranging from 2 to 13 years old. The dogs had been raised together since a young age on a farm kennel in Oliveira de Azeméis (Portugal), except for one of the older females that had previously lived 3 years in a dog kennel. One dog had training as an assistance dog and another was being trained as an assistance dog during the time when the study was conducted.

The dogs lived together in the farm kennel and were being held in groups of 2 to 3, grouped by ages, in large kennels. Every night groups of dogs were left unrestrained in the farm kennel. Females that started estrus were isolated in single kennels until the end of estrus, which could take up to 3 weeks. In the presence of the breeder/trainer, all dogs were unrestrained as a group at least

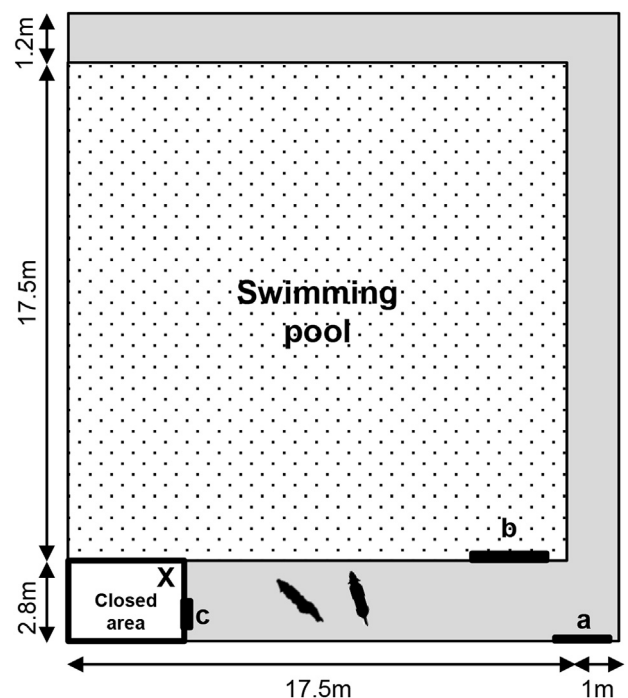
once a month, but without an established routine. Playtime opportunities occurred frequently in the presence of the breeder/trainer, in groups of 2 to 3 dogs, but again without an established schedule.

When unrestrained in the farm kennel, the dogs had access to a fountain where it was possible for the dogs to enter, stand inside the water, and play if desired. In addition, the farm kennel had one enclosed swimming pool area, which the dogs visited in groups of 2 to 3 in the presence of the breeder/trainer. The dogs were allowed to go inside the swimming pool and swim if desired. This activity could happen at any season of the year without an established schedule. From the empirical knowledge of the breeder/dog trainer, 2 of the dogs seemed to enjoy swimming, other 2 never seemed to swim, and the other individuals seemed to have neutral and undefined predilection for swimming.

The dogs were fed twice a day. The access to drinking water was ad libitum, which was assumed to satisfy all metabolic needs and avoid coercion of the dogs' choices.

### Experimental design

The open-field arena test was located in the swimming pool area of the farm kennel. The dogs were familiar with the space, which was believed to be beneficial in avoiding the induction of fear that sometimes occurs from exposure to new environments (Le Scolan et al., 1997). It consisted of a delimited area measuring  $21.5 \times 18.5$  m (Figure 1) that was already available and was not altered for the study. The area included a corner closed space of  $5 \times 2.8$  m, with an open side facing the pool, a large open window facing the entrance of the arena, and a door for access (marked as c in Figure 1). On one side of the arena, there was a concrete swimming pool, measuring  $17.5 \times 17.5$  m and 1.2 m deep, with a



**Figure 1.** Schematic of the arena test used in the study. The “X” marks the place in the closed area where the human stimulus was positioned; “a” marks the entrance gate to the arena; “b” marks the ramp of the swimming pool (square dotted area in figure); “c” marks the door of the closed area. The gray shade represents the space around the swimming pool free for the dogs to move around. On each trial, the dogs were tested in pairs and the door of the closed area was closed.

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