



## Research

# Effect of a stimulating environment during the socialization period on the performance of adult police working dogs



Bruno Lopes<sup>a,\*</sup>, João Alves<sup>b</sup>, Ana Santos<sup>b</sup>, Gonçalo Da Graça Pereira<sup>c</sup>

<sup>a</sup> Grupo de Intervenção Cinotécnico, Unidade de Intervenção, Guarda Nacional Republicana, Lisbon, Portugal

<sup>b</sup> Divisão de Medicina Veterinária, Guarda Nacional Republicana, Lisbon, Portugal

<sup>c</sup> Faculdade de Medicina Veterinária, Universidade Lusófona de Humanidades e Tecnologia, Lisbon, Portugal

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## ABSTRACT

The aim of this study was to determine if using a stimulating enrichment park environment during the socialization period of police working dogs improved social skills. Our intent was to learn whether such exposure could maximize working dog performance in future situations as adults. Six animals, with the same male progenitor, were divided in 2 groups. G1 dogs underwent the standard socialization protocol in use in the Grupo de Intervenção Cinotécnico. G2 dogs were exposed to an enriched park, in addition to the standard socialization protocol. As young adults, these animals were tested in 7 distinct situations. Their performance was graded according to their response in overcoming obstacles. Cortisol levels were measured before and after the test in both groups and used as an indicator of stress. The cortisol values measured in this study suggest that an exposure to an enrichment park could potentially lead to less stressed adult dogs, although no significant differences were found between the dogs that were exposed to the park and those that were not. The absence of such differences may be because of the focal nature of the sample. Nevertheless, exposed dogs showed lower levels of cortisol when facing the obstacles posed to them. Although no significant differences were found between the 2 groups of animals, the sample size was extremely small, and there may have been a tendency for those that were exposed to the park to achieve better scores and lower cortisol levels. This study may set the foundations for further research to better access the benefits of using an enriched environment in the training of dogs, in particular those submitted to work as police dogs.

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## Introduction

Dogs are animals with different characteristics from one another, characteristics that may be because of hereditary factors or to a learning process to which the animal has been submitted (Thomson, 2009). According to behavioral and evolutionary psychology, personality is formed by the interaction between phylogeny (characteristics of the species), ontogeny (learning and development historic), and sociocultural context (Cole, 2007). Temperament is an innate characteristic that is born with the individual and refers to thresholds and the way behavior is expressed,

being influenced by the genetic makeup of the individual and by epigenetic and environmental factors. Character is considered as the result of temperament plus learning made through the growing process (Overall et al., 2006; Thomson, 2009; Valsecchi et al., 2011).

Battaglia (1982) noted that it is not the potential that explains the differences that exist between individual dogs because most dogs appear to have much more potential than they actually use. O'Ferrall and Cunningham (1974) showed in a study on horses that only 35% of all variations observed in performance was because of hereditary factors; the remaining 65% was because of other influences like training, management, and nutrition. Battaglia (1982) commented that many of the differences found between individuals can be explained by precocious stimulation methods.

All the cited studies appear to agree that the genetic background is important but not the sole determinant to animal performance. The importance of a good socialization and exposure

\* Address for reprint requests and correspondence: Bruno Lopes, MSc, Unidade de Intervenção, Grupo de Intervenção Cinotécnico, Guarda Nacional Republicana, Rua Jacinta Marto n° 5, 1169-091 Lisbon, Portugal. Tel: +351 961189073.

E-mail address: [lopes.bei@gnr.pt](mailto:lopes.bei@gnr.pt) (B. Lopes).

program may be crucial to allow a specific animal to achieve its potential. To date, assessment of dog temperaments has been done primarily in working dogs and for breeding purposes (De Meester et al., 2008).

According to Kroll et al. (2004) and Taylor and Mills (2006), there is no temperament test that is fully informative because none can mimic all the real situations. Results obtained in each test may vary with time, showing that alterations to each animal's response may occur. Kroll et al. (2004) evaluated dogs with similar genetic backgrounds, but different socialization, and found an effect of different training methods in the responses shown by the animals when in new situations. These kinds of studies, together with observational ones, are fundamental to the assessment of and guidance for the development of each dog as a balanced adult that can function in multiple contexts. A puppy's early environment may have a profound effect on its future behavior, making appropriate socialization and habituation during the early weeks of life essential for lifelong well-being (Sforzini et al., 2009). To classify and select dogs, different individuals and their behavioral patterns must be compared using tests with comparable methods and in the same situations (Serpell and Hsu, 2001). Puppy testing may be an important tool to correctly select puppies for a particular home environment or working role (Asher et al., 2013). Studies using such assessments generally include evaluations of sociality, exploratory and retrieving tendency, learning ability, playing aptitude, and tendency toward offensive aggression (Borg et al., 1991; Chirstenseen et al., 2007; Sforzini et al., 2009). For a police working dog, some of these characteristics are essential and may determine its work capability and performance.

Accordingly, it is important to identify and capitalize on the animal's characteristics using measurement tools shown to be reliable and valid (Valsecchi et al., 2011). Different types of learning and memory as well as the relationship between different training methods and the occurrence of behavior problems have been shown to be important for working dogs (Blackwell et al., 2008; Heckler et al., 2013).

The bond between owner and/or handler may be important because their presence or absence can be an influential factor in the posture of dogs undergoing a temperament shyness/confidence test (De Meester et al., 2008). Dogs react to their handler's stress levels, as indicated by a positive correlation between handlers' heart rates before a prison drug search and dogs' cortisol levels after the search (Dreschel and Entendencia, 2013). Stress levels in working dogs may condition their performance and overall welfare and health. Noise, training, novelty, unfamiliar environments, transport, and others can trigger responses in behavioral, cardiovascular, endocrine, renal, gastrointestinal, and hematologic stress measures (Beerda et al., 1997; Haverbeke et al., 2010).

Working dogs should be free from disease, of good temperament, and have reasonably predictable behavior, so assessments should involve varied situations. Complex studies allow assessment of interrelationships between parameters, for example, boldness may be positively related to fearlessness and confidence in some situations and inversely related to inhibition and avoidance behavior, in others (Gosling and John, 1999; Sforzini et al., 2009).

For this study, German shepherd dogs were chosen because this is the primary breed used by the Republican National Guard (Guarda Nacional Republicana). The main goal of this study was to assess the influence of the dogs' exposure to a stimulation enriched park during the socialization period of these future working dogs. A secondary objective was to identify an environment that facilitated puppy adaptation to situations that will likely occur in future police work and to promote learning and later stability in adult behavior.



Figure 1. Fixed obstacle but with pliable floor.

## Materials and methods

Six individuals in the young adult stage were assessed. All the dogs were German shepherd dogs, from 2 different litters (3 from each), but with the same father to minimize the genetic variability. Three puppies (dogs A, B, and C) underwent the standard socialization program applied at the Guarda Nacional Republicana (G1), during which the animal is exposed to different environments and situations, car transportation in addition to basic obedience training, without being exposed to the enriched park, whereas the other 3 dogs (dogs D, E, and F) were, in addition to the standard program, exposed to a minimum of 1 hour per day to the park from 8 to 10 weeks of age (G2).

The enrichment park was built to provide the puppies with exposure to a wide range of situations, including different kinds of pavement, lighting, obstacles, and other challenges, using different materials and colors (Figures 1–3). The type of obstacle was changed daily, and the dogs were encouraged to overcome each obstacle. The food was placed at the end of the obstacle in a way that the dog could only get to the food by overcoming the obstacle.

All the individuals in this study were submitted to a test with 7 distinct situations (areas with big grids or plain but mobile/oscillating areas, with smooth and slippery floors, with water, with no



Figure 2. Mobile obstacle but with fixed floor.

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