

Evaluating the temperament in shelter dogs

**Costanza De Palma^{1,2)}, Emanuela Viggiano³⁾, Emanuela Barillari⁴⁾,
Rupert Palme⁵⁾, Anne B. Dufour⁶⁾, Claudio Fantini⁷⁾
& Eugenia Natoli⁷⁾**

(¹ Department of Anatomy, Biochemistry and Veterinary Physiology, University of Pisa, Pisa, Italy; ³ University 'La Sapienza' of Rome, Rome, Italy; ⁴ University 'Magna Graecia' of Catanzaro, Catanzaro, Italy; ⁵ Institute of Biochemistry, Department of Natural Sciences, University of Veterinary Medicine, Wien, Austria; ⁶ U.M.R. C.N.R.S. n°5558 'Biométrie et Biologie Evolutive', Université Claude Bernard Lyon I, 43, boulevard du 11 novembre 1918, 69622 Villeurbanne, France; ⁷ Azienda USL Roma D, Department of Veterinary Public Health, Veterinary Hospital, Rome, Italy)

(Accepted: 10 April 2005)

Summary

Seventy-four healthy mixed-breed dogs were studied collecting behavioural data by means of 'focal animal sampling' and 'all occurrences' methods; the ethogram utilised consisted of more than 100 behavioural patterns. All dogs were taken outside the shelter for a walk to analyse their reaction to a novel environment. In addition, three faecal samples were collected from each dog on three consecutive days during daily routine, to measure the levels of cortisol metabolites (CM) to evaluate adrenocortical activity. A Principal Component Analysis (PCA) identified five primary factors: 'subordination/aggressiveness', 'intraspecific dominance-activity', 'anxiety-sociability towards dogs', 'playfulness' and 'sociability towards humans'. Dogs that showed a confident-independent temperament in a familiar context (within the shelter), showed fear in novel situations (outside the shelter). Despite the absence of a proper control we hypothesise that the stress levels were low both behaviourally and physiologically: neither stereotypies nor inactivity and lack of interest in the surrounding environment was observed, and the median CM concentration was moderately low. Lower concentrations of faecal CM were recorded in dogs with a temperament 'sociable to human beings' which were also associated with a longer stay in the shelter.

Keywords: temperament, dogs, public shelter, faecal cortisol, metabolites.

²⁾ Corresponding author's e-mail address: codepalm@tiscali.it

Introduction

Dog shelters are common in western societies and provide a valuable service by housing stray dogs, dogs brought in by their owners for various reasons, and dogs seized by shelters because of neglect or other violations. Furthermore, the service provided includes seeking subsequent adoption for the dogs. Nevertheless, the literature on shelter dog behaviour is not abundant. The studies available mainly aim at finding behavioural parameters to assess acute and chronic stress in dogs, given the current growing interest in the welfare of domestic animals (Tuber et al., 1996; Beerda et al., 1997, 1998, 1999a, b, 2000; Hennessy et al., 1997, 1998, 2001, 2002a, 2002b). Although the number of studies aimed at explaining behavioural individuality is steadily increasing there have been few attempts to study 'temperament' in shelter dogs. In human research, temperament has been defined as the inherited, early appearing tendencies that continue throughout life and serve as the foundation for personality (Gosling, 2001). Although there is no general agreement on that definition among animal researchers, some of whom prefer the term 'personality' (see for example Svartberg et al., 2005 vs Serpell & Hsu, 2001), it is widely recognised that within vertebrate species, individuals vary along an axis, the extremes of which are represented by individuals defined as 'bold' and 'shy' (Wilson et al., 1994) or 'proactive' and 'reactive' (Koolhaas et al., 1999). Proactive individuals tend to be quicker than reactive ones to explore, and try to manipulate the situation (Koolhaas et al., 1999) even in a novel context. Conversely, they are more prone to forming routines and being less innovative. On the other hand, reactive individuals are more cautious and more sensitive to external stimuli, which they analyse while trying to adjust to the situation. They are slower in taking decisions and, rather than manipulating the situation, they tend to adjust to it in a more passive way (Koolhaas et al., 1999; Sih et al., 2004; Groothuis & Carere, 2005). Moreover, there are clear predictions about the relationship between temperament assessment and the stress response assessed by hypothalamic-pituitary-adrenal (HPA) (re)activity: so far, most studies found that shy, reactive, slow and neophobic individuals display a higher HPA reactivity than bold, proactive, fast and neophilic individuals (e.g., Koolhaas et al., 1999; Carere et al., 2005; Cavigelli & McClintock, 2003; Veenema et al., 2003).

According to Svartberg & Forkman (2002), the studies available on temperament assessment of dogs are based on subjective ratings of individual