

DO DOGS SHOW PREFERENCES FOR CERTAIN TYPES OF ENVIRONMENTAL ENRICHMENTS

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Key words: behaviour, animal; ethology; animal shelters, dogs, preference

Introduction

Dogs have accompanied people for longer than any other domestic animal. However, in each society in which it is customary to have pets, the problem of unwanted animals appears at the same time. There are several reasons why people reject an animal. Behavioural problems and a change in the life style of the owner (moving, newborns, owner's disease) are stated as the most common reasons for surrendering a dog to a shelter (Miller et al., 1996; Podberscek, 1997).

A short- or long-term accommodation in a kennel of a shelter may compromise the well-being of a dog in many ways. A study of beagles showed that socially and spatially restricted dogs had higher levels of cortisol in saliva and urine, which might indicate chronic stress (Beerda et al., 1999a). In a poor environment, dogs can develop abnormal behaviours which are indicators of poor welfare (Beerda et al., 1999b). At the same time, the possibility that shelter dogs with behavioural problems are adopted is decreased (Wells and Hepper, 2001). Therefore, it is necessary to pay attention to improving their welfare. The latter may be improved by enriching the environment in which the animals live (Newberry, 2004). Different aspects such as social, spatial and sensorial needs should be taken into account while planning to enrich the environment of a dog (Hubrecht, 1993). Auditory stimulation (Wells et al., 2002), conspecific contact (Wells and Hepper, 1998) and the change of environment (Wells and Hepper, 2000) can have influence on the behaviour of dogs housed in a rescue shelter.

The appropriateness and successfulness of such an enrichment can be determined by preference tests which point out the value that an animal attaches to a resource (Dawkins, 1983a; Fraser, 1996). The value an animal attaches to a resource can be measured by what price (in terms of time or work) an animal is prepared to pay to obtain the resource. A necessity is defined as a resource very important to the animal and the demand for it declines slowly with the increasing of the price. The price elasticity has an absolute value of less than one. On the other hand, a luxury is defined as a resource not very important to the animal and

the demand declines sharply with price increase. The price elasticity has an absolute value of more than one.

In our study we wanted to establish what values dogs attach to different resources of environmental enrichment. We observed how much they are ready to work in order to obtain a contact with a toy, another dog or a human being, compared to food.

Material and methods

The study was carried out in an animal shelter. The sample consisted of 20 mongrel dogs. Dogs in our study were housed individually (6 males and 4 females) or in a group (5 males and 5 females). By means of a test of personal characteristics, we determined certain personality traits of each individual dog (socialisation, playfulness, curiosity/fearlessness, aggressiveness) and thus obtained the information on some aspects of their temperament and character. In order to perform the preference test, we constructed a test cage with three spaces. The dogs involved in the experiment first had to be taught how to trigger the trapdoor of the cage in order to enter the smaller area of the cage, in which later (in the main part of the experiment) one of the elements of environment enrichment was placed. The dogs were taught to open the trapdoor by means of positive reinforcement. The preference test was made with a dog when it was reliably opening the door in order to enter one of the two smaller areas in the cage. A toy, another dog or a human being was used as the element of enrichment. The preference test provided the data on the number of successful openings with regard to the number of presses needed to open the trapdoor. Logarithmic values of the relative number of the contacts with individual elements were compared with the logarithmic values of the "price" and linear regression was used for the calculation of the demand curve. We defined the coefficient of elasticity as the absolute value of the price elasticity and determined CE for food and for individual elements of environmental enrichment for each dog.

Results

Results gained by the preference test showed that CE for foods and CE for human contact differed significantly ($p < 0.05$) from CE for dog contact and CE for toy (Table 1). The comparison of certain temperament traits of individual dogs and CEs showed some significant ($p < 0.05$) correlations (Table 2).

Table 1: The mean CEs for elements of environmental enrichment and food

Enrichment type	n	CE			Confidence Limits ^a		
		Mean	± SD	SE	Lower C.L.	Upper C.L.	Sign.
Ford	20	0.24	0.16	0.036	0.16	0.31	*
Toy	20	1.23	0.39	0.088	1.05	1.41	
Dog	20	1.17	0.41	0.091	0.98	1.36	
Human	20	0.75	0.46	0.100	0.54	0.96	*

* statistical significance at $p < 0.05$

a – calculated by equation $\bar{x} \pm t \cdot SE$ for $t = 2,09$ at 19 degrees of freedom and $p < 0.05$

Table 2: Spearman's correlation coefficients for selected temperament traits and CEs.

Variable A	Variable B	Spearman's correlation coefficient (r)
Age	learning	0.569
	CE for contact with human	-0.596
Sociability	curiosity	0.378
	CE for contact with dog	-0.513
	CE for contact with human	-0.439
Playfulness	CE for contact with human	-0.391
CE for contact with dog	CE for contact with human	-0.517

Discussion

Dogs in our study were prepared to work hardest to obtain food, which is not surprising as food is a necessity for living. The mean CE for food was 0.24 and differed significantly from other CEs ($p < 0.05$). This finding was similar to the study of pig preferences (Matthews and Ladewig, 1994), and is consistent with the theory of Dawkins (1983b) that a necessity is a very important resource and that its price elasticity has an absolute value of less than one.

Dogs in our study showed greater preference for contact with people compared to dogs or toys. They were prepared to work hard to obtain contact with humans. The mean CE for contact with human was 0.75 which suggests that a positive human contact for a dog in an animal shelter can be thought of as a necessity. The findings from other researches show that positive human contact can reduce the cortisol responses of dogs to certain aversive situations at shelters (Tuber et al., 1996; Hennessey et al., 1998).

CEs for contact with a conspecific and a toy were 1.17 and 1.23, respectively. These findings could lead us to the conclusion that, as price elasticities of both resources have an absolute value of more than one, they could be regarded as luxuries. But we have to be cautious with such interpretation, since it is known from several studies that individually housed dogs show higher stress responses compared to group housed conspecifics (Beerda, 1999a; 1999b).

Wells and Hepper (1998) concluded from their research that the provision of visual intraspecific contact may help reduce the under-stimulation commonly associated with single housing. The latter could be the reason why dogs in our study showed less preferences than expected for contact with another dog. Due to the shelter architecture, they had the opportunity of visual contact with conspecifics during the day regardless of housing. While the results suggest that providing a toy in a shelter is a luxury to a dog, we cannot say the same for providing contact with a conspecific.

Through comparison of temperament traits with preferences, we observed that there were no differences in expressing preference when food was in question, but dogs, which were more social were also showing higher preferences for contact with humans or another dog.

Conclusions

Our study showed that dogs do show preferences for certain type of enrichment, and they prefer social enrichment. So, by enabling daily human and conspecific contact, the welfare of dogs in shelter can be improved and consequently the chances of their successful adoption can be increased.

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