

2003 APDT Award Winning Essay

Housing of dogs in shelters and its implications for animal welfare

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Introduction

"The national RSPCA shelter system receives over 140,000 cats and dogs annually. Some 43% of dogs are recovered by their owners or are adopted to new homes" (RSPCA Australia website). Housing in a shelter is undoubtedly a stressful experience for a dog. Dogs are placed in unfamiliar surroundings where they are constantly exposed to unpredictable and novel experiences over which they have no control. Close confinement with conspecifics, strange people, repeated interruption of cleaning and feeding times, and auditory stimulus are all imposed on a disoriented animal. This report will discuss recent studies that have investigated measurement and control of stress factors in the environment of dogs in shelters.

Discussion

Studies have not shown any detriment to welfare associated with a short stay in a shelter (Wells and Hepper, 1992). However in a study performed on dogs housed in pairs it was shown there is a significant relationship between length of time spent in the shelter and behavioural change independent of increase in age and therefore maturity (Wells et al., 2002a). In the study the dog's position, activity and vocalisation were recorded at ten-minute intervals over four hours and compared with the length of stay in the shelter. Dogs kennelled for more than five years spent a significantly longer period of time at the rear of their kennel, more of their time sitting and resting, less time standing and also had decreased vocalisation. This indicates that although a shelter is an extremely stimulating environment a dog gradually loses interest in it. It is possible to attribute the change in behaviours to increasing familiarity with the shelter and a decrease in stress levels, which is supported by the absence of animals displaying stereotypies or self mutilation. However there may be other reasons for these changes. It is possible that these dogs are displaying "learned helplessness", a failure to cope with the lack of control over their environment. The apathy displayed is not only a significant welfare issue but also decreases the likelihood of adoption as potential buyers see sedentary behaviour as "unfriendly". This study further asserts the need for environmental enrichment to improve welfare and chances of adoption.

Altering the auditory environment has been previously overlooked but recently indicated as a method to decrease stress in shelters. Wells, Graham and Hepper (2002b) investigated the effects of four different auditory stimuli; human conversation, classical music, heavy metal music, and pop music on the position, activity and vocalisation of dogs in a shelter. They found that that classical music increases the time dogs spend sitting and resting, whereas heavy metal music seems to increase arousal leading to an increase in activity and vocalisation. This study implies that the use of classical music relieves some of the initial stress of shelters, as it seems to induce a state of relaxation. However, the specific details of bioacoustics in animal species warrant further investigation.

It has been shown that potential buyers spend little time in a shelter, often concentrating on the first dogs seen (Wells and Hepper, 2001). It has been previously suggested that improvements to the visual environment may improve visitors' perceptions of shelters and thereby increase chances of adoption (Wells and Hepper, 1992). This can now be extended to the auditory environment as classical music is generally considered to be relaxing for humans (Wells and Hepper, 2002b).

Increasing human interaction is another means by which stress levels may be lowered. Often changes in activity of the hypothalamic-pituitary-adrenal (HPA) axis are used measure effects, as stress has been shown to activate physiologic stress systems such as the HPA axis. Plasma cortisol levels have been shown to increase during the first three days of confinement

in a shelter (Hennessy et al., 1997) and the increase in cortisol levels associated with a mild stressor can be lowered by human interaction directly after the event (Hennessy et al., 1998). Recently Hennessy et al. (2002) investigated the effects of a program of human interaction and alterations in diet composition on dogs in shelter to assess whether the increase in cortisol levels could be dampened by human interaction or diet manipulation remote to the time of stress. In the study one group of dogs in a housing environment that mimicked a shelter was involved in regular supplementary human interaction such as stroking, massaging, and behavioural training. In addition, half of each group was fed on a maintenance type diet and the other on a premium diet. The plasma cortisol and ACTH concentrations were measured before and after exposure to a novel stimulus during weeks 0, 2, 4 and 8. It was shown that the program of human interaction has a 'moderating effect' on an increase in plasma cortisol levels associated with novel stimulus by preventing the sensitisation of the endocrine response to a novel stimulus. The percentage increase in plasma cortisol levels after novel stimulus doubled from week 0 to week 8 with the dogs not part of the human interaction program, but there was no increase in those which were part of the program. The study also indicated that nutrition could independently reduce the increase in plasma ACTH levels associated with housing in shelters as ACTH levels decreased in week 8 in the group fed a premium diet.

Hennessy et al. (2002) found some problems with using plasma cortisol to measure stress, as often ACTH levels did not correspond to plasma cortisol levels suggesting the possibility of HPA axis dysregulation (sic). Desensitisation of the adrenal cortex to stimulation by ACTH would mean that the activity of the HPA axis at the level of pituitary and possibly the brain might have been elevated for much longer than the plasma cortisol levels would suggest. This has significant implications for the use of HPA axis to measure stress levels.

Conclusion

Further developments in our understanding of the effects a stressful environment like a shelter has on a dogs behaviour and welfare will allow animal welfare scientists, handlers and shelter operators to make continued improvements to the way in which dogs are kept in shelters.

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