

## Should cats be housed separately or with conspecifics?

Considers whether there are welfare benefits for cats from being housed singly or if they are less stressed when housed with one or more other cats.

By Abigail Wiley

Word count: 997

### Introduction

Appropriate housing for any animal is essential to quality of life. Without it, at least three of the “five freedoms” may not be satisfied: freedom from discomfort; freedom to express normal behaviour; and freedom from fear and distress. Suitable housing should consider the presence of conspecifics in the animal’s environment. Prospective cat owners may wonder whether it is better to keep a single cat, which may be lonely, or two or more cats, which may experience stressful interactions. This paper considers the desirability of keeping cats with other cats by examining studies that assess their stress levels when singly or multiply housed in different environments. [In this context, stress is considered to be a feeling of anxiety or frustration (Boden, 2005)].

### Discussion

Although not the same as a home environment, animal shelters allow a number of cats to be studied while living in similar conditions. Uetaka *et al.* (2013) assessed cats that had been in group housing in a shelter for seven months and were then moved to single cages of different sizes. Urinary cortisol to creatinine ratios were measured to attempt to gauge stress experienced, and activity levels were observed (blinding not stated). The study found that when caged singly, cats became less active, even in large cages. The authors drew attention to this in the context of research showing that active cats tend to be more attractive to prospective adopters (Fantuzzi *et al.*, 2010). They also noted that this is a potential welfare issue since less active or less playful cats are arguably not expressing normal behaviours. As such, there may be a case for keeping cats together, although the authors recommended against a high density of cats in a single cage (based on studies carried out previously). The study also found that a small percentage of cats would always struggle to adapt to group housing, especially if unaccustomed to it, meaning that shelter workers still need to consider an individual cat’s perceived preferences as this may influence their adoption outcomes.

A potentially important consideration for owners and shelter managers is whether a history of housing with conspecifics affects a cat’s ability to cope with changes to its environment. A recent study of shelter cats (Broadley *et al.*, 2014) used the Cat-Stress-Score, which is based on observations of behaviour and posture (Kessler & Turner, 1997), to assess recently surrendered cats from known single- and multiple-cat households. It did not find significant long-term differences in perceived stress levels between the groups after adjusting for existing differences in the respective populations. However, it found that cats from single-cat households appeared more stressed in the first days after arriving, potentially making them less attractive as prospective adoptees when assessed on their behaviour during this period. Despite this, the study also found that older cats appeared less stressed generally and that they were over-represented in the single-household group. These findings may suggest that if pets are likely to undergo frequent stays in a cattery or other unfamiliar environment, it may be desirable to have more than one cat, although the study’s authors did not consider this specific interpretation. It appears that even singly-housed cats can, on average, eventually adapt to a new cat-dense environment, so owners should consider how its housing history may affect their pet(s) away from home. Individual factors, such as age, are also important.

Another study (Ramos *et al.*, 2013), based on cats still living in their home environment, found that there were no significant differences in faecal glucocorticoid metabolites (GCMs, used as a measure of stress) among groups of cats housed singly, in pairs or in groups of three or four. Subjective measures of stress, such as ease of handling and temperament, also appeared to be similar across the three groups. Interestingly, however, younger cats (age < 2) appeared to be over-represented among those with high GCMs in the single-cat group, whereas it was the opposite for multiple-cat households, with older cats more likely to have a high GCM count. (The results were fairly uniform for the two-cat households.) The results for younger cats surprised the researchers, given that plasma cortisol concentrations can also be a measure of high activity levels, and cats with the opportunity to

play with other cats were expected to be more active. This finding contrasts with the results of Uetaka *et al.* (2013) described above, which showed that cats caged singly were less active. There could be several reasons for this difference, such as opportunities for exploration offered by non-cage environments, or adaptation to human activity (Piccione *et al.*, 2013), perhaps assisted by human interest in interacting with new kittens (although a full exploration of these factors is outside the scope of this paper). However, the results suggest that when assessing ideal cohabitation arrangements, group averages may be less important than individual factors, including age.

## Conclusions

The findings indicate that although there do not appear to be great differences between the measured stress levels of the different groups on average, the issue should be considered on a case-by-case basis to account for the circumstances and needs of individual cats. The issue of whether cat welfare is better served in single- or multiple-cat accommodation should be of interest to those who care for them. Although research from two of the studies examined in this paper was carried out in shelters, it may be useful to consider the implications of their conclusions for cats housed in other contexts, such as veterinary clinics, boarding catteries and private homes. It appears that, on average, cats can cope with or quickly learn to adapt to a range of cohabitation arrangements with conspecifics. However, not every cat can be considered average, and individual differences, such as age, history and behaviour, must be given attention when assessing the suitability of multiple-cat housing. A possible line for further investigation could be whether cats housed in pairs or groups are better equipped than single cats to cope with changing circumstances of the owners, such as spending time away from home.

## References

Boden, E. (ed.) 2005 *Black's Veterinary Dictionary*, 21st edn, A & C Black, London.

Broadley, H.M., McCobb, E.C., Slater, M.R. (2014) Effect of single-cat versus multi-cat home history on perceived behavioral stress in domestic cats (*Felis silvestris catus*) in an animal shelter. *Journal of Feline Medicine and Surgery*, 16, 2, 137-143.

Fantuzzi, J.M., Miller, K.A., Weiss, E. 2010 Factors relevant to adoption of cats in an animal shelter. *Journal of Applied Animal Welfare Science*, 13, 2, 174-179.

Kessler, M.R., Turner, D.C. 1997 Stress and adaptation of cats (*Felis silvestris catus*) housed singly, in pairs and in groups in boarding catteries. *Animal Welfare*, 6, 3, 243-254.

Piccione, G., Marafioti, S., Giannetto, C., Panzera, M., Fazio, F. 2013 Daily rhythm of total activity pattern in domestic cats (*Felis silvestris catus*) maintained in two different housing conditions. *Journal of Veterinary Behavior*, 8, 4, 189-194.

Ramos, D., Reche-Junior, A., Fragoso, P.L., Palme, R., Yanasse, N.K., Gouvea, V.R., Beck, A., Mills, D.S. 2013 Are cats (*Felis catus*) from multi-cat households more stressed? Evidence from assessment of fecal glucocorticoid metabolite analysis. *Physiology & Behavior*, 122, 72-75.

Uetake, K., Goto, A., Koyama, R., Kikuchi, R., Tanaka, T. 2013 Effects of single caging and cage size on behavior and stress level of domestic neutered cats housed in an animal shelter. *Animal Science Journal*, 84, 3, 272-274.