Canine and Feline Welfare in Urban Environments: Innovative Research by the Centre for Animal Rehabilitation

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National Parks Board

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The bustling urban landscape of Singapore is home not only to humans but also to a population of free-roaming dogs and cats. These animals, often unowned, are the focus of the Centre for Animal Rehabilitation (CAR), managed by the Animal & Veterinary Service (AVS), a cluster of the National Parks Board (NParks). CAR is actively working to improve the welfare of these animals through various programmes and research initiatives. In this article, we will explore the world of animal welfare, with a particular focus on the rehabilitation and rehoming of free-roaming dogs and cats. We will take you through some of the fascinating research conducted within CAR to better understand the adaptability and sociality of these animals in shelter conditions.

Canine Welfare:
Measuring Stress and Adaptability

Singapore's Trap-Neuter-Rehome/Release-Manage programme aims to rehome as many sterilised free-roaming dogs as possible. As most of these dogs are predisposed to fear and anxiety, especially when faced with new situations—such as suddenly being placed in a home environment—it is important that they are suitably rehabilitated before rehoming. This process often necessitates a period of sheltering. The suitability of a dog for rehoming is therefore contingent on its adaptability to shelter conditions. To accurately assess this adaptability, we collect and analyse data on the animals' bioindicators of stress, employing scientific methods to ensure the best outcomes for these dogs.

We measured the cortisol levels in the dogs, a hormone that increases in response to stress. While serum cortisol measurements are invasive, researchers have found a non-invasive alternative: canine faecal samples. By examining faecal cortisol metabolites (FCM), we have gained valuable insights into the adaptability of Singapore's free-roaming dogs.

In our study, we compared FCM levels between newly sheltered dogs and pet dogs. The results were intriguing. FCM levels of recently sheltered dogs were higher than those of pet dogs, indicating higher stress levels in sheltered dogs. However, unlike other studies, FCM concentrations in recently sheltered dogs continued to rise over time (1-22 days since intake), suggesting that the dogs may not have fully adapted to shelter conditions yet. Moreover, factors such as the animal's sex and the state of faecal samples influence FCM levels.

Unexpectedly, we found dogs with a good prognosis (i.e., deemed suitable for rehabilitation) having higher FCM levels than those with a poor prognosis. While elevated cortisol levels have often been associated with higher stress and poorer animal welfare, in the short term, a rise in cortisol level is adaptive. Hence, dogs with higher FCM levels may indicate a better adaptive response than dogs with lower levels due to sheltering. This highlights the complex interplay of stress and adaptability, and thereby further emphasises the importance of a holistic understanding of canine welfare in shelter environments.

These results demonstrate that FCM not only provides a reliable bioindicator of stress but is also a valuable tool for evaluating dogs' adaptability to shelter conditions. Our research sheds light on the challenges these animals face and the need for tailored rehabilitation programmes.

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Dog in kennel

Feline Welfare: Assessing Sociality and the Promise of Automation

Rehoming sheltered cats pose a unique challenge, particularly when their socialisation history is unknown. Only cats that are socialised towards humans can be rehomed without serious compromise to their future welfare. Conventionally, assessing their sociality towards humans has been a time-consuming process, involving five interactive assays and one observational assessment. Therefore, we are exploring innovative ways to streamline this assessment and, in the future, potentially automate it.

The pilot project involves a criterion-based assessment, which offers a quicker alternative to traditional methods. We also explored the possibility of an automated assessment—potentially using computer vision—through monitoring in-cage behaviours, reducing the need for human observation.

The results are promising. Cats that met the assessment criterion displayed distinct behaviours (i.e., either touching the hand of the assessor or rubbing on the cage door) during the evaluation. Similarly, cats behaved differently in their cages depending on whether they were previously more or less socialised towards humans. This hints at the possibility of automating their sociality assessment just by monitoring their in-cage behaviours.

A free-roaming cat in our shelter

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The implications of these findings are substantial. The criterion-based assessment not only saves time but could also lead to more efficient rehoming processes. Moreover, the potential for automating sociality assessments through artificial intelligence presents a tantalising prospect for the future.

While these findings require further validation and consideration of shelter stress, they represent significant progress in enhancing feline welfare in urban environments. Such research will continue to inform our animal care decisions, ultimately with the goal of improving animal welfare in shelters and in homes.

Toward a More Compassionate Urban Landscape

Through research and innovative programmes, CAR endeavours to optimise the opportunity for every dog and cat to find a loving home.

As our urban landscape evolves, we must not forget our responsibility toward the animals that share our cities. The work we do in CAR strives to create a more compassionate and understanding urban environment for our furry companions. The path to a better future for free-roaming dogs and cats in Singapore is paved with research, compassion, and innovation. We hope that this knowledge will inspire others to join us in this worthy cause and to bridge the gap between the human and animal inhabitants of our cities.

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The Centre for Animal Rehabilitation.
(Image credit: Brina Chan)