University of Cincinnati
Animal Care and Use Program

Environmental Enrichment and Social Housing of Laboratory Animals

Environmental Enrichment

The *Guide for the Care and Use of Laboratory Animals* recommends the use of environmental enrichment to enhance physical and psychological well-being and to promote species-typical behavior in all laboratory animals. Public Health Service (PHS) Policy (II; IV, A, 1) requires that institutions comply with the *Guide*.

The UC ACUP considers enrichment an important part of animal well-being and husbandry. Enrichment must be conducted in such a way as to not interfere with the research results.

1. Enrichment for all vertebrate animals is required unless scientifically justified or exempted for health/welfare reasons.
2. Exceptions from enrichment requirements must be reviewed and approved by the IACUC: The exception must include:
    a. a scientific justification for withholding enrichment
    b. the period(s) in which enrichment will be withheld
3. Variations from standard enrichment:
    a. If standard enrichment items can't be used and must be substituted, the Principal Investigator (PI) must submit a LAMS service request for vet approval prior to use of the new items.
    b. Physical materials used for enrichment should be easily sanitizable or disposable.

Social Housing

The *Guide for the Care and Use of Laboratory Animals* states "Single housing of social species should be the exception and justified based on experimental requirements or veterinary-related concerns about animal well-being. In these cases, it should be limited to the minimum period necessary, and where possible, visual, auditory, olfactory, and tactile contact with compatible conspecifics should be provided." "The need for single housing should be reviewed on a regular basis by the IACUC and veterinarians." Public Health Service (PHS) Policy (II; IV, A, 1) requires that institutions comply with the *Guide*.

The UC IACUC in consultation with the veterinary staff has defined social species as all species used at UC excluding most reptiles[1] and amphibians[2].

Social animals must be group housed unless one of the following justifications for single housing exists:

1. Experimental Requirements: Exceptions must be reviewed and approved by the IACUC, and LAMS must be notified via a husbandry exception prior to single housing. The exception must include:
    a. scientific justification for single housing animals
    b. the period(s) for which single housing is required
2. Veterinary - health or behavioral reasons. Examples include but are not limited to:
    a. Animals undergoing medical treatment
    b. Animals with poor body condition
    c. Aggression – animals of any gender or species.

3. The following include programmatic examples in which IACUC approve exceptions to be made at the discretion of LAMS or research staff:
    a. Adult male mice (especially C57/Bl background)
    b. Breeding status:
        1. Separation prior to parturition
        2. Female rodents with litters
        3. Male rodents being rested between matings
    c. When a companion animal is not available, such as:
        1. separation of pups at weaning when the number of pups does not allow for all animals in a litter to be placed with a compatible cage mate
        2. individual housing due to attrition of cage/pen mates or uneven number of animals
        3. last animal remaining in an experimental cohort
        4. a single animal is ordered

In some cases, keeping animals socially housed, even when they exceed or outgrow the spacing limits described in the *Guide* may benefit their social experience and quality of life. These exceptions will be based on the risk/benefit (space vs. social experience) for the animals and can be approved by the IACUC and/or LAMS Veterinarian. Space requirements alone will not be used to singly house social species.

Social Well-being

In any case, when single housing occurs, methods to ensure social well-being (enrichment) must be implemented under the direction of the veterinary staff.

1. Methods for ensuring social well-being include:
    a. Additional enrichment items
    b. Visual, auditory, olfactory, and tactile contact with compatible conspecifics
    c. Positive interaction with the animal care staff
    d. If an animal must be isolated without access to conspecifics, additional socialization such as positive interaction with the human caretakers should be provided
2. In cases where this would interfere with the research, a request to withhold enrichment must also be included in a husbandry exception.

Responsibilities

1. ACUP is responsible for post-approval monitoring through semi-annual inspections, PAM visits and walk-throughs.
2. LAMS staff are responsible for monitoring social housing of rodents during cage changes and room checks.

References

1. Wilson EO. 1975. Sociobiology p 438-445 (Reptiles, fish, amphibians). Belknap/Harvard.
2. Wells KD. 2007. The Ecology and Behavior of Amphibians. University of Chicago Press.