

IACUC Policy on Social Housing and Environmental Enrichment

Background

This policy outlines the types of standard housing used for laboratory animal species at IACUC and the types of environmental enrichment materials or practices that may be used to enhance species-specific behavior and reduce distress and anxiety in laboratory animals.

The *Guide for the Care and Use of Laboratory Animals* states that:

"A good management program provides the environment, housing, and care that permit animals to grow, mature, reproduce, and maintain good health; provides for their well-being; and minimizes variations that can affect research results."

"Animals should be housed with the goal of maximizing species-specific behaviors and minimizing stress-induced behaviors."

"Depending on the animal species and use, the structural environment should include resting boards, shelves or perches, toys, foraging devices, nesting materials, tunnels, swings, or other objects that increase opportunities for the expression of species-typical postures and activities and enhance the animals' well-being."

"Consideration should be given to an animal's social needs. The social environment usually involves physical contact and communication among members of the same species (conspecifics), although it can include non-contact communication among individuals through visual, auditory, and olfactory signals."

"Social animals should be housed in stable pairs or groups of compatible individuals unless they must be housed alone for experimental reasons or because of social incompatibility."

"Appropriate social interactions among members of the same species (conspecifics) are essential to normal development and wellbeing."

The Animal Welfare Act (AWA) mandates "environmental enrichment" for nonhuman primates by specifying that there must be a "program for the psychological well-being of nonhuman primates". Exercise requirements for dogs are also specified in the AWA.

Definitions

Standard housing refers to the type(s) of housing approved by IACUC and DLAR for housing the species concerned.

Environmental enrichment refers to additions to an animal's environment with which it can interact. The goal is to allow animals to express a range of species-typical behaviors, which may enhance their well-being. Examples of environmental enrichment include the following:

- Allowing control over the environment, such as providing opportunities for:
 - nest-building

- areas for animals to hide from threatening situations
- exercise
- Novel items (e.g. food, toys, climbing structures).
- Group housing to allow interaction with conspecifics.

The type of environmental enrichment provided depends on the species of animal, type of housing, space available, research needs, husbandry practices, and other operational needs.

POLICY

In compliance with Federal Animal Welfare Regulations and guidance and in consideration of the physical and social needs of research animals the IACUC requires that appropriate environmental enrichment be provided to standard animal housing, unless there is scientific justification, approved by the IACUC that precludes the use of environmental enrichment materials or practices.

All animals housed for use in research, teaching, or testing purposes at IACUC must be housed in an animal facility or other space approved by the IACUC.

Each animal housing room (or isolated housing unit) will contain a single species, unless special housing arrangements have been made with DLAR for compatible species.

Social species should be housed in stable pairs or groups of compatible individuals, unless they must be housed alone for experimental reasons or because of social incompatibility.

Changes to the standard housing and environmental enrichment described in Table 1 below are not permitted except under the following circumstances:

Changes are described in the animal use protocol and approved by the IACUC.

- Changes are prescribed by the attending veterinarian for animal health or welfare reasons.
- Enrichment materials or practices should not significantly alter the species-appropriate standards for husbandry, nutrient requirements, or housing, as described in The Guide, unless these deviations are described and approved by the IACUC in the animal use protocol.
- Provision of environmental enrichment other than the Standard or Allowed Environmental Enrichment described in Table 1 must be described in the IACUC protocol. If the standard housing and enrichment for the species cannot be used, a justification must be submitted and approved by the IACUC.
- For USDA-covered species, a written record of the environmental enrichment items provided will be kept along with the daily husbandry records.

TABLE OF STANDARD HOUSING AND ADDITIONAL ENRICHMENT

| Species (common name) | Standard Housing | Standard Environmental Enrichment Required (DLAR-Provided) | Additional Enrichment Allowed/Recommended (Research Group Must Provide) |
|-----------------------|---|---|---|
| Mice | <p>Solid-bottom plastic cage with a wire bar lid that serves as a food hopper and water bottle holder. Filter top (microisolator lid). Cages may be placed on ventilated racks providing filtered air directly to the cage, or placed on static racks. Water bottle. Contact bedding consisting of commercially-available corn cob particles, wood chips, cotton, or paper products specifically made for laboratory animals. Commercially-available laboratory rodent diets approved by DLAR. Group-housed as appropriate (e.g. adult males from different litters cannot be housed together).</p> | <p>Nesting material made from paper or cotton fibers.</p> | <p>Disposable cardboard mouse houses ("Shepherd Shacks") Plastic mouse houses (must be cage-washer safe).</p> |
| Peromyscus spp. | <p>Solid-bottom opaque plastic cage with a wire bar lid that serves as a food hopper and water bottle holder. Cages are placed on static racks. Water bottle. Contact bedding consisting of commercially-available corn cob particles, wood chips, cotton, or paper products specifically made for laboratory animals. Commercially-available laboratory rodent diets approved by DLAR. Opaque housing. Group-housed as appropriate</p> | <p>Nesting material made from paper or cotton fibers.</p> | <p>Disposable cardboard mouse houses ("Shepherd Shacks") Plastic mouse houses (must be cage-washer safe).</p> |
| Rats | <p>Solid-bottom plastic cage with a wire bar lid that serves as a food hopper and water bottle holder. Filter top (microisolator lid) Cages may be placed on ventilated racks providing filtered air directly to the cage, or placed on static racks. Water bottle. Contact bedding consisting of commercially-available corn cob particles, wood chips, cotton, or paper products specifically made for laboratory animals. Commercially-available laboratory rodent diets approved by DLAR. Group-housed as appropriate (e.g. adult males are often incompatible).</p> | <p>Sanitizable toys, such as nylabones, for chewing</p> | <p>Plastic rat houses (must be cage-washer safe) Plastic drain pipes or connectors</p> |
| Pigs | <p>Indoor pens with sanitizable surfaces. Lixit for automatic watering. Sanitizable food bowls. Nutritionally complete commercially available diet for laboratory pigs approved by DLAR.</p> | <p>Group-housed if pen size is adequate and if animals arrive together and are compatible. Social contact with other pigs if possible. Positive human interaction (e.g. patting, scratching, rubbing back), if pigs are acclimatized to this. Sanitizable toys (e.g. Kong toys, plastic balls).</p> | <p>Small amounts of food treats such as fresh vegetables, yogurt or fruit.</p> |
| Guinea Pigs | <p>Polystyrene, polycarbonate or other high-temp plastic solid bottom cage with a wire bar lid that serves as a water bottle holder.</p> | <p>Group-housed as appropriate. Small quantities of Timothy or alfalfa hay.</p> | <p>Disposable cardboard guinea pig houses ("Shepherd Shacks"). Sanitizable toys such as balls or Kong toys.</p> |

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| | <p>Filter top (microisolator lid) may be used.</p> <p>Cages may be placed on ventilated racks providing filtered air directly to the cage, or placed on static racks.</p> <p>Water bottle.</p> <p>Sanitizable food bowl.</p> <p>Contact bedding consisting of commercially-available corn cob particles, wood chips, cotton, or paper products specifically made for laboratory animals.</p> <p>Commercially-available laboratory guinea pig diets approved by DLAR.</p> | <p>Plastic guinea pig houses (must be cage-washer safe).</p> | |
| Hamsters | <p>Solid-bottom plastic cage with a wire bar lid that serves as a food hopper and water bottle holder.</p> <p>Filter top (microisolator lid).</p> <p>Cages may be placed on ventilated racks providing filtered air directly to the cage, or placed on static racks.</p> <p>Water bottle.</p> <p>Contact bedding consisting of commercially-available corn cob particles, wood chips, cotton, or paper products specifically made for laboratory animals.</p> <p>Commercially-available laboratory rodent diets approved by DLAR.</p> <p>Group-housed as appropriate.</p> | <p>Nesting material made from paper or cotton fibers.</p> | <p>Disposable cardboard hamster houses ("Shepherd Shacks")</p> <p>Plastic hamster houses (must be cage-washer safe).</p> |
| Gerbils | <p>Solid-bottom plastic cage with a wire bar lid that serves as a food hopper and water bottle holder.</p> <p>Filter top (microisolator lid).</p> <p>Cages may be placed on ventilated racks providing filtered air directly to the cage, or placed on static racks.</p> <p>Water bottle.</p> <p>Contact bedding consisting of commercially-available corn cob particles, wood chips, cotton, or paper products specifically made for laboratory animals.</p> <p>Commercially-available laboratory rodent diets approved by DLAR.</p> <p>Group-housed as appropriate.</p> | <p>Nesting material made from paper or cotton fibers.</p> <p>Sanitizable objects for chewing.</p> | <p>Disposable cardboard gerbil houses ("Shepherd Shacks")</p> <p>Plastic gerbil houses (must be cage-washer safe).</p> |
| Xenopus | <p>Aquaria made of sanitizable materials.</p> <p>Static or flow-through water system.</p> <p>Water filtered or conditioned to remove/inactivate chlorine and chloramine.</p> <p>Nutritionally-complete commercially-available food.</p> <p>Group-housed as appropriate.</p> | <p>Shelter structures such as plastic houses or large PVC pipes to allow frogs to hide.</p> | <p>Small amounts of dietary supplements such as blood worms, chopped beef heart, and chopped liver.</p> |
| Fish | <p>Aquaria made of sanitizable materials.</p> <p>Static or flow-through water system.</p> <p>Water filtered or conditioned to remove/inactivate chlorine and chloramine.</p> <p>Nutritionally-complete fish food appropriate for the species.</p> <p>Group housed as appropriate.</p> | | <p>Aquarium furniture, plastic plants, hiding places as appropriate for species.</p> |
| Reptiles | <p>Sanitizable, secure enclosures of appropriate size and configuration for the species.</p> <p>Opportunity for animals to thermoregulate, or a constant temperature range in the thermoneutral zone for the species.</p> <p>Water and nutritionally complete food appropriate for the species.</p> | <p>Sanitizable objects to provide hiding places.</p> | |