

AUBURN UNIVERSITY

Institutional Animal Care and Use Committee (IACUC)

Policy on Food or Water Restriction

For the purposes of this guideline, food or water restriction is defined as any access to food or water that is limited to an experimenter-specified amount or period of time. The rationale may be to establish food or water as reinforcers, to study the effects of controlled caloric intake, or to prevent obesity and protect the health of the animals. Regulation of access to food is neither unusual nor undesirable. Nevertheless, treatment regimens involving food or water restrictions must be conducted with care and tailored to the feeding patterns and nutritional requirements of the strain and species as well as the requirements of the study.

The delivery of food or fluids is commonly used to maintain extended sequences of behavior in studies with a wide range of animals by making the delivery of food or fluid contingent with an experimenter-defined behavior. When restriction is used to establish food or water as reinforcers, a common axiom has been to maintain a target weight in adult animals, maintain body weight at 80% of free-feeding weight, restrict access to water for 12 to 23 hours, or limit access to food and fluids to those acquired during the experimental manipulation. However, the actual regime of food or fluid restriction must be tailored to the species, strain, age and condition of the animals under study. For example, rodents are nearly continuous feeders and will continue to gain weight through their life, so an absolute "80%" target is difficult to determine; however, an "80%" target would be too restrictive and may jeopardize the health of other species. Similarly, a criterion based on target body weights may be undesirable with juveniles. Moreover, appropriate body weights will depend on the age and strain of the animal. Because of these considerations, when beginning work on designing and describing protocols for fluid or food restriction with a new species, strain, or age group, consultation with the project veterinarian as well as review of the literature must be pursued.

Food and water consumption are interdependent, but species differ in their circadian or other patterns of drinking and their response to food restriction. Unless specific protocols require exemption, allowing most laboratory animal species to feed at least

once per day is consistent with standards of humane care and is required for species covered by USDA regulations. Constant access to water typically is provided under food control regimens, but requirements of the species and the scientific protocols may require different patterns of access. Conversely, water-deprived animals often have non-restricted access to food, but investigators should be aware that most food consumption occurs only when water is available. Water should be available long enough to maintain sufficient food intake, either during periods of rest or during the experimental manipulations, and animals must be checked daily for signs of dehydration.

Food-restricted animals typically are weighed frequently, usually 5-7 times per week. Species whose weights change slowly or for which sedatives or anesthetics must be used to determine body weights may be weighed less frequently. If so, other tactics to ensure appropriate caloric and nutritional intake must be specified. Where possible, highly desirable foods (fatty or sweet "treats") may be used as reinforcers and this could reduce the degree of food or water restriction imposed, but even under these conditions, some restriction enhances their reinforcing efficacy. In all cases, records should be kept of measures taken to ensure appropriate nutrition or hydration.

Animals tolerate food restriction physiologically better than waterrestriction, so food restriction should be used if possible. Fluid reinforcers often have advantages, however, such as in procedures that must control the position of the subjects' head or limit jaw movements. When water, sweet drinks, or fruit-flavored drinks are used as a reinforcer, access to water outside the experimental session needs to be controlled. Determining parameters of water restriction, including especially the period(s) of access during the day that do not produce dehydration or excessive weight loss requires careful consideration and sensitivity to the species. When this is done, animals need not be at risk. Careful observation of behavior, regular clinical monitoring of the animal's health and records of measures taken are critical for ensuring successful application of fluid control procedures.

REVISED: December 18, 2012

REAFFIRMED: October 4, 2021