



Animal Care and Use Program

Policy: Food or Water Restriction

Objective:	To describe procedures on food or water restriction
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Date:	November 23, 2020

Purpose

Food and fluid restriction or deprivation may be required for the conduct of some physiological, neuroscience and behavioral research protocols. The process may entail scheduled access to food or fluid resources, so an animal consumes as much as desired at regular intervals or the total volume of food or fluid consumed is strictly monitored and controlled. The rationale for restricting food intake may be to establish food or water as reinforcers, to study caloric restriction, or to prevent obesity and protect the health of the animals. 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.

Definition

For the purposes of this policy, food or water deprivation is defined as *any* restriction in access to food or water (including fasting) that must be described in the animal protocol and approved by the IACUC.

Guidelines

1. Planned duration of food/fluid regulation/restriction must be specified, scientifically justified, and approved in the IACUC protocol.
2. The investigator must use the least possible restriction to achieve their specified scientific objective.
3. At the end of the testing period, the animals must be returned to free access of food/water or be euthanized.
4. The PI is required to consult with the Attending Veterinarian before starting a food/fluid restriction study. Vivarium places the animals “on report” to ensure that they are monitored regularly by the Vivarium staff.
5. Parameters such as body weight, hydration status, body condition, and food consumption should be closely monitored and accurately documented on a chart. This chart should be kept in the animal holding room (see Appendix 1). Copies of weight and monitoring charts employed during the study should be available in the Vivarium for review at all times.
6. Animals on feeding/watering schedules maintained by PIs or their staff, must complete a feeding chart, (see Appendix 1): initialed to indicate that the animals are cared for each day. The chart must be prepared in consultation with the Attending Veterinarian and left in a conspicuous place in the animal holding room. Vivarium staff must be informed of this schedule. If for any reason, the animals cannot be fed/watered, the Vivarium staff must be informed immediately.
7. Rodents on food/fluid restriction or special diet must be identified by a colored card on their cage(s).

8. Endpoints should be specified in advance on the approved protocol. Examples of specific endpoints are:
 - a. Loss of greater than 20% of the body weight compared to a conspecific.
 - b. Body condition score of 2: animal is under-conditioned [(a) segmentation of vertebral column is evident; (b) dorsal pelvic bones are readily palpable] (see SOP entitled Body Condition Scoring).

Items for Consideration in Protocol Development and Discussion with Attending Veterinarian

Rodents are nearly continuous feeders and will continue to gain weight through their life. Because rodents are continuous feeders, caloric restriction is best achieved by reducing caloric content of the ration and feeding a fixed amount daily. Limiting the volume of rodent chow fed to the normal daily consumption is desirable and should not be viewed as restriction of food intake.

- 1) Food and water consumption are interdependent, but species differ in their circadian or other patterns of drinking and their response to food restriction. Continuous access to water typically is provided under food control regimens, but requirements of the species and the scientific objectives may require different patterns of access.
- 2) 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. Animals tolerate food restriction physiologically better than water restriction, so food restriction should be used if possible.
- 3) In planning and reviewing animal use protocols that propose to regulate access to food or fluid the following should be considered by the Principal Investigator and the IACUC:
 - a) What type of food or fluid regulation is most appropriate for meeting the specific goals of the experiment?
 - b) Do alternative procedures exist that would facilitate the generation of the desired behavior or condition?
 - c) What is the proposed schedule of food and fluid access, and does it allow for periodic ad lib access to food and fluid?
 - d) What is the proposed schedule for monitoring, so adverse effects will be recognized quickly? Daily monitoring procedures are essential for animals that are food or fluid regulated. Animals on food or fluid regulation should be weighed several times per week beginning before regulation or restriction. Records must be kept.
- 4) Proposed animal activities, including amendments to previously approved protocols, involving food and/or water restriction must be reviewed and approved by the IACUC during a convened meeting (i.e., using full committee review procedures).
- 5) Questions regarding food or fluid restriction should be addressed to the Attending Veterinarian.

References

National Research Council. *Guide for the Care and Use of Laboratory Animals: Eighth Edition*. Washington, DC: The National Academies Press, 2011. Pp 30-31.

Revision History

Approved August 27, 2012
Revised April 27, 2015

Re-approved March 26, 2018; November 23, 2020
Administrative changes October 1, 2022

Appendix 1

Individual Feeding and Watering Recording Log
For Investigators Feeding or Watering Their Animals

Date	Animals Fed or Watered (provide amount given if not ad lib) (Indicate W or F)	Animal Body Weight (must be measured <i>at minimum</i> once per week)	Comments	Initials

*This procedure does not apply to routine presurgical *per os* restrictions.

Investigator: _____ **Protocol #:** _____ **Room #:** _____
Animal Identification: _____ **Restriction Start:** _____ **Restriction End:** _____
Lab Contact Name: _____ **Contact #:** _____ **After Hours #:** _____