Johns Hopkins University
Animal Care and Use Committee

Food or Fluid Regulation

PURPOSE: This document provides guidelines for studies involving food or fluid regulation in animals.

BACKGROUND: Animal Welfare Act regulations and the *Guide for the Care and Use of Laboratory Animals* (2011)[1] mandate that all animals be provided food that is uncontaminated, wholesome, palatable, and of sufficient quantity and nutritive value to maintain the normal condition and weight of the animal. The diet must be appropriate for the individual animal's age and condition. Potable, uncontaminated water must be provided in sufficient quantity continuously, or as often as necessary, to ensure health and well-being.

Familiarity with the feeding patterns and nutritional requirements of the species is essential to planning an appropriate food or fluid restriction protocol. Specific nutrient requirements for different animal species are published by the National Academy of Sciences and are referenced in the *Guide*.

Regulation of food or fluid intake may be necessary to achieve a variety of research objectives. Regulation of one or the other is frequently used in training for behavioral tasks in which food or fluid will be used to train and maintain certain behavioral performances, or in cases where food restriction may be used to achieve a specific level of body weight gain. Generally, when food is restricted it is most common that access to fluid is unrestricted and vice versa. The food and/or fluid regulation regimens most commonly used are:

Scheduled access: Animals are given unrestricted access to food and/or fluid for a specific period of time so that they have access to the food or fluid source at one or more regular periods of time each day.

Restricted access: The animal's total volume of food and/or fluid is strictly controlled in order to maintain body weight within a particular target range.

GENERAL GUIDELINES:

- *For any type of food or fluid regulation, the* Guide *advocates the use of the least amount of restriction necessary to achieve the scientific objective while maintaining animal well-being.*

- *Written records should be maintained for each animal to document food/fluid consumption, hydration status and/or any behavioral and clinical changes used as criteria for temporary or permanent removal of animal from study.*
- *Body weights should be recorded at least weekly or more often depending on the level of restriction.*

GUIDELINES FOR PROTOCOL PREPARATION:

- *Regulation of food/fluid for research purposes needs to be scientifically justified.*

- *State the frequency that the animals will be weighed. If a target body weight or percentage of free-feeding weight is a component of a food restriction regimen, describe the manner (including period of time) by which free-feeding weight is established and the manner in which weight reduction will be achieved. The restriction should be described in measurable terms such as the percentage of ad libitum intake, percentage of body weight of an ad libitum fed control animal, percentage based on an established growth curve, or the amount of time per day that the animal will be allowed to have access to food and/or water.*

- *If weekly weighing is not possible (e.g., sedation required for non-human primates, animals cannot be disturbed for experimental reasons, etc.) then a specific exemption must be requested in the protocol and an alternative method for determining health status must be provided.*

- *The conditions under which animals would be returned to free or increased access to food or fluid in the course of the study should be stated (e.g., illness or during periods in which behavioral testing is not occurring).*

- *If loss of body weight is one of the criteria for euthanasia, the recommended amount should not exceed 20% relative to body weight at the beginning of the experiment. If greater than 20% is required for the study, a scientific justification needs to be provided.*

[1]*Guide for the Care and Use of Laboratory Animals (8th ed.), National Research Council, National Academy Press, 2011.*

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