University of Southern California

Institutional Animal Care and Use Committee

Food and Water Restriction Policy

1. Purpose

To provide information to researchers and animal care staff regarding the regulation and monitoring of laboratory animals on food or water restriction.

2. Background

Some research projects may require the regulation of food and/or water intake to achieve a desired experimental result. The regulation may include *scheduled access* to food or water, so the animal consumes as much as desired in certain intervals, or *restriction*, in which the total volume of food and water consumed is strictly monitored and controlled. [2]

3. Responsibility

a. Husbandry staff: Checking animals daily for health and wellbeing, including availability of food and water of all animals on or off restriction. Alerting researchers and veterinary staff to any potential issues encountered while on restriction.

b. Veterinary staff: Providing support for planning food and water restriction protocols with research staff as needed. Altering researcher staff of any potential issues encountered while on restriction and providing veterinary care to those animals as needed.

c. Research staff: Execute food and water restriction, daily (or more frequent as warranted) monitoring of animals for physiologic and behavioral indexes, including criteria for temporary or permanent removal of an animal from restriction. Maintain records both cage side and within the animal room restriction records.

4. Definitions/Abbreviations

a. **Restriction:** A limitation or removal placed on an animal's access to food or water. It can be described in terms of either the amount of food or water provided daily (volume or weight) or the amount of time daily that an animal is given access to food and/or water.

5. Procedures

a. All food and/or water restrictions must be described, approved, and scientifically justified in the USC Institutional Animal Care and Use Committee (IACUC) protocol.
b. The minimum or least amount of restriction that will achieve the scientific objective must be used.
c. The protocol must include potential adverse effects or consequences of restriction.
d. The protocol must include duration and method of restriction.
e. The protocol must include criteria for temporary or permanent removal of an animal from the study (>20% weight loss, body condition core, clinical signs of dehydration (skin turgor), lethargy, etc.) in the appropriate sections.
f. In the case of conditioned-response research protocols, the use of a highly preferred food or fluid as positive reinforcement, instead of restriction, is recommended [1]

6. Documentation Requirements

a. Researchers must keep a labeled folder or binder in the animal room in a designated area for animals that are actively on food or water restriction. This folder and/or binder must be accessible daily to the DAR staff.
b. The cage must be identified with a laminated food or water restriction card and the cage must be assigned a unique restriction number by the lab that correlates with each individual animal (or cage).
c. Records should be maintained for <u>each</u> animal to document daily food and fluid consumption, hydration status, and any behavioral and clinical changes used as criteria for temporary or permanent removal of an animal from the study.
d. A restriction record template can be found on https://dar.usc.edu/resources/. However, labs may use their own records if each animal is assessed individually, and the lab members identify whether the animal(s) have received food or water <u>at cage level.</u> These records must be accessible to DAR staff.
e. A baseline weight before water restriction must be recorded.
f. The following parameters should be assessed and documented <u>daily</u> to ensure the nutritional needs of the animals are met:
    i. The amount of food and/or water consumed.
    ii. Body condition score (see chart below)

1. Ideal score: 3/5
2. Scores <2/5 must be justified in IACUC protocol.

iii. General appearance, attitude. And hydration status as assessed by skin turgor.

iv. If there is any concern that the animal is lethargic, severely malnourished, or severely dehydrated, immediate consultation with a DAR veterinarian is required: vetmed@med.usc.edu

g. Body weight should be measured and recorded at least weekly, or more often for animals requiring greater restrictions. For specific monitoring frequency and criteria, the USC IACUC approved protocol must be followed.

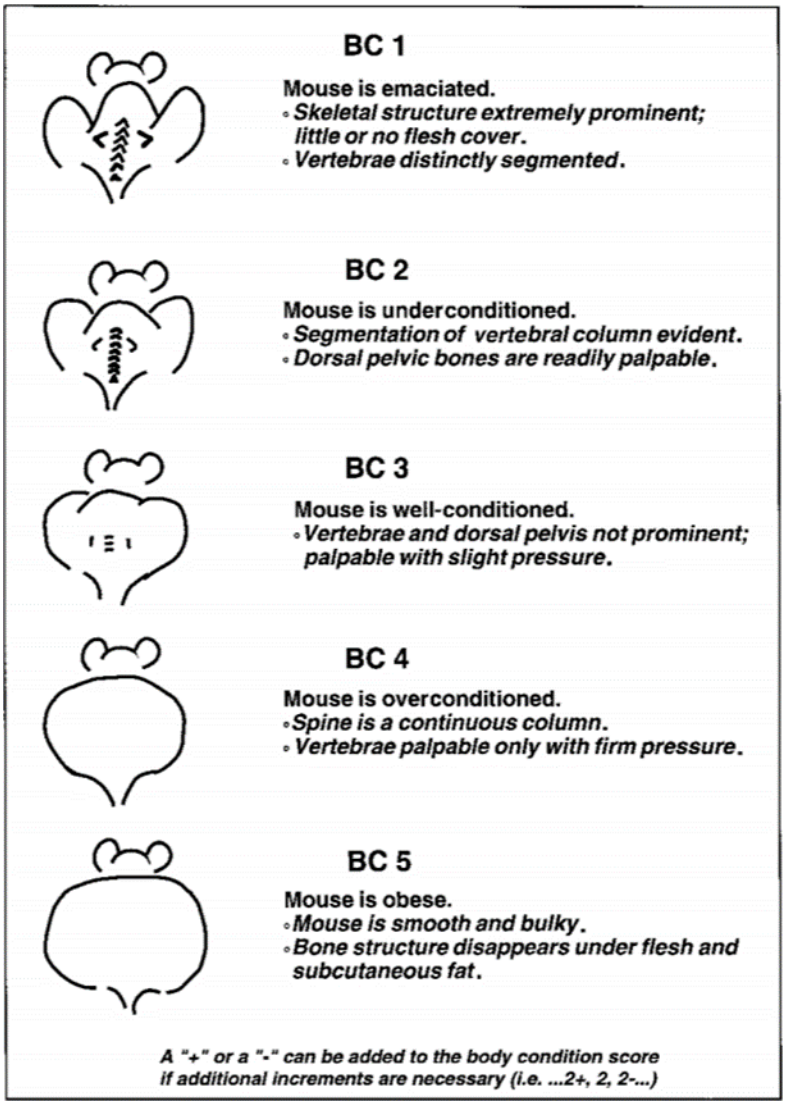
h. Please note: If DAR animal care staff is unable to find the record for an individual animal on restriction and cannot determine when the animal last received food or water, they are authorized to feed the animals standard rodent chow and provide fresh water as needed.

7. References

1. National Research Council. 2003. "Food and Fluid Regulation." *Guidelines for the Care and Use of Mammals in Neuroscience and Behavioral Research.* Washington, D.C.: The National Academies Press, 49-61.
2. National Research Council. 2011. “Food and Fluid Regulation.” Guide for the Care and Use of Laboratory Animals. 8th ed. Washington, D.C.: The National Academies Press, 30-31.
3. Baumanns V. 1999. The laboratory mouse. In: Poole T, editor. The UFAW handbook on the care and management of laboratory animals, 7th ed. Oxford (UK): Blackwell Science.
4. Kohn DF, Clifford CB. 2002. Biology and diseases of rats. In: Fox, JG, Anderson LC, Lowe FM, Quimby FW, editors. Laboratory animal Medicine, 2nd ed. San Diego (CA): Academic Press.
5. Ullman-Culleré, MH, Foltz, C.J. 1999. Body Condition Scoring: A Rapid and Accurate Method for Assessing Health Status in Mice. Comp Med. 49 (3): 319-323

8. Appendices and Attachments

a. Body Condition Scoring [5]



b. Average Food and Water Consumption in Rodent [3,4]

Species	Daily Water Consumption	Daily Feed Consumption
Mouse	15 ml/100 g BW	15 g/100 g BW
Rat	8-11 ml/100 g BW	5 g/100 g BW
Guinea Pig	10 ml/100 g BW	6 g/100 g BW

USC Template for Food and Fluid Restriction

Principle Investigator:	Protocol #:
Primary Contact Name:	Date Restriction starts:
Primary Contact email:	Date Restriction ends:
Primary Contact phone #:	Restriction:

Animal ID: _____ Baseline Weight:_____

Date	Water offered #* (mL or other quantity)	Food offered #* (grams, # of pellets, other quantities)	Body Weight (grams)	Health observations * (hydration, BCS, overall attitude can be used)	Observer's* initials

include quantity or write ad-lib if not restricted
*must be documented every single day

Date	Water offered #* (mL or other quantity)	Food offered #* (grams, # of pellets, other quantities)	Body Weight (grams)	Health observations * (hydration, BCS, overall attitude can be used)	Observer's* initials

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