



Title	Food and Water Restriction and Manipulation in Research Animals
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I. PURPOSE

At times, a protocol design requires the use of food and water restriction to create a specific state that is consistent with the protocol hypothesis. The IACUC is required to review these restrictions and ensure that they are scientifically justified.

The purpose of the following SOP is to guide the Principal Investigator (PI) performing research with animals experiencing food and/or water restrictions and manipulation, in keeping within federal and university guidelines and policies to minimize pain, distress and discomfort of animals used in research. As a reminder, experiments requiring food or water restriction, or manipulation require prior review and approval by the IACUC.

II. DEFINITIONS

Restriction is defined as a limitation on *ad libitum* access to food or water. Described in terms of either amount of food or water provided on a daily basis (volume or weight) or amount of time daily that an animal is given access to food and/or water.

Manipulation is defined as a change in the composition of the normally offered food or water. This is usually accomplished by altering the diet composition or consistency by adding or deleting nutrients to create an animal model or adding compounds/medications to food or water for animal consumption.

III. PROCEDURES

- A. Based on the following guidelines, animals that do not have access to food or water for at least the periods outlined below are defined as restricted:
 1. Food access
 - a. 18 hours daily: Rodents, Birds
 - b. Once daily: Most other mammals
 2. Water Access
 - a. Ad libitum: Birds
 - b. 18 hours daily: Rodents, Rabbits
 - c. One hour, twice daily: All other mammals
- B. The PI is responsible for assuring that specially formulated diets are nutritionally adequate and palatable, unless otherwise scientifically justified.
- C. The shortest period of restriction to achieve the scientific objective must be used.

- D. Animals should be acclimated gradually to new restriction paradigms.
- E. Pre-anesthetic fasting is not recommended for rodents or rabbits.
- F. Use of prolonged restriction may result in animals being placed in humane use category E as determined during IACUC review.
- G. Monitoring
 - 1. The PI must have plans in place to monitor parameters such as body weight, hydration status, body condition, and food/fluid consumption.
 - 2. The PI must describe the monitoring that will be performed and its frequency to ensure animal health in an approved IACUC protocol.
 - 3. Endpoints should be established so that if an animal's health is threatened, a plan is in place to remove the animal from the food/fluid restriction.
 - 4. Weight loss/gain:
 - a. The PI should describe the approximate weight and age at which anticipated weight loss will begin and the point at work the study or animal will be terminated.
 - b. **For young growing animals, excessive weight loss for all species must be justified.**
 - c. When determining an acceptable weight range for animals obtained from commercial vendors, or their offspring, charts and tables provided by the vendor should be used for guidance.
 - d. Guidance on weight loss in rodents and rabbits has been published to assist in assessing and avoiding severe consequences during scientific procedures.
 - e. Obesity is a consequence of some protocols, and the extent of weight gain should be considered relative to the length of the study, age, and species of the animal. Excessive weight gain must be justified.

IV. SPECIAL INSTRUCTIONS

- A. If food and water restriction are not employed, animals may lose or gain weight on some diets and/or protocols.
- B. The extent and rate of weight loss or gain should not compromise the health and well-being of the animal.
- C. Body Condition Scoring (BCS) can be used to guide the PI and staff when determining if an animal should be removed from the study and is preferable to using weight changes alone which may underestimate the impact of tumor burden or other conditions.

V. REFERENCES

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