

THE UNIVERSITY OF MICHIGAN

UCUCA POLICY ON FOOD AND WATER RESTRICTION OR MANIPULATION IN LABORATORY ANIMALS

- I. **Purpose:** While food and water restriction can be an important and commonly used research tool in many experimental studies, this restriction may adversely affect an animal's well-being. In keeping within federal and university guidelines, and policies to minimize pain, distress and discomfort of animals used in research, the UCUCA has established this policy for experiments requiring food or water restriction or manipulation.
- a. **Restriction:** 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.
 - b. **Manipulation:** 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.
- II. Common purposes for using food or water deprivation or restriction:
- a. Studies pertaining to metabolism, energy regulation, fluid balance, etc.
 - b. Studies pertaining to mechanisms and motivations of hunger and/or thirst.
 - c. Studies using hunger or thirst as a motivating force to perform behavioral tasks.
 - d. To promote a healthier body condition in an obese or sedentary animal.
 - e. Prior to surgery, to prevent complications such as vomiting and aspiration (see individual species guidelines at <http://www.ucuca.umich.edu/guideaa.htm>).
 - f. Studies analyzing the effects of restriction or manipulation on aging or cancer.

III. Based on the guidelines below, ***animals that do not have access to food or water for longer than the periods outlined below are defined as restricted and will need to follow the procedures indicated in section IV including justification for restriction to the UCUCA.***

- a. **Non-human primates:**
 - ≥ 1 yr of age, **food twice a day, water once every 12 hours**
 - < 1 yr old, food and water offered according to veterinary recommendations.
 - Unlimited water must be available for 1 hour each time it is presented.
- b. **Dogs and cats:**
 - ≥ 16 wks of age, **food once every 24 hours, water once every 12 hours**
 - < 16 wks, food and water offered according to veterinary recommendations.
 - Unlimited water must be available for 1 hour each time it is presented.
- c. **Rabbits (weaned): Food once every 24 hours, water at least 18 hrs/day.**
Animals that are not healthy adults will be evaluated on a case by case basis.
- d. **Rodents (weaned): Food and water available for at least 18 hrs/day.**
Animals that are not healthy adults will be evaluated on a case by case basis.
- e. **Birds (all ages): Food and water *ad libitum*.**

Upon review of the UCUCA, non-ruminant animals deprived of food or water for longer than 24 hours, 48 hours for ruminants, may be considered "prolonged restriction" and placed in Humane Use Category 7.

IV. Food and water provisions to animals outside of the recommendations above constitute restriction and must adhere to the following guidelines:

- a. Food and/or fluid restriction that deviates from the guidelines above should be described and scientifically justified in the electronic UCUCA application to use animals. There should also be indication that a literature search for alternatives was performed.
- b. The investigator is responsible for assuring that specially formulated diets are nutritionally adequate and palatable unless the scientific needs of the research protocol necessitate otherwise in which case the investigator must describe the adverse effects of the diet.
- c. The investigator must describe the monitoring that will be performed to ensure animal health and the frequency the monitoring will be performed. Diligent record keeping on daily food or fluid volume consumed, hydration status, appearance, general affect, experimental performance, and routine body weights should be readily available for review by the veterinary staff and UCUCA.
- d. Consideration should be given to whether the use of highly preferred food or fluid as positive reinforcement can be used instead of restriction.
- e. The investigator should use “the least restriction that will achieve the scientific objective” and “at least minimal quantities of food and fluid should be available to provide for development of young animals and to maintain long-term well-being of all animals”. (From *The Guide*).
- f. Animals should be acclimated gradually to new restriction paradigms.
- g. Interventional endpoints should be established so that if an animal’s health or well-being is threatened, a plan is in place to remove the animal from the food or fluid restriction or manipulation.
- h. Pre-anesthetic fasting is not recommended for rodents or rabbits. Food is usually restricted overnight or for up to 24 hour for non-ruminant species although water is usually provided up until the morning of surgery. Ruminant species are usually fasted up to 48 hours (see individual species guidelines at <http://www.ucuca.umich.edu/guideaa.htm>).

Related documents

- **ULAM Guidelines for food and water restriction or manipulation in laboratory animals.**