



TITLE: Diet Control In Behavioral Studies

PURPOSE: To provide investigators with guidelines for the proper conduct and record keeping of diet control methods used in behavioral studies.

REVIEW/REVISIONS: Permanent amendment/revisions to this policy must be presented to the IACUC for review before implementation and should be developed by the IACUC Office and/or IACUC membership.

EFFECTIVE DATE: 4/1/00; **Revised/Re-Approved:** 12/7/00, 12/6/01, 11/2/06, November 1, 2007
(This policy was adopted by NIH-ACUC on 6/13/90; Reapproved - 5/8/96; Reapproved - 2/10/99.)

PERSON(S) RESPONSIBLE: All research personnel working on studies requiring fluid/water control and UAC Husbandry and Veterinary personnel monitoring animal health.

POLICY/PROCEDURES:

*** Food**

Whenever an animal obtains any portion of its diet through food reward, the investigator must ensure that the sum of the nutritional value of the food earned through reward and of the food provided "free" (without the necessity of earning it) is sufficient to maintain the animal in a healthy state. Whenever possible, the food reward should be a "treat" (e.g., raisins, peanuts) which is sufficiently desirable and motivating for the animal that dietary restriction is unnecessary. However, dietary restriction may be justified in some cases, depending on the species, the behavioral task, and the requirements of the research proposal. In such cases, food must be provided every day, unless a specific exception to this policy has been obtained in an approved research proposal. In addition, weekly weight records must be kept.

If an animal under diet restriction loses more than 15% of its body weight (compared to its weight measured prior to the restriction) its food intake should be increased immediately until it regains its normal weight (+/- 15%). Exceptions to this policy will be allowed only if the attending or facility veterinarian determines that the weight loss does not endanger the health of the animal (as, for example, in the case of an animal that was initially overweight). Young, developing animals may have additional dietary requirements for maintaining their normal rate of growth. Investigators working with young animals should specifically address this issue in their animal study proposal. The IACUC is aware that certain strains of large rats (e.g., Sprague-Dawley) may require up to a 20% loss of body weight before performing a behavioral task for rewards. Exceptions to the 15% maximum weight loss policy (up to a maximum of 20% weight loss) will be considered in such cases, but only if such strains are adequately justified in the animal study proposal.

*** Fluids**

Whenever an animal obtains any portion of its fluid requirements through fluid rewards in behavioral testing, the investigator must ensure that the sum of the fluid earned through reward *and* the fluid provided "free" (without the necessity of earning it) is sufficient to maintain the animal in a healthy state. When water is not provided *ad libitum*, either the animal should be permitted to earn fluids to satiety during the period of behavioral training or its fluid intake should be appropriately supplemented on a daily basis.

In cases where supplements are required, the minimum amount of fluids to be provided daily should be equivalent to the amount typically consumed by the animal when either it is permitted to earn fluids (to satiety) or it is provided with water *ad libitum*. An exception to this policy will be made for the day immediately following a 24 hour or longer period



in which the animal is provided with fluids *ad libitum*. On such days only, a reduced fluid supplement is permitted, but only if the normal supplement is demonstrated to interfere with behavioral training.

*** Assessment of adequacy of fluid intake.**

Even though animals typically learn to meet their entire daily fluid requirement during the testing session, a number of precautions must be taken to avoid the possibility of acute dehydration or chronic fluid deficiency. The type and concentration, if applicable, of the fluid reward (e.g. water, fruit juice) should be specified in the animal study proposal. Daily records of fluid intake must be maintained. Each animal under fluid restriction will be observed daily for health status by the animal care staff. If the UAC veterinarian (or designee) determines that an animal is dehydrated on the basis of either physical examination or clinical pathological measurements, the animal's fluid intake must be immediately increased. A small but chronic fluid deficiency, however, may occasionally escape detection by physical observation. Such chronic fluid deficiencies often result in a loss of body weight due to reduced food consumption. Therefore, as a further precaution against chronic deficiency, the animal's weight must be measured and recorded at no less than weekly intervals. If an animal shows a loss in body weight of more than 15%, fluids must be increased appropriately. Exceptions to this policy will be allowed only if the attending or facility veterinarian determines that an animal is adequately hydrated and that the weight loss does not endanger its health.

PROVISO:

Exceptions to this policy will be allowed only if the attending or facility veterinarian determines that an animal is adequately hydrated and that the weight loss does not endanger its health. The PI must provide scientific justification for review by the IACUC prior to the implementation of any food/water restriction protocol.

JUSTIFICATION:

Behavioral research often requires that an animal perform a task for which it receives food or fluid reward. This situation is not unlike conditions in the wild, in which animals must forage, travel distances, solve problems, or otherwise work to obtain their food and water. In the professional judgment of many investigators, performing a task for rewards is behaviorally enriching for laboratory animals, especially nonhuman primates. The purpose of this document is to provide investigators with guidelines for the proper conduct and record keeping of diet control methods used in behavioral studies.