

## Animal Care and Use Program Policy



### *Restriction and manipulation of diet and fluid for research*

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### **Background**

Scheduled access or restriction of food or fluids may be necessary for the conduct of some research models. Manipulation of feed composition or the addition of specific agents to feed may be required for certain research models.

### **Scope**

This policy applies to all animals used in research at OHSU. This policy does not pertain to fasting for surgery or data collection (e.g. blood glucose, triglycerides) or clinical purposes, breeding diets, feed or fluid changes made under veterinary recommendation, or administration of veterinary medications orally or in feed.

### **Policy**

All food and fluid manipulation is required to be approved by the IACUC. Baseline data may be required depending on the species. Such data typically involves an overall health assessment of each animal possibly including serum chemistry and hematocrit data. Appropriate rate of weight loss or weight gain, overall deviations from baseline, and intervention endpoints should be clearly defined. The least amount of restriction necessary to achieve the scientific objectives should be used.

### **Procedure**

- I. **Monitoring:** The protocol must clearly define the responsibilities and the schedule for monitoring, what criteria will be used to determine health status and when the animal needs to be brought to the attention of veterinary staff. Particular attention should be paid to the initial acclimation phase if the manipulation period will be on-going, and protocols should outline intervention endpoints, e.g., criteria indicating a need for increased food or fluid compared to the general population; how animals that are not adapting to the manipulation will be identified; and the disposition of such animals. Written records of all manipulations, observations, interventions, and veterinary evaluations must be kept. Body weights should be recorded at least weekly and more often for animals requiring greater restrictions
  
- II. **Extended Fasting:** Extended fasting is defined as any period of time greater than the normal inter-prandial period for the species. Common fasting periods are typically laid out in animal care standard operating procedures (SOPs), and serve as a baseline for determining “normal” vs. “extended”. Extended fasting periods must have clear scientific justification of the reason for the extended duration described in the protocol, and must have clearly defined parameters for when they are or are not required. Animals undergoing extended fasting require monitoring above and beyond the standard daily observations, and the details of the monitoring program must be described in the protocol. Prior to extended fasting periods, a veterinarian must be informed of which animals are involved, the monitoring processes, and the protocol-defined intervention endpoints.

- III. Experimental Diets: Storage requirements (e.g. light, temperature, and expiration time frames), ordering sources, and preparation requirements should be documented. Samples of the diet should be made available for additional analysis if requested.
- IV. Behavioral Studies: Behavioral studies sometimes require food or fluid manipulation as a reinforcement strategy. These types of studies must have body weights closely monitored to ensure appropriate hydration and nutritional status are maintained during periods of restriction.
- V. Physical Limitations: Physical limitations of the targeted population (e.g. juveniles, pregnant dams, and geriatric animals) should be considered when determining appropriate guidelines for food and fluid manipulation. Age, overall health status, and reproductive status should be carefully considered in designing both manipulation regimes and monitoring protocols.
- VI. Fluid manipulation: Daily hydration status, stool production, and appetite assessments, and/or daily weight checks are recommended at the start of fluid manipulation protocols to ensure that adequate fluid intake is occurring to maintain animal health.

## **Definitions**

Monitoring – a plan for oversight that includes observation and documentation of specific parameters with defined endpoints.

Manipulation – the deliberate alteration of standard husbandry practices (e.g. feeding, fluid provision, modification of feed composition, administration of compounds in the feed or water, provision of fluids in place of water, or alteration of feeding schedules, etc.)

Restriction – a reduction in the standard amounts of food or water provided.

Fasting – withholding of food, treats, and other orally consumed solids.

Intervention – treatment (including cessation of experimental manipulation) for animals that have met required endpoints, typically for loss or gain regarding weight or hydration status.

Scheduled Access – animals consume as much as desired in regular intervals.

## **Authority**

*Guide for the Care and Use of Laboratory Animals 2011, 8<sup>th</sup> ed.* pp 30-31  
AWA

## **References**

NIH ARAC