UNIVERSITY STANDARD

Title

UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL
STANDARD ON WEIGHT LOSS IN RESEARCH ANIMALS

Introduction

PURPOSE
The standards and procedures described below provide guidance to all researchers and
animal handlers for managing potential weight loss that may occur due to experimental
variables or conditions that could interfere with eating and / or drinking (e.g. difficulty with
ambulation).

SCOPE OF APPLICABILITY
All personnel engaged in the experimentation and/or monitoring of research animals with
potential health issues, including weight loss.

The UNC-CH IACUC expects that anyone involved in animal work at the University
will comply with this Standard. Requests for exceptions to this Standard must be
reviewed and approved by the IACUC.

Standard

The development of animal protocols that involve models or procedures resulting in body
weight loss should include sufficient monitoring to track the weight loss adequately.
If weight loss is listed in the protocol (expected, part of the phenotype, and/or an endpoint)
then body weights should be recorded at weekly and more often for animals losing weight
more rapidly. (Some species may be evaluated by other means, such as body condition,
so evaluate according to the method and frequency recommended for that species.)
Research personnel should maintain written records for each animal to document daily
food and fluid consumption, hydrations status, and any behavioral and clinical changes
used as criteria for removal of the animal from the protocol.

One example of protocols involving weight loss is those that involve food or fluid
restriction. The use of food or fluid regulation requires the evaluation of three factors: the
necessary level of regulation, potential adverse consequences of regulation, and methods
for assessing the health and well-being of the animals. In instances where weight loss is
anticipated due to a restricted caloric intake, the research personnel should closely

Policy Title: UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL STANDARD ON WEIGHT LOSS IN
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monitor animals to ensure that food and fluid intake meets their nutritional needs. (see https://research.unc.edu/files/2017/03/University-Standard-for-Food-Water-Restriction-Deprivation-in-Rats-Mice-and-Ferrets.pdf)

The maximum percentage of body weight loss should not exceed 20% of its initial (or adult-sized) body weight. When a body weight loss of > 20% is anticipated, an exception should be requested (as detailed below.)

In conjunction with recorded weight loss, a rapid, practical, and objective health assessment is the body conditioning score (BCS)\(^3,4\). The BCS is particularly useful where there is a decrease in the body condition without a corresponding loss of body weight\(^5\). (For example, when a tumor is growing, the tumor growth may add to the animal’s weight, and off-set some of the weight loss, but the BCS will be decreased.) Some species may be evaluated by body condition, rather than body weight (ex. Aquatic species).

Links for relevant information for various species are listed below.

- Mouse & Rat Body Condition Scores
- Canine Body Condition Scores
- Feline Body Condition Scores
- Ferret Body Condition Scores
- Guinea Pig Body Condition Scores
- Rabbit Body Condition Scores
- Swine Body Condition Scores

The following conditions apply when anticipating weight loss in research animals.

- Anticipated weight loss over 10% due to experimental manipulation must be scientifically justified and described in the approved Animal Care Application (ACAP). The investigator must measure an initial baseline weight and must monitor and record subsequent weight loss.

- Weight loss as part of conditioning experiments may be as high as 20% of free fed weight if justified and appropriately monitored.

- Anticipated weight loss greater than 20% requires a request for exception to the IACUC policy (Exception reference HERE) and will only be approved by the IACUC under special circumstances and if scientifically justified.
• Weight loss studies in obese animal models should be designed in consultation with a veterinarian. The veterinarian will assist with determining the goal weight as a greater weight loss may be necessary to achieve the study goals.

• Developing animals have increased dietary requirements to ensure normal growth. Controlled diet, or other procedures causing weight loss, in growing animals may prevent normal growth while not resulting in an overall weight loss. Weight loss in excess of 10% in growing animals indicates a more severe stress than a comparable weight loss in an adult animal and should be brought to the attention of the veterinary staff.

The USDA and PHS policies require proper documentation of animal care and use to assess compliance with research protocols and clinical care procedures. All records must be available for review at any time by IACUC and external regulatory officials. See https://research.unc.edu/files/2012/11/Animal-Monitoring-Documentation-Record-Keeping-Guidelines.pdf

References:
1 Guide for the Care and Use of Laboratory Animals (8th Edition)
2 Guidelines for Diet Control in Behavioral Animal Studies: National Institutes of Health, Office of Animal Care and Use
3 Guidelines for Assessing the Health and Condition of Mice, Volume 28, No.4 Lab Animal, April 1999
4 Body Condition Body Condition Scoring: A Rapid and Accurate Method for Assessing Health Status in Mice, Laboratory Animal Science by the American Association for Laboratory Animal Science, Vol 49, No 3, June 1999
5 Guidelines for Endpoints in Animal Study Proposals: National Institutes of Health, Office of Animal Care and Use

EXCEPTIONS
Requests for exceptions to this Standard must be reviewed and approved by the IACUC. If your experimental procedure requires a significant deviation to this Standard, please amend your application(s) to include Addendum 8.0 Request for Exception to Policy. You must indicate the following: a description of the exception; the rationale (provide scientific justification and/or justification based on animal welfare); the potential adverse effects/clinical signs resulting from the exception; and specify which (and the total number...
Definitions

IACUC: Institutional Animal Care and Use Committee
DCM: Division of Comparative Medicine
University Standard: The minimum acceptable limits or rules used to achieve Policy implementation, enforceable by the IACUC.
Body Condition Score (BCS): An assessment of an animal’s weight and its relative proportions of muscle and fat.

Related Requirements

EXTERNAL REGULATIONS AND CONSEQUENCES
Guide for the Care and Use of Laboratory Animals (8th Edition)

Guidelines for Diet Control in Behavioral Animal Studies: National Institutes of Health, Office of Animal Care and Use

Guidelines for Endpoints in Animal Study Proposals: National Institutes of Health, Office of Animal Care and Use

UNIVERSITY POLICIES, STANDARDS, AND PROCEDURES
For more detailed guidance, please refer to the University Policy on the Care and Use of Vertebrate Animals for Research, Training and Teaching Purposes.

Contact Information

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<tr>
<th>Subject</th>
<th>Contact</th>
<th>Telephone</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>Animal Health Questions</td>
<td>DCM Veterinary Services</td>
<td>919-843-3407</td>
<td></td>
</tr>
<tr>
<td>Protocol Questions</td>
<td>Office of Animal Care and Use</td>
<td>919-966-5569</td>
<td><a href="mailto:iacuc@med.unc.edu">iacuc@med.unc.edu</a></td>
</tr>
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Important Dates

- Effective Date and title of Approver: 01/16/2003; UNC IACUC
- Revision and Review Dates, Change notes, title of Reviewer or Approver: Revised 02/27/04, Revised 09/09/2011, Revised 04/2014, Placed on University Standard and links updated 09/2018; UNC IACUC

Approved by: UNC IACUC

Dr. Roland Tisch
UNC IACUC Chair