



## **Policy on the Restraint of Research Animals**

Policy Steward: Assistant Vice President for Research, Director of the Animal Care and Use Office

### **PURPOSE**

Access to an animal for the purposes of obtaining samples, administering medication or accomplishing study objectives is an important component of many studies using research animals. In most cases, this period of immobility is short term. On occasion, a prolonged period of restraint may be required to achieve the project objectives. Accordingly, the intent of this policy is to identify the requirements regarding conscious, unanesthetized physical restraint of animals used in research, teaching or testing activities at the University of Michigan. This policy is intended to ensure that: (a) the method of restraint is appropriate for the species of animal, (b) the period of restraint is the minimum required for experimental objectives, (c) the personnel performing the restraint have been appropriately trained, and (d) when prolonged physical restraint is necessary, the physical, physiological and psychological effects on the animal are minimized.

*The Guide* notes that “less-restrictive systems that do not limit an animal’s ability to make normal postural adjustments” should be used whenever possible to accomplish research goals and to prevent injury to animals or personnel. Examples of such devices include nonhuman primate tethering systems that allow for all types of movement except 360-degree rotations parallel to the axis of the tether.

### **DEFINITIONS**

1. **Physical Restraint** is defined by *the Guide* as “The use of manual or mechanical means to limit some or all of an animal’s normal movement for the purpose of examination, collection of samples, drug administration, therapy, or experimental manipulation<sup>2</sup>.” Methods of restraint must be described in the animal use protocol and approved by the IACUC.

Examples of physical restraint include:

- Restraint chambers or devices
  - Unconventional tethering - tethering that suspends the rear legs above the cage floor or short tethering that actually restricts movement
  - Large animal stanchions
2. Prolonged Restraint is defined as the physical restraint of an animal for a period exceeding 30 minutes.
  3. Acclimation for the purpose of this policy acclimation is defined as the process used to condition an animal to prolonged physical restraint.

### **POLICY**

- Prolonged restraint must be scientifically justified in the protocol. At minimum, it should address:
  - Description of the restraint device
  - Maximum duration of the restraint
  - Description of the type and frequency of monitoring during the procedure



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- Prolonged restraint of 30 minutes or more is considered a Category E procedure.
- Acclimation or habituation to restraint methods is required for studies involving prolonged restraint unless directly detrimental to study goals (e.g. restraint stress).
  - Studies have shown that animals that are habituated to restraint methods have decreased stress responses compared to non-acclimated animals<sup>3,4,5</sup>.
  - Positive reinforcement should be utilized during the acclimation period.
  - Animals that do not adapt to the restraint should be removed from the study in consultation with the ULAM veterinary staff.
- Frequency and type of rest periods for extended periods of restraint must be described in the animal use protocol.
  - A period of rest of at least one continuous hour is required for non-human primates that are restrained for 12 hours or more<sup>5</sup>.
- If severe behavioral changes, lesions or illness are observed as a result of the restraint, animals must be temporarily or permanently removed from restraint and ULAM veterinary staff should be consulted.

### **REFERENCES**

1. NRC (2010) The Guide to the Care and Use of Laboratory Animals. Washington D.C. National Academies Press
2. NRC (2003) Guidelines for the Care and Use of Mammals in Neuroscience and Behavioral Research. Washington D.C. National Academies Press.
3. Rogers TD, Gades NM, Kearby JD, Virgous CK, Dalton JT. Chronic Restraint via Tail Immobilization of Mice: Effects on Corticosterone Levels and Other Physiologic Indices of Stress. Contemporary Topics by the American Association of Laboratory Animal Science. 41 (1): 46-50. 2002
4. Wade CE, Ortiz RM. Urinary Excretion of Cortisol from Rhesus Monkey (*Macaca mulatta*) Habituated to Restraint. Contemporary Topics in Laboratory Animal Science. 36 (5): 55-57. 1997.
5. Animal Welfare Act. United States Department of Agriculture Animal and Plant Health Inspection Service. November 2013. USDA-APHIS.

### **FURTHER INFORMATION**

For questions, additional detail, or to request changes to this policy, please contact the Animal Care & Use Office ([acuoffice@umich.edu](mailto:acuoffice@umich.edu)).