

# UNIVERSITY OF MICHIGAN

## UCUCA POLICY ON PHYSICAL RESTRAINT IN RESEARCH ANIMALS

**Purpose:** To inform animal users at the University of Michigan of UCUCA policies regarding physical restraint of animals used in research. Access to an animal for the purposes of obtaining samples, administering medication or accomplishing study objectives can be an important component of many studies using research animals.

**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 UCUCA.

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

The “Guide” notes that “less-restrictive systems that do not limit an animal’s ability to make normal postural adjustments” be used whenever possible to accomplish the research goals, and 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. Although animals in tethers will not be considered restrained for regulatory purposes, animals that are tethered should be described in the animal use application under page 11.E.8 “Procedure Information” by selecting “tether”).

**Prolonged Physical Restraint** is defined as physical restraint of animals for 30 minutes or longer, and should be described in the animal care and use protocol. Prolonged physical restraint of research animals also warrants placement of animals in “Use Category 7” (procedures that cause distress, however no method is available which would alleviate these effects without interfering with the experimental results) unless shown otherwise by the investigator.

### **Acclimation to Physical Restraint**

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>.

- Acclimation or habituation to restraint methods is **required** for studies involving prolonged restraint, and must be described in the animal use protocol.
- Frequent monitoring of animals subjected to prolonged restraint is **required** unless the investigator can justify why this would not be

compatible with the research in question. The frequency and method of monitoring must be described in the animal use protocol.

- Animal welfare regulations **require** a period of rest for primates that are restrained for 12 hours or more. Frequency and type of rest periods for extended periods of restraint must be described in the animal use protocol.

### References and Suggested Readings

1. Guimot FS and Wynne-Edwards K. Individual variation in cortisol responses to acute “on-back” restraint in an outbred hamster. *Hormones and Behavior* 50:252-260. 2006.
2. NRC (1996) *The Guide to the Care and Use of Laboratory Animals*. Washington D.C. National Academies Press
3. NRC (2003) *Guidelines for the Care and Use of Mammals in Neuroscience and Behavioral Research*. Washington D.C. National Academies Press.
4. 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
5. 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.