

Title	Physical Restraint and Prolonged Restraint
Policy Number	IACUC-027
Original Approval Date	October 17, 2019
Revision Date / Author Initials	February 15, 2024 / IACUC Subcommittee
Revision History Dates	10.17.19
Authorized by	IACUC

I. BACKGROUND AND PURPOSE

The Institutional Animal Care and Use Committee (IACUC) at Central Michigan University (CMU) is responsible for adequately evaluating all research and instructional protocols that can cause pain and/or distress in vertebrate animals ^(1,2,3,4). The IACUC must also determine if alternative procedures have been considered when possible and/or the efforts made to minimize or eliminate pain and distress during the restrained period are adequate ^(3,5). Detailed information on planned restraint procedures must be provided in the submitted protocol ^(2,4).

Physical restraint is defined in the Guide for the Care and Use of Laboratory Animals (2011) 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”⁽³⁾.

Prolonged physical restraint is defined by CMU’s IACUC as 1) a period of 20 minutes or longer of un-anesthetized animals in a natural body position or 2) a period of 10 minutes or longer in an unnatural body position.

All physical restraint methods must be described in the protocol. Restraint lasting less than 10 minutes in a natural position or 2 minutes in an unnatural position will not require justification in the protocol.

The following circumstances are not considered prolonged restraint:

1. Holding animal by hand or in a device for a few moments in order to collect blood or perform an injection.
2. Use of sedation or anesthesia to limit animal movements during imaging procedures
3. Transporting animals in species adapted carriers.

II. POLICY

- A. Alternatives to prolonged physical restraint must be considered and justification is required when no alternative method can be used ^(3,5).
- B. Restraint devices are not to be utilized as normal housing or convenient handling/managing methods ^(2,3,4).
- C. The duration of restraint should be minimized to adequately perform the research or instructional objectives ^(3, 5).

- D. When devices are used, the procedures, including acclimation, and type of restraint devices must be clearly described in the animal use protocol. Notably, they should be specifically designed to 1) accomplish research or instructional goals not otherwise possible without the device and 2) prevent potential injury to animals or personnel ^(2,4).
- E. Prolonged restraint requires acclimation or training with positive reinforcement when possible. Prolonged restraint should be avoided in animals that have not been acclimated to the device ^(2,3,5). Prolonged restraint without acclimation or training must be specifically addressed and justified in the animal use protocol ⁽⁴⁾. Exceptions can be made, after IACUC approval, if the acclimation interferes with the research or instruction goals (e.g., stress) ^(6,7,8).
- F. Personnel utilizing restraint devices must be appropriately trained in the use of restraint equipment and handling of animals to minimize distress. Well-qualified personnel will have a sound understanding of when restraint should be suspended or stopped if it compromises animal welfare ⁽⁴⁾.
- G. Monitoring of animals subjected to restraint, and its adequate documentation, is required. The frequency and method of monitoring must be clearly described in the animal use protocol ^(9,10).
- H. When lesions or illnesses associated with restraint are noted, the Attending Veterinarian (AV) should be timely contacted to provide necessary care. The AV, after discussion with the personnel responsible for the protocol, can issue temporary or permanent removal of the animal from immediate or further restraint ^(4,9).
- I. In the case of animals failing to acclimate to restraints (physical or behavioral abnormalities), they should be removed from the study. Criteria for temporary or permanent removal of an animal from restraint must be detailed and subject to IACUC approval ^(4,9).
- J. Adequate and specific training for performing restraint must be in place and documented for all personnel involved in the study. This will allow safety of the animal while causing minimal distress ^(4,9).

*This policy is based in part on the University of Georgia IACUC Policy on Physical Restraint of Research Animals.

III. REFERENCES

1. U.S. Government Principles for the Utilization and Care of Vertebrate Animals Used in Testing, Research and Training (IRAC, 1985).
2. Public Health Service (PHS) Policy on Humane Care and Use of Laboratory Animals (2015).
3. Guide for the Care and Use of Laboratory Animals, 8th Edition (2011).
4. Animal Welfare Regulations, AWR 2.31 (d)(1)(i,ii,iii,iv) and APHIS/AC Policy 11.
5. Animal Welfare Regulations, AWR 2.32.
6. A chair for the chronic study of the pregnant baboon, Journal of Medical Primatology, Fleischman and Chez (1974).
7. [Physiologic measures of nonhuman primates during physical restraint and chemical immobilization.](#), Journal of the American Veterinary Medical Association, Bush et al., (1977)
8. Stress response of rats to handling and experimental procedures., Laboratory Animal, Gartner et al., (1980).

9. Guidelines for the Care and Use of Mammals in Neuroscience and Behavioral Research. National Research Council (US) Committee on Guidelines for the Use of Animals in Neuroscience and Behavioral Research (2003).
10. Discriminative stimulus effects of the novel anxiolytic buspirone, Behavioral Pharmacology, Ator, (1991).