



Florida State University Policy for Use and Maintenance of Guillotines and other Equipment Used for Decapitation

Rationale and Justification for the use of Decapitation without Anesthesia:

The 2013 AVMA Guidelines for the Euthanasia of Animals states that decapitation is acceptable with conditions if performed correctly and that it may be used when required by experimental design and approved by the ACUC. The advantages include a rapid loss of consciousness combined with the ability to collect tissues and body fluids that are chemically uncontaminated. When performed correctly, it also provides a means of obtaining anatomically undamaged brain tissue for study. Decapitation can be performed on anesthetized animals without additional justification. **Decapitation without anesthesia must be scientifically justified and approved in advance by the Animal Care and Use Committee. This method may not be performed unless approved in advance in the ACUC protocol. Personnel who perform decapitation must be properly trained to do so and are monitored for competence. The equipment used to perform decapitation must be maintained in good working order and serviced on a regular basis to ensure sharpness of blades.**

Decapitation may be accomplished by use of a commercial guillotine, dedicated scissors or razor/scalpel blades. Scissors and razor or scalpel blades may only be used for neonatal rodents and small amphibians/fish/small non-venomous reptiles. Use of decapitation is restricted to amphibians, fish, reptiles and rodents (note: amphibians, fish and reptiles should also be pithed following decapitation). The equipment used to perform decapitation must be maintained in good working order and serviced on a regular basis to ensure sharpness of blades. The use of plastic restraint cones (e.g. Decapicones®) is recommended to restrain animals as it appears to reduce distress from handling, minimizes the chance of injury to personnel, and improves positioning of the animal in the guillotine.

All personnel performing decapitation should be properly trained and supervised by a trainer until deemed proficient (see training requirements below). Personnel performing decapitations should be observed and certified as appropriately trained by ACUC designated individuals. This should be documented in the lab training documentation.

Setting Up For Decapitation:

1. Equipment used for decapitation should be inspected prior to use. Laboratory personnel and the investigator are responsible for insuring that the equipment is always in good working condition prior to any use.
2. Good working condition = Guillotines and dedicated scissors should be clean, in good condition, sharp and move freely. The action should be smooth with no perceptible binding or resistance, and the blades must be rust-free, sharp, and decapitate with minimal force.

3. Razor or scalpel blades should be new.
4. If the equipment is not in good working condition the euthanasia should be rescheduled or other appropriate equipment located. The problem equipment should be reported to the investigator for repair. Any deficiencies must be repaired prior to use.
5. Have plastic restraint cones on hand in sufficient numbers if using them.

Note for guillotine or scissors maintenance: Lubrication may not be needed, but if it is, the use of a Teflon® or silicone containing compound is recommended over petroleum based compounds. This is because petroleum compounds will, over time, dry out or leave deposits that inhibit smooth operation.

Decapitation Procedure:

1. Each decapitation will be performed in a room that is isolated from all other rodents and free of distractions for the individual performing the procedure.
2. Animals will be removed from their home cage or experimental environment, and carried to the guillotine or scissors.
3. A minimal number of animals should be brought into the decapitation room at a time while decapitations are being conducted.
4. The amount of time the animals are in the decapitation room while using a guillotine, scissors or blades or recently used and not yet cleaned equipment should be kept to a minimum to prevent stress.
5. The guillotine will be placed upon a clean and stable bench top or other stable surface, and the sharpness and smooth operation of the guillotine must be verified before introducing any animal. Use of dedicated scissors for decapitation should be done in a area set aside for specific use (much like a rodent surgery area); the scissors must be checked for working condition before any use. Use of razor or scalpel blade should be upon a firm surface.
6. The use of plastic cones (e.g. Decapicones®, rodent restraint bag) when using a guillotine, is optional. The use of plastic cones to restrain animals reduces stress from handling, minimizes the chance of injury to personnel, and improves the positioning of the animal in the guillotine.
7. Every effort should be made to make sure the animal is calm prior to placing the animal in the guillotine or using scissors.
8. The researcher will hold the animal securely, and place the animal on the stage at the entrance to the guillotine.
9. The head will be advanced gently but firmly into the guillotine opening or placed between the scissor blades. Do not depress the guillotine lever unless the animal's head is appropriately positioned and immobile.
10. Positioning of the animal is verified and no obstruction (fingers, lab coat, etc) is present. The guillotine lever is quickly and smoothly depressed, scissor blades rapidly closed or razor/scalpel blade firmly and quickly forced down, decapitating the animal. Be certain that the animal's head can be removed in one clean stroke before depression of guillotine lever, use of razor/scalpel blade or closing scissors.

Guillotine Maintenance:

Personnel using a guillotine are responsible for proper cleaning after use. Scissors should be cared for in a similar fashion. Razor and scalpel blades should be discarded following use.

1. After use, the guillotine should be rinsed under cold water to remove all blood and tissues.
2. Following removal of gross contamination the unit should be thoroughly disinfected by rinsing with 70% alcohol.
3. The guillotine should be turned upside down with the blades opened to facilitate drying.
4. Periodically the guillotine should be sprayed or wiped with a lubricating agent, then the unit worked to distribute the lubrication.
5. As with any laboratory equipment in contact with animals, guillotines can act as fomites (i.e. source of transmission of infectious agents between animals) therefore, movement of guillotines from one room to another is discouraged. If you need to transfer a guillotine to a different animal facility room or lab, the guillotine should be sanitized before moving and after replacing it in the original room.
6. The researcher will sharpen or replace the blades whenever they are dull. Sharpening may only be performed by a qualified individual (e.g. professional sharpening service). Blades that are no longer serviceable must be placed in a sharps container for disposal or EH&S or LAR contacted for other disposal.
7. A log of guillotine use and maintenance should be kept in the lab (see sample log below).
8. Guillotines will be inspected as part of the ACUC semi-annual inspections.

Checking blade sharpness:

A suggested method includes using a fresh rodent carcass of an animal that has been euthanized in another protocol-approved manner.

Safety Concerns for Personnel

- Always make sure hands and fingers are clear of the blade path. Do not depress the guillotine lever, close scissors or use blade unless your fingers are out the way.
- Only qualified personnel should sharpen blades, lubricate the guillotine or take it apart.
- Do not use decapitation equipment unless properly trained.
- Old guillotine blades and rusted or damaged scissors should be discarded in the sharps container.

Notes:

- The principal investigator or technical staff will ensure that guillotines are rotated for sharpening at a minimum of every twelve months or more often as needed. Depending on species involved and volume, investigators may need to have the blades sharpened more or less frequently.
- Consider having a second guillotine as a back-up while the first blade is out for service. LAR maintains guillotines in rooms reserved for necropsy and tissue collection in all facilities.
- Make sure blades are adequately sanitized prior to submitting for service.

Sharpening Service Contacts:

- Precision Sharpening and Key Shop. 850-877-7297 or 850-556-7297, 1510 SE Capital Circle, Tallahassee, FL.
- George Tiemann & Co. (ph. (516-273-0005) to arrange shipment. Address: George Tiemann & Co., Repair Department, 25 Plant Avenue, Hauppauge, NY, 11788-3804
- Some of the University machine shops may perform the service as well.

Training Requirements:

Any researcher who uses decapitation without anesthetics or analgesics must be trained and authorized by an ACUC-approved trainer. This ACUC-approved trainer must demonstrate competence to a LAR veterinarian in order to receive approval from the ACUC. A department or lab may have an ACUC-approved trainer, failing which; the researcher must be trained and authorized by an ACUC-designated veterinarian.

Personnel training will consist of the following steps:

1. The trainer will demonstrate the decapitation procedure to one or more researchers.
2. The researcher(s) will (each) practice the procedure on anesthetized or dead rodents until proficient. The trainer will be present for each of these practice decapitations.
3. The researcher will then perform a live decapitation under the supervision of the trainer. This will be repeated (including additional anesthetized/dead decapitations, at the discretion of the trainer) until the researcher demonstrates proficiency.
4. Proficiency will be determined by the trainer, and will be based upon one or more demonstrations that the researcher conducts the decapitation quickly and smoothly, without any overt signs of distress in the animal.
5. If animals are required for training, the Principal Investigator will request those animals on the relevant protocol.
6. Upon completion of training / demonstration of proficiency, the trainer will document the completion of training via a memo to the ACUC Secretary (see memo below). The individual's training record will be updated to reflect the documented proficiency.

Memo

SUBJECT: Documentation of Training

This memorandum serves to document that INSERT NAME OF RESEARCHER has been formally trained by the undersigned and has demonstrated proficiency at performing decapitation of _____ (list species) without anesthesia. The undersigned is authorized by the Florida State University's ACUC to conduct this training and to certify individual proficiency.

NAME OF TRAINER

DATE TRAINING COMPLETED

References:

1. 2013 AVMA Guidelines for the Euthanasia of Animals
2. Cartner, et al. Loss of Cortical Function in Mice After Decapitation, Cervical Dislocation, Potassium Chloride Injection and CO2 Inhalation. *Comparative Medicine*, 57 (6): 570-573. 2007
3. Holson, RR. Euthanasia by decapitation: Evidence that this technique produces prompt, painless unconsciousness in laboratory rodents. *Neurotoxicology and Teratology*, 14 (4): 253-257, 1992.
4. Rutgers Laboratory Animal Services Standard Operating Procedure, Guillotine Use and Maintenance
5. Tulane University IACUC Policy of Guillotine Maintenance P6.07
6. University of Arizona IACUC – Laboratory Equipment and Facilities Policy - #303-11-09, Policies and Procedures for Maintenance of Guillotines
7. University of Arizona IACUC Guillotine Maintenance Log
8. University of California, Berkley ACUC Policy and Guidelines for Guillotine Use and Maintenance
9. University of Florida ACUC Protocol for Decapitation Without Anesthesia
10. University of Michigan IACUC Tip Sheet: Maintenance of Guillotines for Euthanasia Decapitation
11. University of Rochester Medical Center University, UCAR Policy on Maintenance of Guillotines
12. UTHSCSA, IACUC Policy #019, Use of Cervical Dislocation and Decapitation for Rodent Euthanasia
13. UT Southwestern IACUC Policy, IACUC #211, Decapitation of Unanesthetized Mice and Rats
14. University of Wisconsin School of Medicine and Public Health, ACUC Policy #16, Guidelines for Maintenance of Rodent Guillotines
15. Wayne State University Animal Investigation Committee Guideline: Guidelines for the Maintenance of Guillotines.

Guillotine Log

Lab _____

Room _____

Date Used	Species	Number of Animals Euthanized	Initials Personnel Performing Euthanasia	Date Operating Condition Checked	Date Guillotine Sharpened / Serviced