Marquette University Institutional Animal Care and Use Committee

Marquette University Institutional Animal Care and Use Committee Guidelines for Implements that are used for Decapitation

General Considerations:

- The 2013 AVMA Guidelines on Euthanasia states that decapitation is conditionally acceptable if performed correctly and that it may be used when required by experimental design and approved by the IACUC. Decapitation can be performed on anaesthetized animals without further justification; decapitation without anesthesia must be scientifically justified and approved in advance by the IACUC.

- This policy is intended to provide guidelines, which meet regulatory requirements, for the maintenance and record keeping of rodent guillotines used for euthanasia.

- Rodents must be euthanized by trained personnel using appropriate techniques and equipment as described in an approved IACUC protocol. Personnel using decapitation equipment must be properly trained and proficient in its use. When adding personnel and qualifications to protocols Appendix G must be completed and submitted to IACUC@marquette.edu.

- 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 and fish. Use of decapitation is restricted to amphibians, fish, reptiles and rodents (note: amphibians and reptiles should also be pithed following decapitation). The equipment used to perform decapitation should 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.

- The IACUC will inspect guillotine/scissor maintenance records on a semi-annual basis.

Setting Up For Decapitation

a) 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.

b) Good working condition means that guillotines and dedicated scissors are clean, in good condition, sharp and move freely. The actions should be smooth with no perceptible binding or resistance, and the blades must be rust-free, sharp, and decapitate with minimal force.
c) Razor or scalpel blades should be new.
d) 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.
e) Maintain a record book in close proximity to the equipment which includes the following information;
a. Room location/guillotine identification or number (for rooms with multiple guillotines)
b. Date of blade sanitation and/or sharpening. See example on the ORC website.

Decapitation Procedure:
a) 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.
b) Animals will be removed from their home cage or experimental environment, and carried to the guillotine or scissors.
c) A minimal number of animals should be brought into the decapitation room at a time while decapitations are being conducted. 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.
d) 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 an 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.
e) 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.
f) Every effort should be made to make sure the animal is calm prior to placing the animal in the guillotine or using scissors.
g) Personnel will hold the animal securely, and place the animal on the stage at the entrance to the guillotine.
h) 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 that animal’s head is appropriately positioned and immobile.
i) 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 the 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. Razors and scalpel blades should be discarded following use.

a) After use, the guillotine should be rinsed under cold water to remove all blood and tissue left on the blades.

b) Following removal of debris the guillotine/scissors should be thoroughly disinfected by rinsing with 70% alcohol. The final rinse with 70% alcohol will also promote drying. Also, guillotines should be periodically lubricated (a silicone spray product is suggested for lubrication), then worked to distribute the lubrication. NOTE: As with any laboratory equipment in contact with animals, guillotines/scissors can act as a fomite (source of transmission of infectious agents between animals) therefore, movement of guillotines/scissors from one room to another is discouraged. If you need to transfer the guillotine/scissor to a different room or lab, the equipment should be sanitized before moving and after replacing it in the original room.

c) Ensure that guillotines are sharpened at a minimum of every 24 months or more often as needed. NOTE: Frequency of sharpening depends on both frequency of use and the species euthanized. If the action of the blade is not smooth and precise, err on the side of caution. Replace scissors or sharpen scissors if they fail to effectively cut through test material, become rusted, or become damaged. Checking to ensure that the guillotine blades are sufficiently sharp is up to the individual lab. Suggested methods include; using a rodent carcass that has been euthanized in another manner, using a large vegetable such as a carrot, or using a wooden dowel of adequate diameter to ensure that the guillotine blades are of sufficient sharpness. Please contact the ARC office (288-7724) for information on where blades can be sharpened.

d) A log of guillotine maintenance should be kept and are inspected as a part of the IACUC semi-annual inspection.

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 of the way.
- Do not use decapitation equipment unless properly trained.
- Old guillotine blades and rusted or damaged scissors should be discarded in the sharps container.

References:
2. Cornell University Institutional Animal Care and Use Committee, ACUP 309.02 Maintenance of Decapitation Equipment.
3. Florida State University Policy for Use and Maintenance of Guillotines and other Equipment Used for Decapitation.