Guillotine, Scissor, Razor/Scalpel Blade Euthanasia (Decapitation) and Equipment Maintenance

PURPOSE

The Public Health Service (PHS) Policy on Humane Care and Use of Laboratory Animals states that decapitation without anesthesia must be scientifically justified and approved in advance by the Institutional Animal Care and Use Committee and may not be performed unless approved in advance in the IACUC protocol. Decapitation can be performed on anesthetized animals without additional justification. The PHS requires IACUCs to use the AVMA Guidelines for the Euthanasia of Animals: 2013 Edition which states that decapitation “is acceptable with conditions if performed correctly, and it may be used in research settings when its use is required by the experimental design and approved by the IACUC. Decapitation is justified for studies where undamaged and uncontaminated brain tissue is required. 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 cones to restrain animals appears to reduce distress from handling, minimizes the chance of injury to personnel, and improves positioning of the animal.” Furthermore, “Those responsible for the use of this method must ensure that personnel who perform decapitation have been properly trained to do so and are monitored for competence.” (AVMA p. 39) The PI will be held responsible for all aspects of use and maintenance of the guillotine.

This SOP is intended for use by all personnel who use guillotine, scissor, razor/scalpel blade decapitation as a primary or sole method for euthanasia, and to ensure that:
   a) that the rationale for this mode of euthanasia is clear and well understood,
   b) that decapitation equipment – guillotines, scissors, razor/scalpel blades - are maintained in good working condition,
   c) that guillotines, scissors, razor/scalpel blades are used with care and proficiency, and
   d) that guillotine use is properly documented.

MATERIALS

It is important that all decapitation equipment be maintained properly to provide swift and effective euthanasia and prevent injury to the operator. **Scissors and or razor/scalpel blades are to be used only for the decapitation of neonatal rodents, small amphibians, small fish and small, non-venomous reptiles.**

- Decapitation equipment – guillotine, scissors, razor blades, or scalpel blades
- Plastic cones (Decapicones) – **HIGHLY RECOMMENDED**
- Log book (guillotine only)
- Disinfectant
- Alcohol
- Silicone lubricant
- Blade sharpness test material (e.g., swatch of ¼” felt; thick rubber band)
PROCEDURES
Personnel using decapitation equipment must be properly trained and proficient in its use. Contact Toni Mufford, CVT, RLATG at 2-9563 or toni.mufford@colorado.edu, for more information/to set-up a training session, if necessary.

I. Prior to Use
   a. Use only new razor blades or scalpel blades for decapitation, and check the blade(s) of the guillotine or scissors for rust, smoothness of operation and cleanliness.
   b. For guillotines and scissors, blade sharpness can be tested either on a cadaver of appropriate size or by using blade sharpness test materials (i.e., a swatch of 1/4” felt or a thick rubber band (a guillotine is sharp enough if it will cut a thick rubber band, without dragging it between the blades and sticking). Scissors used for decapitation should require the exertion of only a minimum amount of force to complete the objective.
   c. Report any problems with decapitation equipment to the PI or the maintenance person named in the guillotine log book.
   d. Do not use equipment until it is confirmed to be clean, in good working order, and has sharp blades.

II. Use and maintenance of guillotines, scissors and razor/scalpel blades for decapitation
   a. Label guillotine with a unique number or code for identification purposes.
   b. Maintain a log book in close proximity to the guillotine which includes the following:
      i. Identification number of the equipment
      ii. Person responsible for guillotine maintenance and repair
      iii. A column tracking each of the following usage parameters:
           (a) date
           (b) species
           (c) number of animals euthanized
           (d) person’s initials using the equipment
           (e) date of blade sanitization and sharpening (to be done annually, at a minimum)
   iv. Avoid moving guillotines from room to room. If you must transfer a guillotine to a different animal facility room or lab, clean and disinfect it before moving it to another location and clean and disinfect it before returning it to the original room.
   v. The guillotine should be placed in a secluded area on a clean and stable surface before use or during operation. Decapitation by scissors or razor/scalpel blade should also be conducted in a secluded location.
   vi. **For the guillotine**, an individual should hold the animal securely and carefully position the head and neck of the animal directly beneath the guillotine’s blade. Once the head is properly positioned, the animal is immobile and it is confirmed that no obstructions are in the path of the blade, the guillotine’s blade should be lowered quickly and smoothly to efficiently sever the animal’s head from its body.
   vii. **For scissor decapitation**, the head and neck of the animal should be carefully positioned between the blades of the scissor. Once the animal is immobile, and it is confirmed that nothing else in in the path of the blades, the blades of the scissor should be closed quickly and smoothly to sever the animal’s head from its body with one single motion.
   viii. **For razor blade or scalpel blade decapitation**, the head and (where appropriate) neck of the animal should be carefully positioned on a stable and firm surface. Once the animals is immobile and it is determined that nothing else is in the way (particularly fingers), the razor or scalpel blade should be quickly and forcefully brought down to efficiently sever the head from the body in one single motion.
   ix. **Used razor blades and scalpel blades should be discarded into an autoclavable sharps container after each use. Do not try to clean and reuse razor blades and scalpel blades.**

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x. **Clean Guillotines and scissors after each use:**
   1. Rinse the entire guillotine/scissor under running water to remove any blood and tissues.
   2. Scrub the base of the guillotine with disinfectant to reduce contamination.
   3. Rinse the guillotine again with alcohol to ensure evaporation and reduce the need to hand-dry the equipment.
   4. Turn the guillotine upside down with the blades opened to facilitate drying.

xi. Ensure that guillotines/scissors are lubricated as needed with Teflon or silicone.

xii. Ensure that guillotines/scissors are sharpened at a minimum of every 12 months or more often as needed. Depending on species involved and frequency of use, the blades may need to be sharpened more frequently.

xiii. Dispose of old guillotine blades in a sharps container.

xiv. Every 12 months, or more often as needed, take the guillotine apart (only trained personnel should do this) and:
   1. Run the blades through a washer in a plastic basket. Contact OAR facility staff for this service.
   2. Test for blade sharpness with test material (see above). Replace or sharpen the guillotine blade if it fails to effectively cut through the test material.

**PERSONNEL SAFETY**

- As a suggestion, consider Kevlar or chainmail gloves for live decapitations with rats.
- When working with animals wear appropriate PPE (Please see SOP #15), observe proper hygiene and be aware of allergy, zoonosis and injury risks.

**REFERENCES**