



University Of Victoria Animal Care Committee Principles for Survival Surgery of Rodents

PURPOSE: This document describes the principles associated with survival surgery in rodents at the University of Victoria, consistent with Canadian Council on Animal Care (CCAC) guidelines^{1,2} and relevant standards and legislation.^{3,4,5,6}

Must and Should Indicators: In this document, the term 'should' is used to indicate an obligation, for which any exceptions must be justified to and approved by the UVic Animal Care Committee (ACC), and the term 'must' is used for mandatory requirements.

Researchers are referred to the detailed procedures document [SOP AC2010 Rodent – Recovery Surgeries \(Adult\)](#) and [SOP AC2003 Rodent – Anesthesia \(Adult\)](#) for step-by-step procedures.

RESPONSIBILITY:

1. The Animal Care Committee (ACC) is responsible for ensuring these principles are consistent with current policies, guidelines, standards and legislation.
2. The Principal Investigator (PI) is responsible to ensure that all researchers working under an approved Animal Use Protocol (AUP) are aware of these principles, and adhering to the conditions for surgery described in the AUP.
3. Researchers are responsible for adhering to these principles and the conditions for surgery described in the AUP.

PRINCIPLES:

1. Training:

- a) Before performing survival surgery, personnel must complete appropriate training and demonstrate competency with all necessary techniques ([CCAC training guidelines](#)).

2. Surgical area, equipment and materials:

- a) Survival surgeries should take place in a dedicated surgical suite, dedicated area of a procedure room or lab where aseptic conditions can be maintained.
- b) Sterile gloves, a surgical mask, a hair bonnet and a clean, dedicated lab coat, scrub shirt or surgical gown should be worn by the surgeon.
- c) Gloves should be changed between surgeries on different animals.

¹ CCAC 2019 guidelines: Mice ([link](#))

² CCAC 2020 guidelines: Rats ([link](#))

³ Canadian Association for Laboratory Animal Medicine (CALAM/ACMAL) 2020 Standards of Veterinary Care ([link](#))

⁴ College of Veterinarians of BC (CVBC) Veterinary Standards ([link](#))

⁵ British Columbia Veterinarians Act (VA) ([link](#))

⁶ British Columbia Prevention of Cruelty to Animals Act (PCAA) ([link](#))

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- d) Surgical instruments of an appropriate size should be used.
- e) Ideally a sterile pack of surgical instruments should be used on each animal. When not possible, instruments must be wiped clean and disinfected between different animals, using an appropriate method (e.g., cold sterilant; hot bead sterilizer). Each pack must be used on no more than five animals. Alcohol is not a sterilant.
- f) Implants, instruments and reagents introduced into an animal must be sterile and unexpired.
- g) Surgeries on severely immunocompromised animals or animals treated with hazardous agents should be carried out in biological safety cabinets.
- h) Appropriate sterile suture material or wound closure material for the site and application should be chosen.
- i) Purpose-designed instruments must be used for thermoregulation in anesthetized or immobile animals. Heat lamps, home heating pads, 'bean bags', etc. must not be used ([CVBC Professional Practice Standard: Thermoregulating Devices](#)).
- j) Appropriate analgesia should be used for procedures that are expected to be painful.

3. Surgeon and animal preparation:

- a) An amount of hair as large as necessary for surgical access and to maintain asepsis must be removed from the surgical incision site prior to surgery.
- b) Skin preparation solutions should be applied to the surgical area, while minimizing cooling effects.
- c) Eye lubrication should be used on anesthetized animals.
- d) The surgeon's hands should be cleaned prior to donning surgical gloves, using soap and water, or a surgical hand sterilant.
- e) The maximum amount of permitted blood loss should be determined prior to surgery. Note: Amount of permitted blood loss is procedure specific and to be determined in consultation with the veterinarian.
- f) Animals should be placed on a warm surface during surgery.
- g) The surgical area should be adequately draped to maintain a sterile field.
- h) Surgery must only commence once the pedal withdrawal reflex has been lost.
- i) Asepsis should be maintained while performing the surgery.

4. Anesthesia, monitoring and recovery:

- a) The pedal withdrawal reflex should be monitored regularly. If the foot is not accessible, the tail can be gently pinched to assess response.
- b) Strategies and equipment must be in place to appropriately monitor for anesthetic depth, hypothermia, hypoglycemia, dehydration and blood loss.
- c) Warm isotonic fluids should be given to compensate for evaporation (surgical wound, respiratory system), blood loss, surgery extending more than 30 minutes, or when animals are otherwise likely to be debilitated in the post-operative period.
- d) If the maximum amount of permitted blood loss is exceeded, the animal should be euthanized.
- e) The recovery cage should be warm and placed in an area of low light and noise. The cage should be free from items that could cause injury during the recovery process (e.g., bedding, enrichment).
- f) Animals must be monitored, attended and separated from conscious animals until they are ambulating and responding normally to stimulus.

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- g) In the recovery period, monitoring must be completed and documented as described in the AUP.

5. Documentation:

- a) Detailed surgical logs must be kept by the researchers, and be accessible to the veterinarian, ACC and others, as needed.
- b) Surgical logs must be kept where the animal is housed, until the animal is no longer alive.
- c) Procedures performed should be indicated on the cage card, including a date and responsible person's initials.