



## University Committee on Animal Care

# Policy on Euthanasia of Rodent Fetuses and Neonates

The AVMA Guidelines for the Euthanasia of Animals: 2020 Edition provides guidance for the euthanasia of pre- and neonatal animals. Please refer to the appropriate section in this policy according to the age and/or species of the animal which is to be euthanized.

### **Definitions:**

- Acceptable Method – “Acceptable methods are those that consistently produce a humane death when used as the sole means of euthanasia.
- Acceptable with conditions – “Methods acceptable with conditions are those techniques that may require certain conditions to be met to consistently produce humane death, may have greater potential for operator error or safety hazard, are not well documented in the scientific literature, or may require a secondary method to ensure death. Methods acceptable with conditions are equivalent to acceptable methods when all criteria for application of a method can be met.

In all cases, the person performing the euthanasia must be fully trained in the appropriate procedure(s). Euthanasia must always be confirmed by a secondary means. If you require assistance, please speak with a DLAR employee.

### **Fetuses (mouse, rat, hamster, guinea pig)**

- The AVMA Guidelines for the Euthanasia of Animals: 2020 Edition states: “Scientific data indicate that mammalian embryos and fetuses are in a state of unconsciousness throughout pregnancy and birth.”
- The precocious young of guinea pigs remain insentient and unconscious until 75% to 80% of the way through pregnancy and remain unconscious until after birth due to chemical inhibitors (eg, adenosine, allopregnanolone, pregnanolone, prostaglandin D2, placental peptide neuroinhibitor) and hypoxic inhibition of cerebrocortical activity.”
- “...embryos and fetuses cannot experience feelings such as breathlessness or pain. Therefore, they also cannot suffer while dying in utero after the death of the dam, whatever the cause.”

### Acceptable methods:

- Injectable barbituates

- Euthanasia of the dam. If a pregnant dam is euthanized and the fetuses are not required, then it is not necessary to remove them from the dam. CO2 is recommended; the attending veterinarian should be consulted for consideration of other euthanasia agents. Death of the dam must be confirmed before disposal. Note that it can take up to 50 minutes for fetuses to die in utero. If the fetuses are allowed to breath, then they must be euthanized as described in this policy.

Acceptable with conditions:

- Inhaled anesthetics. The attending veterinarian should be consulted for considerations of fetal sensitivity to specific anesthetic agents. Fetuses at this age are resistant to hypoxia and require extended exposure to inhalant anesthetics, including CO2.
- Hypothermia. Animals should not come into contact with ice or cooled surfaces. Fetuses that are believed to be unconscious may be quickly killed by rapid freezing in liquid nitrogen.
- Decapitation using scissors or sharp blades
- Cervical dislocation, for fetal mice and rats, by pinching and disrupting the spinal cord in the high cervical region.

#### **Neonates (mouse, rat, and hamster)**

Acceptable methods:

- Injectable barbituates

Acceptable with conditions:

- Inhaled anesthetics. The attending veterinarian should be consulted for considerations of fetal sensitivity to specific anesthetic agents. Prolonged exposure (up to 50 minutes) may be required.
- Hypothermia, up to 7 days of age. Animals should not come into contact with ice or cooled surfaces. Altricial neonates that are less than 5 days old that do not perceive pain due to insufficient nervous system development may be quickly killed by rapid freezing in liquid nitrogen.
- Decapitation using scissors or sharp blades, for altricial neonates less than 7 days of age. When appropriate, the animal should be euthanized using a guillotine for an adult animal.
- Cervical dislocation by pinching and disrupting the spinal cord, for neonatal mice and rats only.

#### **Neonates (guinea pig)**

Follow guidelines for adults.

**Approved by the ETSU University Committee on Animal Care: September 21, 2006**

**Revised and approved: November 9, 2021**