

STANDARD OPERATING PROCEDURE #119  
SWINE ANESTHESIA

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This Standard Operating Procedure (SOP) describes methods for anesthetizing swine.

2. RESPONSIBILITY

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Principal Investigators (PIs) and their research staff, veterinarians, veterinary care staff.

3. INTRODUCTION

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- 3.1. Perform a thorough physical exam and obtain an accurate body weight.
- 3.2. Withdraw food (not water) for 12 hours (2 hours for neonates) prior to anesthesia in order to reduce the risk of aspiration of stomach contents.
- 3.3. Monitor animals closely during induction, maintenance, and recovery from general anesthesia. Monitoring must be documented.
  - 3.3.1. Never leave an anesthetized animal unattended.
  - 3.3.2. Monitor animal every 5 minutes; record the following parameters every 15 minutes:
    - 3.3.2.1. Anesthetic depth: absence of reflexes, e.g., pedal/eyelid/eyelash/palpebral, absence of movement, muscle relaxation (jaw tone).
    - 3.3.2.2. Respiratory function (v.1 > TJ T\* [(qua)-12.3 (l)3.1 (i)3.2 (t)-1.1 (y)-8.1 (,)-1.1 ( )-12.1 (hear)-6.3 (t)-1.1 ( r)-

drug



5.4. IV fluid administration:

5.4.1. Administer isotonic saline (0.9% saline) or Lactated Ringer's Solution at a rate of 2-5 mL/ kg//hour.

5.5. Induction:

5.5.1.

- 5.7.1.3. Adjust the isoflurane vaporizer to 3% to 5%.
- 5.7.2. Maintenance:
  - 5.7.2.1. Use the endotracheal tube or mask connected to the anesthesia machine.
  - 5.7.2.2. Adjust the flowmeter to 50ml/kg/min (recirculating system) or 100-200 ml/kg/min (for Bain system).
  - 5.7.2.3. Adjust the isoflurane vaporizer to 1.5 to 2.0% (dose to effect).
  - 5.7.2.4. Apply ophthalmic ointment (natural tears) to both eyes to prevent dryness and damage to the cornea.
  - 5.7.2.5. When not under assisted ventilation, animal should be manually ventilated or “bagged” every 5-10 minutes to ensure proper air exchanges.
- 5.7.3. Recovery:
  - 5.7.3.1. Turn off the isoflurane vaporizer but keep the animal on oxygen for 2 to 5 minutes or longer if oxygen saturation levels are low.
  - 5.7.3.2. Remove the endotracheal tube as soon as the animal shows signs of impending arousal, i.e., when when the animal starts swallowing on its own and reflexes begin to return.
  - 5.7.3.3. Provide supplemental heat until the animal’s temperature is consistently rising and approaching normal values.
  - 5.7.3.4. Monitor the animal in his home cage until it is ambulatory to ensure it regains full consciousness.

## SOP REVISION HISTORY

DATE	NEW VERSION
2016.09.21	5.1.1. Administer intramuscularly ( <del>can be mixed in the same syringe</del> ):
2016.09.21	5.6.2.3 Adjust the isoflurane vaporizer to 1.5 to 2.0% (dose to effect).
2016.09.21	5.6.3.1. Turn off the isoflurane vaporizer but keep the animal on oxygen for 2 to 5 minutes or longer if oxygen saturation levels are low.
2016.09.21	5.6.3.2 Remove the endotracheal tube as soon as the animal shows signs of impending arousal, i.e., when reflexes begin to return.
2018.12.06	5.1. Sedation: 5.1.1. Used for short periods of restraint for non-painful procedures (e.g. blood collection). Drug: Acepromazine, Dose: 0.2mg/kg to 1.1mg/kg, Route: IM, Duration of Effect: 30 minutes, Notes: Laryngeal reflexes preserved. Drug: Dexmedetomidine, Dose: 0.2mg/kg, Route: IM, Duration of Effect: Dose dependent, Notes: Profound drop in heart rate. Reversed with equal volume of Atipamezole
2018.12.06	4.8. <del>Buprenorphine (0.3mg/mL)</del> Butorphanol (10mg/mL) *Controlled drug 4.10. <del>Atropine (0.5mg/mL)</del> Glycopyrrolate (0.2mg/mL) 4.12. <del>Tiletamine/zolazepam (Telazol)</del> *Controlled drug 4.13. <del>Thiopental sodium (Pentothal) powder</del> *Controlled drug 4.15 <del>Pentobarbital (54.7mg/mL)</del> *Controlled drug
2018.12.06	5.2. Premedication/sedation:
2018.12.06	5.2.1.1. <del>Buprenorphine: 0.05-0.1mg/kg</del> Butorphanol: 0.25mg/kg
2018.12.06	5.2.1.3. Atropine: 0.05mg/kg <del>Glycopyrrolate 0.2mg/kg</del>

2020.05.13	5.7.3.3. Monitor the animal in his home cage to ensure it regains full consciousness and able to stand in a sternal position.
2023.08.14	2. RESPONSIBILITY Principal Investigators (PIs) and their research staff, <b>veterinarians</b> , veterinary care staff.
2023.08.14	3.1. Perform a thorough physical exam <b>and obtain an accurate body weight</b> .
2023.08.14	5.6.2. Use cuffed endotracheal tubes <del>are preferred</del> as they reduce the possibility of aspiration of saliva or stomach contents.
2023.08.14	5.6.3.2. With the animal in sternal, dorsal, <b>or lateral</b> recumbency, extend the neck and head so that they are in a straight line.
2023.08.14	5.7.3.2. Remove the endotracheal tube as soon as the animal shows signs of impending arousal, i.e., <b>when the animal starts swallowing on its own and</b> reflexes begin to return.

2023.08.14