

STANDARD OPERATING PROCEDURE #102 RABBIT ANALGESIA

1. PURPOSE

The intent of this Standard Operating Procedure (SOP) is to describe methods of assessing pain in rabbits and mitigating pain by administration of analgesic medications.

2. RESPONSIBILITY

Principal investigator (PI) and their research staff, veterinary care staff.

3. GENERAL CONSIDERATIONS

- 3.1. A procedure which would be expected to be painful if it were done on humans must be considered painful to the animal.
- 3.2. When there is a question of whether or not a procedure is painful, the animal should receive the benefit of analgesia.
- 3.3. Analgesia should be provided at an appropriate dose and frequency to control pain.
- 3.4. Any deviation from this procedure must be justified by the investigator and approved by the appropriate Facility Animal Care Committee (FACC).

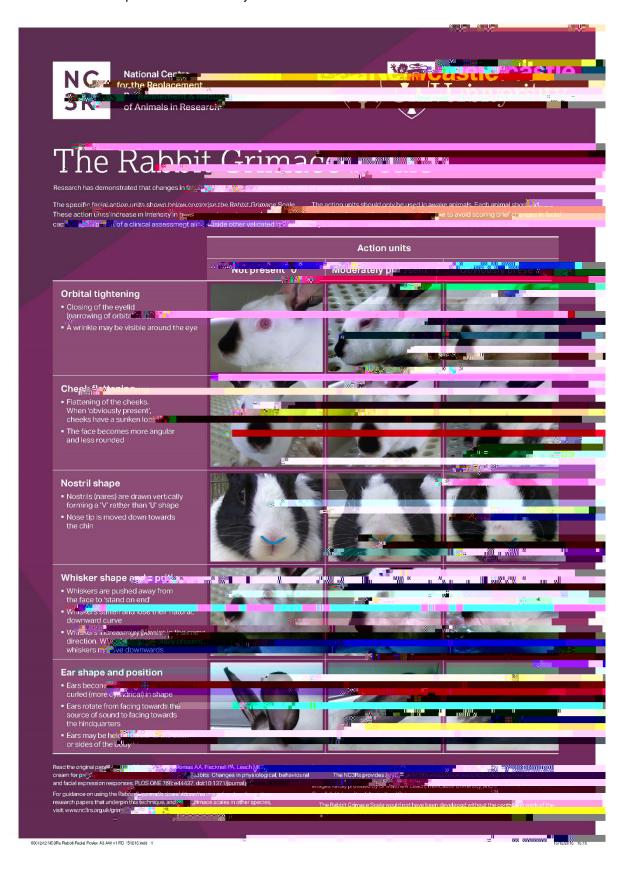
4. PAIN RECOGNITION AND ASSESSMENT

- 4.1. Adapt the frequency of observation to the invasiveness of the procedure (minimum once a day).
- 4.2. Start by observing the animal from a distance so the animal's behavior is not altered by the presence of the observer. Then proceed to observe the animal more closely.
- 4.3. Look for any changes in the behavior. Report animals which appear to be in pain to the veterinary care staff.
- 4.4. Common clinical signs indicative of pain or distress include:
 - 4.4.1. Avoidance, teeth grinding, vocalization and aggressiveness (mainly if the animal cannot escape)
 - 4.4.2. Spontaneous activities are reduced. The animal is isolated from the social group
 - 4.4.3. Altered gait
 - 4.4.4. Hunched posture
 - 4.4.5. Piloerection
 - 4.4.6. Reduced grooming; dark-red stain around the eyes and at nostrils
 - 4.4.7. Reduced appetite and subsequent weight loss
 - **Note**: The most reliable signs of pain and distress are the changes in behavior. This implies a good knowledge of species and individual normal behavior by the observer.

SOP 102.02 – Rabbit Analgesia Page 1 of 6

4.5. Rabbit Grimace Scale (Keating et al. 2012)

The rabbit grimace scale is a standardized behavioral coding system that demonstrates facial expressions which can be used to assess pain in the laboratory rabbit.



SOP 102.02 – Rabbit Analgesia Page 2 of 6

SOP 102.02 – Rabbit Analgesia Page 3 of 6

8. REFERENCES

- **8.1.** DiVincenti L Jr, Meirelles LA, Westcott RA. (2016). Safety and clinical effectiveness of a compounded sustained-release formulation of buprenorphine for postoperative analgesia in New Zealand White rabbits. *J Am Vet Med Assoc.* 2016 Apr 1;248(7):795-801.
- 8.2. Keating SCJ, Thomas AA, Flecknell PA, Leach MC (2012) Evaluation of EMLA Cream for Preventing Pain during Tattooing of Rabbits: Changes in Physiological, Behavioural and Facial Expression Responses. PLoS ONE7(9): e44437. https://doi.org/10.1371/journal.pone.0044437
- 8.3. Plumb, DC. (2005). Plumb's veterinary drug handbook. Stockholm, Wis. : Ames, Iowa :PhrmaVet ; Distributed by Blackwell Pub.
- 8.4. Delk KW, Carpenter JW, KuKanich B, Nietfeld JC, Kohles M. Pharmacokinetics of meloxicam administered orally to rabbits (Oryctolagus cuniculus) for 29 days. Am J Vet Res. 2014 Feb;75(2):195-9. doi: 10.2460/ajvr.75.2.195. PMID: 24471756.

SOP REVISION HISTORY

DATE	NEW VERSION
2015.04.22	6.1 Use lidocaine HCI 2% (20mg/ml) injectable solution.
2015.04.22	6.1 Use bupivacaine HCl 0.50% (5mg/ml) injectable solution.
2015.04.22	6.1 Lidocaine-bupivacaine mixture: Discard mixture after 3 months.
2016.09.02	7. Carprofen, ketoprofen and meloxicam: Ensure good water intake and monitor hydration status. Suspend water restriction prior to administration.
2016.09.06	7. Buprenorphine route of administration: SC-Preferred: IM, IV, sublingual, gingival Other: SC

7.1. Administration of non-steroidal anti-inflammatory drugs (NSAIDs):

7.1.1. NSAIDs include carprofen, ketoprofen and meloxicam.

2017.01.27 **7.1.2**.