



STANDARD OPERATING PROCEDURE #210
**CARE OF CRANIAL IMPLANTS AND
CHAMBERS IN NON-HUMAN PRIMATES**

1. PURPOSE 

   

5. MAINTENANCE PROCEDURES FOR RECENTLY IMPLANTED ANIMALS

- 5.1. Be vigilant about potential pain associated with routine cleaning. If there is any sign of discomfort, consult the veterinarian to determine the cause and discuss proper treatment. When cleaning implants and chambers, avoid contamination of the chamber by first working on the chamber, then cleaning the implant edge.
- 5.2. Avoid the use of hydrogen peroxide for at least 2-3 weeks following implantation of head fixation device surgery; hydrogen peroxide can be irritating to the skin margins.
- 5.3. Chamber cleaning may begin one week after surgery.
- 5.4. Animals should not be head fixed for 6-8 weeks following placement of the head post..
- 5.5. Clean the exterior surface of the acrylic implant, recording chamber, and cap.
 - 5.5.1. Prior to opening the chamber, clean the exterior surface of the chamber, its cover, and the surrounding acrylic with povidone-iodine or 2% chlorhexidine scrub (soap) and a gauze sponge or cotton-tipped swabs.
 - 5.5.2. The minimum contact time is 3 minutes, after which the surface should be rinsed with saline. Residual blood may be removed with 0.75% to 3% hydrogen peroxide (H₂O₂). Care must be taken to avoid contact between H₂O₂ and viable soft tissues that are in the process of re-epithelialization.
- 5.6. Cleaning of the recording chamber.
 - 5.6.1. Chambers should be cleaned at least 3 times weekly.
 - 5.6.2. Use aseptic technique when opening a recording cylinder. Sterile instruments (e.g., aspirator/suction tips, forceps) and supplies (e.g., gauze, drapes, gloves) should be used while working inside the recording cylinder. If there are multiple cylinders, they should each be thoroughly cleaned sequentially rather than simultaneously. No materials (e.g., forceps, suction tips, etc.) should be shared between cylinders during multiple cylinder care. Uninfected cylinders should always be cleaned before suspect or known infected cylinders.
 - 5.6.3. Open or remove the chamber's cap.
 - 5.6.4. Thoroughly clean the cap by scrubbing it with 10% povidone-iodine solution and hydrogen peroxide and soak the cap in 10% povidone-iodine solution for the duration of the cleaning procedure.
 - 5.6.5. Flush the chamber 5 times with copious amounts of sterile saline. Carefully examine the dura for the presence of focal infection, necrosis, cuts, or tears before any cleaning agents are applied. Alternate between the two options below every 7-10 days to prevent microbial resistance:
 - 5.6.5.1. Rinse several times with a 3% H₂O₂ solution or a 1:1 mixture of H₂O₂ and povidone-iodine.

8. REFERENCES

- 8.1. Association of Primate Veterinarians Cranial Implant Care for Nonhuman Primates in Biomedical Research. (2021). Journal of the American Association for Laboratory Animal Science : JAALAS, 60(5), 496–501. <https://doi.org/10.30802/AALAS-JAALAS-21-000108>
- 8.2. Assessing Laboratory Macaque Food Preferences in Positive Reinforcement Training. Animal Welfare Institute, [Winter 2018](#).

SOP REVISION HISTORY

DATE	REVISIONS
2019.01.30	3.4. Chlorhexidine 2%: 3.5 Triple antibiotic ointment 3.6 Povidone iodone ointment 3.7 Pov3.41 r dBDC BT-0.007a0 0 ET(i)107 Tc 0.001 Tf1.5

2019.01.30	<p>6.4.3. Removing hair from the wound margin facilitates cleaning but removal of all hair is not routinely required. Periodically remove hair from the wound margin with small scissors (depilatory cream and clippers are not recommended).</p> <p>around eye coil wires, at the rostral margin of the wound edge.</p>	Care must be taken when removing hair
2019.01.30	6.4.4. Gentle flush (e)7 (nt)16.4 (l)-3.nt4 Tm6.96 102.273.7 (l)ent	

