
STANDARD OPERATING PROCEDURE

TITLE: Feeding, Watering, and Environmental Enrichment of Non-Human Primates, Non-Human Primate Module, West Valley Building, University of Western Ontario

SOP NO.:

REVISION: WV 130- 01

EFF. DATE: DRAFT

SUPERSEDES: NA

APPROVALS

Prepared by (print name): _____ Dept.: _____

Signature: _____ Date: _____

Reviewed by (print name): _____ Dept.: _____

Signature: _____ Date: _____

Approved by (print name): _____ Dept.: _____

Signature: _____ Date: _____

1.0 PURPOSE

- 1.1 To detail the methods used in the environmental enrichment program for primates in the Non-Human Primate Module, West Valley Building, University of Western Ontario.

2.0 SCOPE

- 2.1 This SOP applies to the feeding, watering and environmental enrichment strategies used for primates in the Non-Human Primate Module (NHPM) in the West Valley Building, UWO.

3.0 RESPONSIBILITIES

3.1 ACVS STAFF

- 3.1.1 Feed and water primates marked by white and green cage cards.
- 3.1.2 Complete daily observation charts for primates marked by white and green cage cards.
- 3.1.3 Approve and provide methods for NHP environmental enrichment.

3.2 RESEARCH STAFF

- 3.2.1 Feed and water primates marked by pink cage cards.
- 3.2.2 Complete daily observation charts for primates marked by pink cage cards.
- 3.2.3 Provide ACVS approved methods of NHP environmental enrichment

3.3 HEAD PRIMATE ANIMAL CARE TECHNICIAN

- 3.3.1 During quarantine, study primate behaviour and determine compatibility for pair housing.
 - 3.3.2
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4.0 PROCEDURE

- 4.1 The goal of environmental enrichment strategies is to provide opportunities for primates to exhibit species typical behaviors and to minimize emotional stress induced behaviors.
- 4.2 The enrichment program can be divided into four categories:
- 4.2.1 **Social and Physical Enrichment (includes caging choices)**
 - 4.2.2 **Feeding**
 - 4.2.3 **Watering**
 - 4.2.4 **Occupational and Sensory Enrichment**, including Human Interactions with Primates, and Primate Visual and Vocal Communication
 - 4.2.4.1 Refer to **Attachment A** for common primate visual communications and facial expressions
 - 4.2.4.2 Refer to **Attachment B** Chapter 10 (pages 300 to 332) , “ Communication and Cognition” Primate Behavioural Ecology, Third Edition, by Karen B. Strier .

4.3 SOCIAL AND PHYSICAL ENRICHMENT

- 4.3.1 Compatible animals should be housed together whenever experimental protocols allow.
- 4.3.1.1 If unable to house primates together, position cages to allow out of cage enrichment strategies, and for visual, olfactory and auditory stimulation with other primates.
 - 4.3.1.2 Run established pairs or group primates together in exercise pens to extend socialization process.
- 4.3.2 Upon arrival, primates are automatically single housed until quarantine is completed.
- 4.3.2.1 During quarantine, the head primate animal care technician will study the animals’ behaviour and determine which animals show compatibility for pair housing.
 - 4.3.2.2 **CAGE CHOICES**
 - 4.3.2.2.1 House cynomologus monkeys and rhesus monkeys individually in Primate Products cages.
 - 4.3.2.2.2 House cynomologous in pairs or triads and rhesus in pairs or triads within interlocking Primate Products cages/ Exercise Pens or Suburban Surgical / .LGL cages
- 4.3.3 House baboons individually in Suburban Surgical or L.G.L. cages.

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4.3.3.1 House baboon pairs or triads in two or three interlocking Suburban Surgical/
L.G.L. cages, or in Exercise Pens.

4.4 FEEDING

- 4.4.1 Feeding provides not only sustenance for NHP's; but is an important enrichment tool that should be planned for maximum foraging and stimulation. It is best applied in a manner that is designed to mimic natural foraging conditions and behaviours.
- 4.4.2 Primates marked by white cage cards and green cage cards are fed by the ACVS staff assigned to primate care.
 - 4.4.2.1 ACVS staff is responsible for environmental enrichment and completion of the daily observation charts for each primate with a white or green cage card located within each holding room shark cage entrance.
- 4.4.3 Post-surgical primates marked by pink cage cards should be fed and environmentally enriched by Research Staff.
 - 4.4.3.1 Research Staff is responsible for environmental enrichment and completion of the daily observation charts for each primate marked by a pink cage card located within each holding room shark cage entrance.
- 4.4.4 Feed primates Old World Monkey Chow twice a day. The Monkey Chow must be fed within 90 days from the milling date listed on the bag to ensure proper Vitamin C content.
 - 4.4.4.1 Feed rhesus and baboons 8-10 cubes of Monkey Chow in the AM and 8-10 cubes in the PM.
 - 4.4.4.2 Feed cynomologous 4-5 cubes of Monkey Chow in the AM and 4-5 cubes in the PM.
- 4.4.5 Provide primates with species appropriate and approved treats as much as possible on an unscheduled basis to increase interest and stimulation. T
 - 4.4.5.1 Food treats should not constitute more than 15% of a primate diet. Limit the amount and regularity of treats to ensure that primates do not go off of their regular diet.
 - 4.4.5.2 Pumpkin seeds, raisins, cereal, sunflower seeds, peanuts, pastas vegetables and peanut products may be used for foraging purposes in puzzle feeders and devices, as well as in the straw bedding in exercise pens.
- 4.4.6 Give each primate a minimum of a piece of fruit daily. Remove any uneaten fruit the following day.

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4.4.6.1 Give 3 apples to baboons daily. Feed them one and a half in the AM and the other one and a half in the PM.

4.4.6.2 Give 1 apple to rhesus and cynos daily. Feed them one half in the AM and the other half in the PM.

4.5 WATERING

4.5.1 Primates should have unrestricted daily access to fresh water.

4.5.2 All pre-surgical primates are placed in cages equipped with an automatic watering system and are watered by the ACVS staff assigned to primate care.

4.5.2.1 Check watering nipples daily by depressing the nipples using the pole provided.

4.5.2.2 Ensure water nipples in cages are functional prior to transferring primates. Hook up the coil to the cage and depress the water nipple to check for water flow.

4.5.2.3 Refer to [Edstrom SOP](#) for automatic watering information.

4.5.3 All post-surgical primates, marked by pink cage cards, are placed in cages with plastic water bottles and are watered by primate research technicians.

4.5.3.1 Check and fill water bottles twice a day to ensure that an adequate water supply is available at all times.

4.5.3.2 Change water bottles every week, or more frequently if necessary.

4.6 OCCUPATIONAL AND SENSORY ENRICHMENT

4.6.1 Primates are naturally curious and destructive, and require considerable imaginative environmental enrichment. The commitment of time and resources is necessary in making a successful enrichment program for this species.

4.6.2 Environmental enrichment should promote species-typical behavioural and mental activities. Improvements in psychological well being as a function of enrichment can be measured in terms of changes in behaviour that more closely approximate species-typical level.

4.6.3 Environmental enrichment for primates is a continuous process of selection and rotation of methods and materials designed to stimulate primates and grant them the ability to make choices in their environment.

4.6.4 Intracage toys and devices are an important source of enrichment. New toys, devices and other methods of enrichment are encouraged, but only initiated when approved by ACVS.

4.6.5 Give enrichment toys to each primate. Make sure they are available at all times.

4.6.5.1 Place two toys in each monkey cage every week at cage change time.

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- 4.6.5.2 Add additional toys throughout the week on Monday, Wednesday and Friday.
- 4.6.5.3 Rotate toys between primates to avoid boredom and encourage interaction.
- 4.6.5.4 Clean and disinfect the toys every week with the cages.
- 4.6.5.5 Rotate puzzle feeders between all the primates.
- 4.6.5.6 You may give primates pesticide free gnawing sticks and fruit branches.
- 4.6.5.7 Each primate room has televisions which plays approved taped videos or programs. Turn the TV's on in the AM and off in the PM
- 4.6.5.8 You may also use auditory sound devices, such as sound records as an alternatives to TV.
- 4.6.5.9 Equip each cage and exercise pen with an external hanging mirror.
- 4.6.5.10 Provide toys for primates in exercise pens. Include swings and perches, materials for foraging in the straw, empty feedbags and cardboard boxes with the staples removed.
- 4.6.5.11** Place water baths in the exercise pens periodically for underwater feeding and play.

4.7 HUMAN INTERACTIONS WITH PRIMATES

- 4.7.1 Human interaction with primates is **an important** source of enrichment for captive primates, but must be provided **without** direct physical contact while performing daily duties in the housing area.
- 4.7.2 All personnel approved to work with Primates must be familiar with “ Communication and Cognition” in order to provide effective, non threatening and effective non contact interaction with NHP's. (Refer to **Attachment B**)
- 4.7.3 Safe and positive indirect interaction is encouraged, such as natural vocal communications of encouragement and reward, and smooth and steady movements.
 - 4.7.3.1 Sudden and uncoordinated movements can threaten and frighten NHP's. Direct staring and other similar actions are also considered a threat.
- 4.7.4 Please refer to **Attachment A** for common primate visual communications and facial expressions.
- 4.7.5 Primates naturally hide signs of weakness and pain, so observations of primates without their knowledge, such as through windows and cameras are of value.
- 4.7.6

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5.0 HEALTH & SAFETY

- 5.1 Nonhuman primates (NHP's) present hazards related to naturally occurring zoonotic organisms which may be transmitted to people. People also transmit zoonotic agents to NHP's. NHP's also present unique hazards due to their intelligence, manual dexterity, strength and speed . Please refer to SOP WV611-02 “ *Safety and Animal Handling Procedures for NonHuman Primates (NHP's) Non Human Primate Module, West Valley Building, UWO*
- 5.2 Direct contact with NHP's requires in depth training on risks and standard operating procedures, participation in a surveillance health program as well as documented proof of training and security clearance monitored by the facility manager. Please refer to SOP WV169 “ *Non Human Primate Approval Policy, West Valley Building, UWO.*
- 5.3 All approved personnel must be enrolled, approved and monitored in the animal handlers medical surveillance program through workplace health, UWO
- 5.4 NHP housing facilities at West Valley , UWO are designed and operated at the standards required by Health Canada and Canadian Food Inspection Agency .

6.0 REVISION HISTORY

Revision	Reason(s) for Revision	Initiated by

7.0 REFERENCES / ASSOCIATED MATERIALS

- 7.1 *Edstrom SOP*
- 7.2 *SOP WV 606-01 Non-Human Primate Approval Policy, Non-Human Primate Module, West Valley Building, University of Western Ontario*
- 7.3 *SOP WV 601-06 Procedures for Bites, Scratches and Mucous Membrane Exposure by Cynomolgous, Rhesus, or Other Macaque Monkeys, First Aid and NHP Sample to be Collected, Non-Human Primate Module, West Valley Building, University of Western Ontario*
- 7.4 *SOP WV611-02 “ Safety and Animal Handling Procedures for NonHuman Primates (NHP's) Non Human Primate Module, West Valley Building, UWO*

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8.0 ATTACHMENTS

- 8.1 **Attachment A** - Common Primate Visual Communications and Facial Expressions
- 8.2 **Attachment B** - Chapter 10 (pages 300 to 332) , “ Communication and Cognition” Primate Behavioural Ecology, Third Edition, by Karen B. Strier .