1. PURPOSE

This Standard Operating Procedure (SOP) describes Positive Reinforcement Training (PRT) as a basic tool for animal training.

2. RESPONSIBILITY

Facility Animal Care Committee (FACC), veterinarians, veterinary care staff, Principal Investigator, and their research staff, animal care staff.

3. INTRODUCTION

Positive Reinforcement Training (PRT) is a form of operant conditioning that rewards animals with a pleasant or attractive reward when a desired behavior is performed making it likely that the animal will repeat the desired behavior in the future. The principles of PRT apply across animal species.

PRT can be used to achieve voluntary cooperation for targeted activities or procedures of the research protocol, husbandry, veterinary care, and diagnostic sampling.

The use of PRT may require more training time than the use of more traditional training methods that depend primarily on negative* reinforcement. However, time is often saved over the long term by having cooperative animals.

PRT is an important means of promoting the welfare of laboratory animals. An animal that voluntarily participates in desired behaviors is less stressed and will serve as a better animal model. The need for physical restraint and/or the use of anesthesia, as well as the risks associated with those events, is reduced. Positive training alternatives should be exhausted before any kind of negative reinforcement is considered.

Personnel conducting PRT must be competent, with demonstrated expertise.

4. MATERIALS

4.1. Positive reinforcer: variety of treats, rewards
4.2. Conditioned reinforcer or Bridge, e.g., clicker
4.3. Target or items defined in shaping plan
4.4. Training logs

5. PROCEDURES

5.1. The primary method for PRT is shaping, which is the process of breaking a behavior into small, simple steps that build upon each other, eventually leading to the desired behavior. Depending on the species and temperament of animal, some of the steps may require being broken down into even smaller steps.

5.2. Prior to starting PRT, create a shaping plan tailored to each animal that includes the following:

5.2.1. Goal: define the desired end behavior.
5.2.2. Criteria: define what you want from the animal, how you want them to do it (e.g., sitting, standing etc..), for how long etc.
5.2.3. Signal: determine the signal that will be used to the animal for the desired behavior, e.g. A hand gesture, a physical object, a cue word, etc.

5.3. Determine the rewards the animal likes best and note ones that are highly desirable, these can be used as big reward. It is best to have a variety of rewards to choose from.

5.4. Pair a primary reinforcer, e.g., a favored treat, with a positive connection with your animal and your bridge (or neutral stimulus) such as a clicker, whistle, spoken word, etc. This will become the secondary or conditioned reinforcer.
5.5. Training

5.5.1. Training sessions should be documented.

5.5.2. Training sessions should occur frequently, ideally daily, and not last longer than 10 to 15 minutes. Consistency in training will yield better results; it may be advisable to limit the number of individuals involved in training each animal.

5.5.3. Only bridge or reinforce on the desired behavior.

5.5.4. Be vigilant that there are no other undesired behaviors happening simultaneously as the animal will begin to think that it needs to do all those things to be rewarded. (e.g., when training to touch a target and the animal also starts to drink from the water bottle, if not selective, the animal will not associate just touching the target but that it needs to touch and drink to be rewarded).

5.5.5. Once the animal has established the desired behavior depending on the species, a cue can be added. The cue can be a word or specific gesture depending on the animal and/or your preference.

5.5.6. Once the animal is performing the task on cue start to reward less frequently. It will help with repeating the desired behavior if the animal is expecting a reward but does not always receive it (similar to how a slot machine works).

5.5.7. Remember that training and learning are complex processes; progress is not linear. Regression is a normal part of training.

5.5.8. When ending the training session always end on a positive note. It may require regressing to a previous step that the animal knows well.

6. REFERENCES


* Negative reinforcement = Removing a stimulus