

Effectiveness of Marker Training for Odor Detection Canines

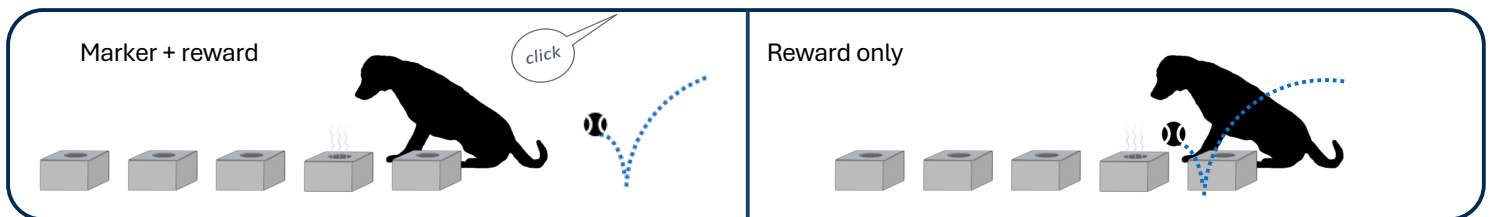


Background

Training a detection dog to locate and alert to a target odor requires 1) *conditioning an association* between the odor and reward, and 2) *shaping a behavioral response* to communicate the presence and location of the odor source. The timing of odor and reward presentation is critical to creating a strong association and reliable response, as well as minimizing unintentional and undesirable cues and behaviors.

A marker is a signal that predicts an established reinforcer and can be used to precisely mark behaviors and bridge the delay between the behavior and the eventual reward, providing immediate feedback to the dog and allowing the trainer to work at a distance.

In this study, naïve purpose-bred candidate detection dogs were trained to perform an odor discrimination task either with the use of a clicker as a signal for a reward (a ball) or with the ball only. Dogs were then tested for 1) detection accuracy and reliability of the alert response, 2) transfer of learning to a novel operational search context, and 3) resistance to extinction.



Key Findings

- Marker-trained dogs completed odor discrimination training in fewer trials than dogs trained without the marker.
- Marker-trained dogs indicated the target location at a closer distance and with greater physical precision.
- When transitioned from the odor recognition & discrimination training setting to a novel operational search environment, marker-trained dogs indicated the location of the odor source more precisely than dogs trained without the marker.
- Withholding the primary reward during the extinction test reduced odor detection performance for dogs trained without a marker, while delivering the marker signal in the absence of reward maintained responding.

Recommendations

1. Use a marker as a signal for reward during initial odor conditioning and alert response training, especially when there is an inherent delay in delivering the reward and/or the trainer is at a distance from the dog.
2. Choose a marker that is distinct, consistent, and unique during initial training (e.g., a click or tone). Once the dog is performing proficiently, the marker can be transitioned to a verbal or other type of mark, faded altogether, or used in combination with other reward systems.
3. Use an established marker as a conditioned reinforcer for a correct alert in situations where delivering the reward is not practical or possible in order to maintain performance and prevent extinction.

