

Behavioural and cognitive differences between rescue and non-rescue dogs

Background

- Rescue dogs often live through very stressful experiences.
- Severe stress can damage the prefrontal cortex and potentially lead to cognitive impairment.
- **Do rescue dogs show signs of cognitive impairment?**

Methods

- Two owner-completed surveys:
 1. Dog-owner relationship (MDORS)
 2. Dog personality (DPQ)
- Four cognitive tests:

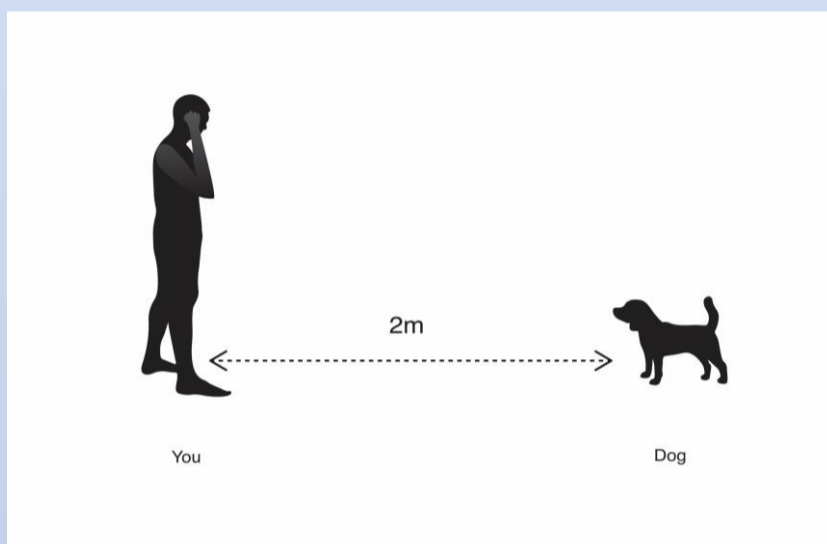


Figure 1: Eye Contact Test: the owner holds a treat to their face and tries to maintain eye contact with their dog for 90 seconds.

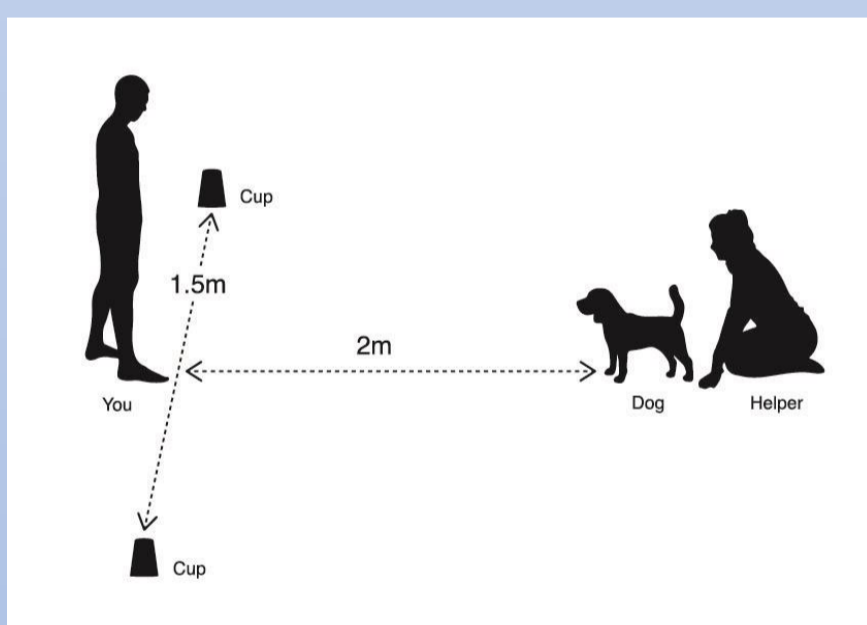


Figure 2: Simple Memory Test: the dog is shown a treat is under one cup and must remember the location for 60 seconds. *Inferential Reasoning Test:* the dog is shown that one cup is empty and must infer that the treat is under the other cup.

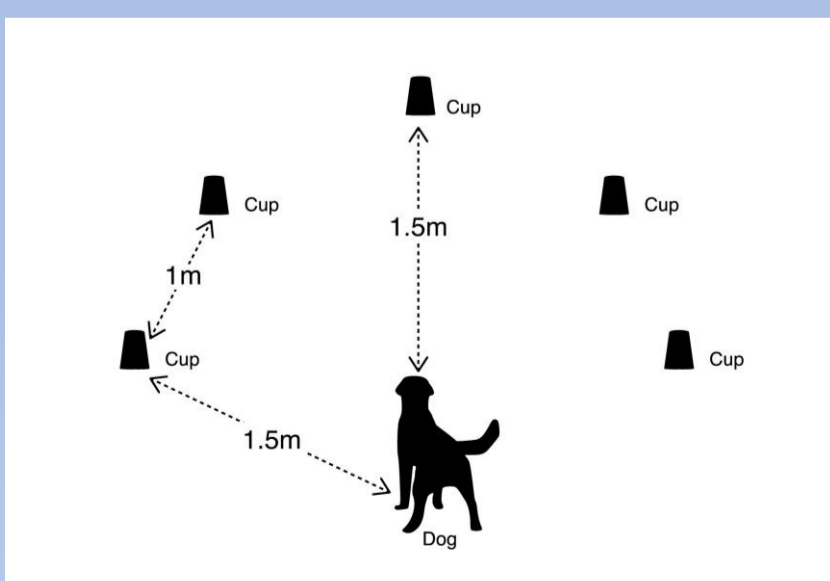


Figure 3: Complex Memory Test: the dog is shown that there is a treat under one of five cups. It is then taken out of the room for 60 seconds before being allowed to choose a cup.

Results

- Rescue dogs maintained eye contact for significantly shorter durations than non-rescue dogs ($p = 0.029$, Fig 4).

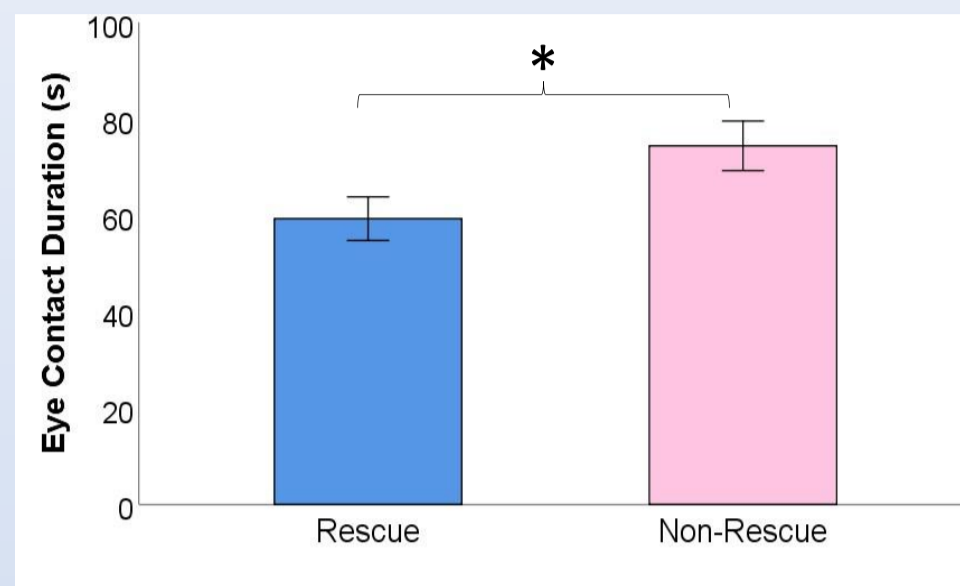


Figure 4: Mean eye contact duration (s +/- SE) of rescue dogs (blue) and control dogs (pink) (* $p < 0.05$)

- Rescue dogs were significantly better than non-rescue dogs at remembering the location of a treat in the simple memory test ($p = 0.036$, Fig 5).

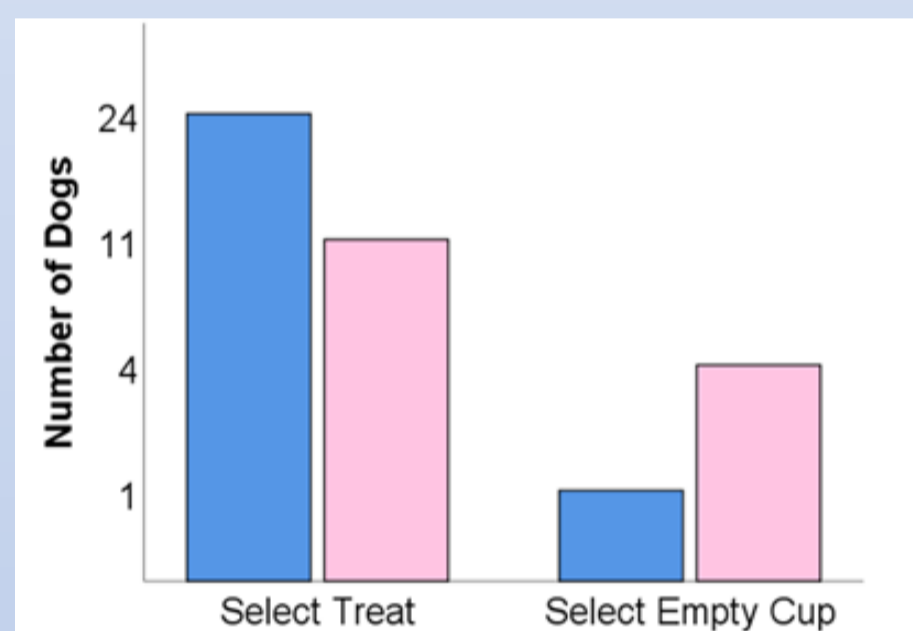


Figure 5: The number of rescue dogs (blue) and non-rescue dogs (pink) that chose the correct cup in the simple memory test.

- There was no significant difference between rescue and non-rescue dogs in either the Inferential Reasoning Test or the Complex Memory Test.
- Owners of rescue dogs tended to report a higher perceived cost of their relationship with their dogs.
- Rescue dogs personality differed significantly from non-rescue dogs in several factors including fearfulness, activity/excitability and aggression towards dogs.

Summary

- Rescue dogs may display signs of cognitive impairment in the Eye Contact Test relating to social engagement and impulsivity.
- Rescue dogs display better memory than non-rescue dogs in the Simple Memory Test which may be related to food-motivation and personality.
- Dogs performance in cognitive tests may be influenced by their personality and life history.

