

Handling Techniques to Reduce Stress in Mice

Animal models are an essential part of preclinical research; however, control for stress caused by interactions with humans is often underestimated. The act of lifting the mouse by the tail is particularly stressful for mice and new approaches can minimize stress during handling. Studies have shown that mice can habituate to human interaction, and the handling technique described herein contributes to reducing reactivity, reducing baseline anxiety, improving welfare, facilitating interactions with animal care providers, and reduces data variability in behavioral screens. Here, we present a brief introduction to this technique. More details can be found online (PMID: 34633376) or by asking CAMH animal facility manager.

Day 1 (≈5 min)

- Put your gloved hand in the home cage for 30 sec
- Guide the mouse to a corner and cup with both hands (avoid tail picking if possible)
- Keep your hands flat and open
- Place both hands together and allow the mouse to move between hands, for about 60 sec.
- Gently close your hand around the mouse to form a cup and “roll” the mouse from one cupped hand to the other.
- Alternate from gentle rolling between hands and exploration on open hands for 60 sec.
- Make a shelter with both hands, try to keep the mouse in the shelter for 5-10 seconds.
- Alternate between each step for another 60 sec
- Allow the mouse to freely explore open hands for 30 sec then return to the cage.

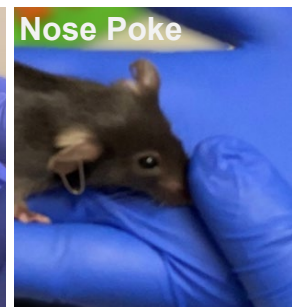
Milestone: Mouse stays in shelter for 5-10 sec without escaping



Day 2 (3-5 min)

- Cup the mouse out of its cage (no tail picking)
- Repeat the steps from day 1 alternating steps for ~ 2min.
- If you are successful performing the shelter test, try touching or petting the mouse on the head and back
- Try gently touching the mouse on the tip of the snout and hold it there for 2-3 seconds.
- Alternate with steps from above, and from day 1 for 3-5min

Milestone: Perform at least 1 successful nose poke for 2-3sec.



Day 3 (2-3 min)

- Proceed through the same steps for day 2 for about 2 min.
- If the shelter and nose poke tests can be completed on the first attempt this indicates that the mouse is well habituated to handling.
- Alternate between all steps for 30sec, and return the mouse to its cage

Milestone: Perform 2 successful 10 sec shelter and 1 nose poke tests for completion.

Optional Milestone: If mice are to be scruffed (i.e. for injection) a scruff test can be performed on day 3. Grasp the nape of the neck between the thumb and forefinger and lift the mouse 3-5 cm above the hand for 2-3 sec. If the mouse remains immobile they are well habituated to handling. If the mouse is not reactive they can be placed back in the hand, otherwise they should be placed on the cage lid or counter top to reduce the risk of biting.

