

Aug 09, 2024

## Pole Test Assessment

 Forked from [Pole Test Assessment](#)

DOI

<https://dx.doi.org/10.17504/protocols.io.n92ld8j87v5b/v1>

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**Protocol Citation:** Ian Krout, Tim Sampson, Alexandria White 2024. Pole Test Assessment. **protocols.io**  
<https://dx.doi.org/10.17504/protocols.io.n92ld8j87v5b/v1>

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**Protocol status:** Working

**We use this protocol and it's working**

**Created:** August 08, 2024

**Last Modified:** August 13, 2024

**Protocol Integer ID:** 105011

**Keywords:** ASAPCRN, Behavior, Mouse, PD, Neurobehavior, pole test assessment pole descent, pole test, time for mice, pole, inch pole, top of the pole, mice, height from the base, testing, maximum time, trial, institutional animal care, test, hindlimb, second

**Funders Acknowledgements:**

Aligning Science Across Parkinson's

Grant ID: ASAP020537

## Disclaimer

The [protocols.io](https://www.protocols.io) team notes that research involving animals and humans must be conducted according to internationally-accepted standards and should always have prior approval from an Institutional Ethics Committee or Board.

## Abstract

### ***Pole descent***

This test measures the time for mice to descend a 24-inch pole wrapped in mesh. Mice were trained for two days with three trials: 1) placed head down  $\frac{1}{3}$  of the height from the base, 2) placed head down  $\frac{2}{3}$  of the height from the base, and 3) placed head down at the top. On testing day, mice were placed at the top of the pole for three trials and the time to descend the pole was recorded. The time was recorded when the hindlimbs reached the base, with a maximum time of 60 seconds. Mice that fell or slid were given a score of 60 seconds.

Protocol has been approved by the California Institute of Technology's Institutional Animal Care and Use Committee (IACUC).

## Materials

1. A metal pole with a diameter of 1cm and height of 50-60cm, this should come on a base. (See attached photo).
2. Foam/PVC liner, we use a cabinet liner similar to what can be found here. [Adhesive Grip for Pole Test](#).
3. Standard Mouse cages.
4. Stopwatch/Timer.
5. GoPro/Means of recording each trial.

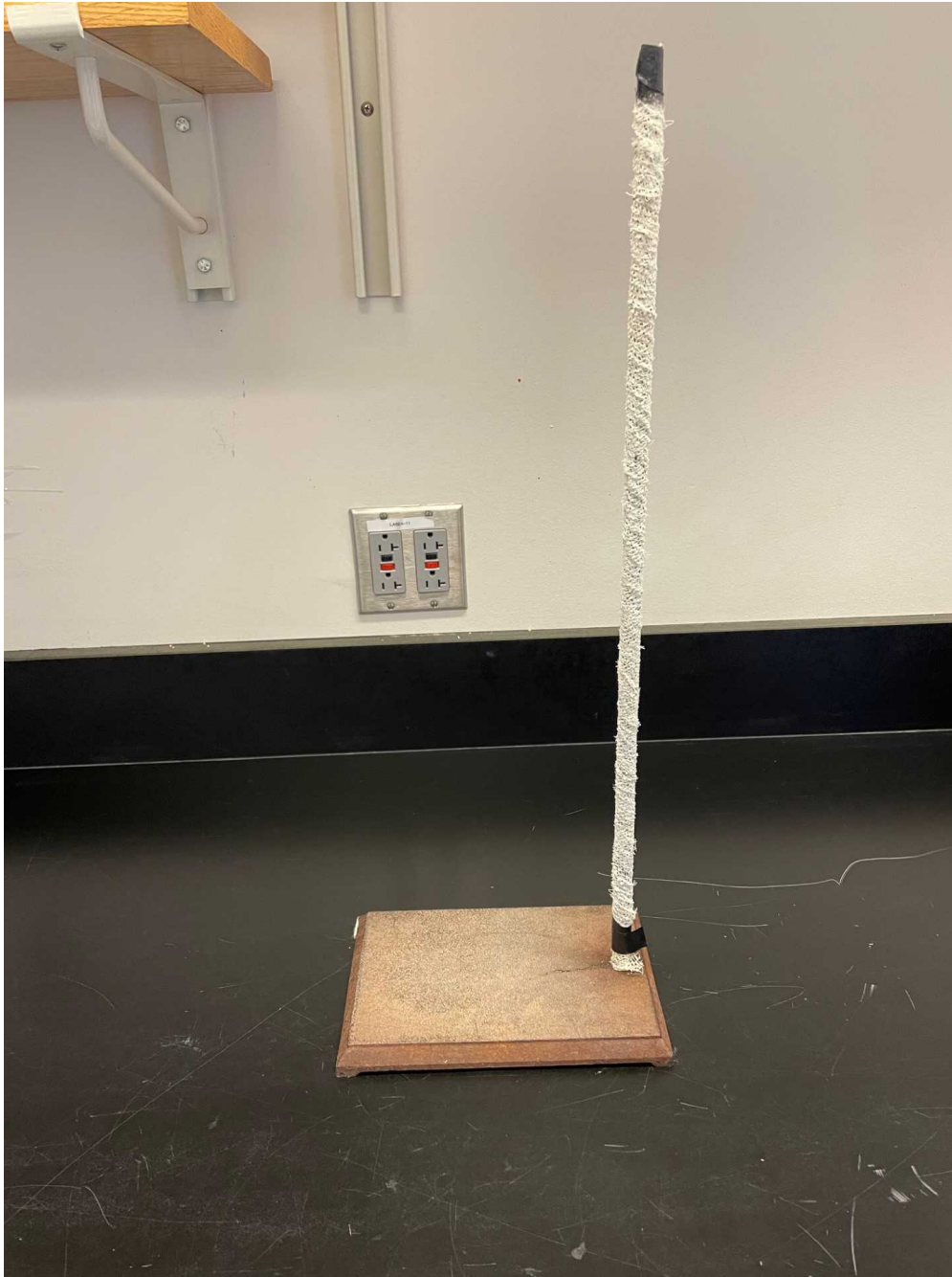


Figure 1. Example of pole test apparatus used by our lab.



## Information

- 1 Experiments involving GF and GF x SPF comparisons were conducted inside germ-free isolators. For comparisons involving only SPF animals, experiments were completed in a biological safety cabinet. All experiments were performed between ZT6 and ZT10 of the light phase and started at the same time each day.

## Pole set-up

- 2 Find a metal pole 1cm in diameter with a height of ~50-60cm. This should have a base that is able to fit inside of a standard mouse cage.
- 3 Wrap the pole with an adhesive foam or PVC material (see material for link). This should cover the entire pole and be replaced as it wears down.
- 4 Tape the top and bottom of the adhesive to secure to the pole.
- 5 Wipe down the base and pole with 70% EtOH before beginning any trials and between each mouse.

## Acclimation

- 6 On each training and assessment day bring the mice up from the vivarium to the behavior room at least 1h prior to assessment to allow for acclimation to the environment prior to assessment.

## Training Day 1

- 7 Determine the order of assessment that you will use for the length of the training and assessment, record this in lab notebook.
- 8 Pole is placed inside a clean cage filled with bedding.
- 9 Place a single mouse, now containing the pole apparatus, allowing them to roam freely for 30 seconds.
- 10 Training day 1 will then consist of three trials for each mouse.

- 11 Trial 1: Place mouse faced down  $\frac{1}{3}$  of the height from the base and allow to descend freely.
- 11.1 Trial 2: Place mouse face down  $\frac{2}{3}$  of the height from the base of the pole and allow to descend freely.
- 11.2 Trial 3: Place mouse face down at the top of the pole and allow to descend freely.
- 12 In between each trial allow the mouse to roam the home cage for 30 seconds.
- 13 In some instances a mouse may not complete all trials. In this case, remove the mouse from the pole allow to roam free, and start back over at trial 1 until the mouse has completed all 3 trials.
- 14 After completion of three trials, each mouse is placed in a clean cage. After all mice from the same cage have completed their trials transfer all mice back to their home cage.

## Training Day 2

- 15 Repeat all steps from training day 1 no more. At this point the mice should be able to perform all trials without issue.

## Assessment (test day)

- 16 On test day, mice is assessed for their ability to descend the pole.
- 17 Place mouse face down at the top of the pole and allow to descend freely.
- 18 Begin the stopwatch/timer as soon as you place the mouse on the pole. Stop timing once it fully descends and all 4 paws are touching the ground.
- 19 The time was recorded when the hindlimbs reached the base, with a maximum time of 60 seconds. Mice that fell or slid were given a score of 60 seconds.
- 20 Record the time-to-descend (TTD) in your notebook.



- 21 Allow the mouse to free roam post descent for 30 seconds.
- 22 Repeat this 2 more times (total of 3 trials) for each mouse.
- 23 Clean the pole and base between each mouse using 70% EtOH.
- 24 After all mice in a cage are assessed, replace mice in the cage and place pole (cleaned) into a new home cage.