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We use this protocol and it's working

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Challenging Beam Test

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ABSTRACT

The challenging beam test is used to measure motor performance, coordination, and balance

MATERIALS

- Beam Details: Consists of 4 flat sections that increase in narrowness.
- 70% ethanol for cleaning
- two empty cages (to be used as pedestals)
- acrylic beam platform
- wire grid
- camcorder
- index cards
- pen

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Setup

1 Lay a bench pad on the table and place the beam on top of the two empty cages ~3-4 cm of overhang.

2 Place the test subject's home cage on the narrow end sideways so that the bream rests on top of the side wall.

3 Clean the beam with 70% ethanol and dry thoroughly before starting and after completing each cage of mice. During test days, spray paper towels with ethanol and wipe down the wire grid.

Training (Days 1-2)

4 Gently place the mouse at the widest edge of the beam and allow it to traverse across the beam.

4.1 For the first trial, the mouse will need to be gently guided to cross.

4.2 If the mouse is stationary or attempts to turn, nudge it in the forward direction.

4.3 Additional mice in the home cage can be placed in a spare, clean cage or left within the home cage.

5 Once the mouse has reached the end and touched any part of the home cage, the trial is complete.

6 Clean any debris off the beam and train the next mouse. Repeat until all mice in the cage have been trained 5 times on the beam.

6.1 Mice should need minimal guidance to cross the beam by the 3rd trial even on the first day. They should require little if any guidance by the second day.

7 Train the next mouse and repeat until all mice with the same cage have been trained 5 times.

8 Return all mice into their home cage.

9 Clean the beam with ethanol.

10 Remove any bedding/debris from the bench pad.

Test Day (Day 3)

11 Place the wire grid (squares - 1 cm2) on the beam surface leaving a 1 cm space between the grid and the beam surface.

11.1 The grid should not wobble. If it does, tighten all the bottom where it touches the clear part of the beam.

12 Write down the mouse ID for all mice in the cage on the index card and leave room for tally marks before each ID to show the trial number.

13 Start recording on the camcorder to capture the mouse ID and trial number. Without stopping the recording, gently place the mouse at the widest part of the beam and allow it to cross the beam.

13.1 Make sure to hold the camera perpendicular to the beam and at the same height to obtain the clearest recordings of the mouse's paws on the wire gird.

13.2 Adjust the distance of the camera from the mouse, depending on its speed (faster mice=longer distance) to capture the whole body at all times

14 Once the mouse has reached the end and touched any part of the home cage, the trial is complete. Stop the video recording.

15 Clean any debris off the beam and train the next mouse. Repeat until all mice in the cage have been tested 5 times on the beam.

16 Test the next mouse and repeat until all mice with the same cage have been tested 5 times.

17 Return all mice into their home cage.

18 Clean the beam and wire grid with ethanol.

19 Remove any bedding/debris from the bench pad.