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🌐 Parallel Beam test for mice

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We use this protocol and it's working

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Abstract

The Parallel Beam Test Protocol is designed to evaluate the motor coordination of mice. The test involves a 150 cm long balance beam set at a height of 50-60 cm, with safety measures to catch falls. Conducted in a dimly lit environment with focused lighting on the beam, the test requires mice of any strain to traverse the beam, guided initially towards their home cage. Mice are trained a few days before testing and acclimatized to the test environment an hour prior to minimize stress. Each mouse completes three consecutive attempts, recorded for analysis. Post-run, the beam is cleaned with 10% ethanol. This protocol is essential for assessing motor skills, particularly in neurological disease such as Parkinson Disease

Troubleshooting

Objective

1   This protocol allows for the evaluation of balance and coordination in mice, which can be crucial for studies involving neurological conditions, muscular diseases, or the effects of drugs on motor functions

Apparatus

2   - A 150 cm long balance beam placed on two opposing supports.
    - The height between the beam and the ground should be 50-60 cm, with a safety net or cushioning material to catch any falls.
    - A side-mounted camera to record the test.

3   **Lighting**

    - The environment should be dark, with a bright light directed onto the beam.

Preparation

4   - Acclimate mice to the test environment and the handler before the test.
    - A few days before the first test run, train the mice on the beam. Place the mouse on one end of the beam and guide it towards its home cage at the other end, encouraging it to walk across the beam.
    - Repeat this process 3-5 times until the mouse can traverse from the start to the opposite platform without the home cage as an incentive.

Acclimatization:

5   Bring mice in their home cage to the behavioral room at least 1 hour before testing to minimize stress

Test Procedure

6   - Each mouse completes three consecutive runs on the beam, all recorded by the camera.
    - Clean the beam with 10% ethanol after each mouse to maintain hygiene and consistent conditions

7   **Additional Considerations:**

- The beam should have a uniform surface without any textures or protrusions that might aid in grip.
- The performance can be quantified by measuring the time it takes for the mouse to traverse the beam, the number of slips or falls, and the overall gait pattern.
- It's important to ensure that the mice are not injured during falls. The safety net or cushioning should be appropriately placed and tested.
- The data from the camera recordings can be analyzed for various parameters like speed, balance, and hesitation instances to provide a comprehensive assessment of motor coordination.