**Feather-Ferguson Battery of Neonatal Mouse Motor Tests**

Light (lux):

Sound Level:

Temperature:

Humidity:

Start Time:

Finish Time:

**Pup ID Number:**

**Mom ID:**

**Date Of Birth:**

**Date Of Behavior Testing:**

**Initials of investigator performing the test:**

**1. Ambulation:** Observe pup for 2 minutes on a solid surface.

no movement = 0

slow crawling, asymmetric limb movements = 1

slow crawling, symmetric limb movement =2

fast crawling = 3

**Abnormal Movement:** Circling: \_\_\_\_\_\_\_ Tremor: \_\_\_\_\_\_

**Score 1: \_\_\_\_\_\_\_\_\_ Score 2: \_\_\_\_\_\_\_\_\_ Score 3: \_\_\_\_\_\_\_\_\_ Average: \_\_\_\_\_\_\_\_**

**2. Hindlimb Foot Angle:** Record (from above or below) pup walking and determine hindlimb angle during gait while hindpaws are both flat.

**Degree of hind limb splay: \_\_\_\_\_ \_\_\_\_\_ \_\_\_\_\_ \_\_\_\_\_ \_\_\_\_\_ Average: \_\_\_\_\_\_\_\_**

**3. Surface Righting:** Place mice on their backs on a cotton sheet. Time to return to prone position and the direction of turning is recorded. Test 3 times. Duration is limited to 2 minutes.

Score: 0 = No Response 1 = >1 sec 2 = <1 sec

**Trial 1: Direction of Turn = RIGHT LEFT Score: \_\_\_\_\_\_\_\_\_ Time: \_\_\_\_\_\_\_\_\_**

**Trial 2: Direction of Turn = RIGHT LEFT Score: \_\_\_\_\_\_\_\_\_ Time: \_\_\_\_\_\_\_\_\_**

**Trial 3: Direction of Turn = RIGHT LEFT Score: \_\_\_\_\_\_\_\_\_ Time: \_\_\_\_\_\_\_\_\_**

**Average: \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_**

**4. Negative Geotaxis:** Each pup is placed head downward on an incline and held for 5 seconds. The pup is released and the time and direction to face upward on the incline is recorded. Test 3 times. Duration is limited to 2 minutes.

Score: 0 = Turn and walk up slope 1 = No turn, slip, no locomotion

**Trial 1: Direction of Turn = RIGHT LEFT Score: \_\_\_\_\_\_\_\_\_ Time: \_\_\_\_\_\_\_\_\_**

**Trial 2: Direction of Turn = RIGHT LEFT Score: \_\_\_\_\_\_\_\_\_ Time: \_\_\_\_\_\_\_\_\_**

**Trial 3: Direction of Turn = RIGHT LEFT Score: \_\_\_\_\_\_\_\_\_ Time: \_\_\_\_\_\_\_\_\_**

**Average: \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_**

**5. Front-limb Suspension:** Allow pup to grasp a wire with forepaws. Time of falling is recorded. Test 3 times. Record if one paw seems weaker or doesn’t grasp as well as the other.

**Trial 1: Time hanging = \_\_\_\_\_\_\_\_\_\_\_ Paw Release = LEFT RIGHT BOTH**

**Trial 2: Time hanging = \_\_\_\_\_\_\_\_\_\_\_ Paw Release = LEFT RIGHT BOTH**

**Trial 3: Time hanging = \_\_\_\_\_\_\_\_\_\_\_ Paw Release = LEFT RIGHT BOTH**

**Average: \_\_\_\_\_\_\_\_\_\_\_**

**6. Hindlimb Suspension:** Gently place pup inside tube face down with its hind legs over the rim of the tube so it is hanging on the side of the tube. Record data including time hanging on tube, number of pulls, and hind limb score. Test 3 times.

4 = normal hind-limb separation with tail raised

3 = weakness is apparent and hind limbs are closer together but they seldom touch each other

2 = hind limbs are close to each other and often touching

1 = weakness apparent, hind limbs are almost always in a clasped position with the tail raised

0 = constant clasping of the hind limbs with the tail lowered or failure to hold onto the tube

**Trial 1: Time hanging = \_\_\_\_\_\_\_\_\_ Score = \_\_\_\_\_\_\_\_\_**

**Trial 2: Time hanging = \_\_\_\_\_\_\_\_\_ Score = \_\_\_\_\_\_\_\_\_**

**Trial 3: Time hanging = \_\_\_\_\_\_\_\_\_ Score = \_\_\_\_\_\_\_\_\_**

**Average: \_\_\_\_\_\_\_\_\_ Average: \_\_\_\_\_\_\_\_\_**

**7. Four Limb Grip Strength:** Place mouse on wire mesh screen. Allow pup to adjust to environment approximately 5 seconds then begin inverting the screen. Record the approximate angle of the screen when the pup falls off (vertical or horizontal). Test 3 times and average tests. Record neonate body weight and, if the pup hangs on to the screen at 180° for a period of time, determine hanging impulse.

**Trial 1: Screen Position (Circle) = 0° 45° 90° 135° 180°**

**Trial 2: Screen Position (Circle) = 0° 45° 90° 135° 180°**

**Trial 3: Screen Position (Circle) = 0° 45° 90° 135° 180°**

**Average: \_\_\_\_\_\_\_\_\_**

**8. Grasping Reflex:** Stroke pups paw with the blunt end of a razor blade and determine if mouse can grasp with each paw individually.

**Right Front: \_\_\_\_\_\_\_\_ Left Front: ­­\_\_\_\_\_\_\_\_**

**Right Rear: \_\_\_\_\_\_\_\_ Left Rear: \_\_\_\_\_\_\_\_**

**9. Cliff Aversion:** Pup placed on the edge of a flat surface with snout and forepaws placed over the “cliff”. Aversion time is recorded with test duration limited to 30 seconds. Test 3 times.

Score: 0 = no movement from edge 1 = movement from edge

**Trial 1: Direction of Turn = RIGHT LEFT Score: \_\_\_\_\_\_\_\_\_ Time: \_\_\_\_\_\_\_\_\_**

**Trial 2: Direction of Turn = RIGHT LEFT Score: \_\_\_\_\_\_\_\_\_ Time: \_\_\_\_\_\_\_\_\_**

**Trial 3: Direction of Turn = RIGHT LEFT Score: \_\_\_\_\_\_\_\_\_ Time: \_\_\_\_\_\_\_\_\_**

**Average: \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_**

**NOTES:**