



STANDARD OPERATING PROCEDURE

TITLE: Foot Fault Test

CATEGORY: Behavioral Assay

Introduction

Goal: This document aims to provide the reader information on how to conduct the Foot Fault Test. The test is used to evaluate impaired locomotor activity, and parameters collected include ambulatory time and foot misplacement count. As this is a general description of standard materials, test settings, and procedures, variations may be made to fit specific needs.

Materials

- *Subjects:* any strain of rats. Subjects require training and should be acclimated to testing environment and experimenter before testing.
- *Apparatus:* Foot Fault system, including plastic start cage, platform with polar horizontal ladder and polar floor plate, photo sensors, and animal shocker.
- *Software:* Foot Fault software (ex. Horizontal Ladder).
- *Home cage:* used to motivate animal towards end of Foot Fault platform.
- *Visual cues:* placed around perimeter of Foot Fault platform, with one near home cage and end of platform.
- *Virkon:* used between trials to eliminate visual and olfactory residue in arena.

Test Settings

- *Lighting:* sufficient light for observer to view subject.

Detailed Standard Operating Procedure

Before testing:

- *Acclimation:* subjects in home cage are placed in testing room for at least 1hr before testing to minimize effects of stress on behavior during testing.
- *Subject training:* subjects should be able to cross platform within 2-4s with minimum paw contacts on floor plate.
 - Animal is placed on platform facing home cage with rear end at end of platform and allowed to jump into home cage.

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- Animal is placed on platform farther and farther away from home cage until animal is able to complete run from plastic start cage to home cage without distraction or backtracking. Touching tail or making sound behind animal may be necessary to motivate animal toward home cage.
- OPTIONAL: Once animal is able to complete run across Foot Fault platform, animal is allowed to run once more across platform and is shocked when paw contacts bottom plate as opposed to horizontal ladder.

Testing procedures:

- Before each test session, animal is allowed to jump from Foot Fault platform end into home cage and run across platform into home cage.
- Animal is placed in plastic start cage and allowed to run across platform for total of four trials. Trial start and end are triggered by photo sensors. Animal should not be allowed to backtrack or linger; touching tail or making sound behind animal may be necessary to motivate animal toward home cage.

Data Analysis

- The following parameters are collected for analysis:
 - Ambulatory time
 - Foot misplacement count