



STANDARD OPERATING PROCEDURE

TITLE: Rotarod

CATEGORY: Behavioral Assay

Introduction

Goal: This document aims to provide the reader information on how to conduct the Rotarod Test. The test is used to evaluate motor coordination and balance. 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 or mice. Subjects require training and should be acclimated to testing environment and experimenter before testing.
- *Apparatus:* appropriate Rotarod system for rats or mice, including rotating rod with separate lanes and fall sensors (ex. SD Instruments or Med Associates).
- *Virkon:* used between trials to eliminate visual and olfactory residue in arena.

Test Settings

- *Lighting:* dim red light.

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 walk forward on rotating rod.
 - Animals from same cage are placed in separate lanes on rod rotating at 5rpm such that animals may walk forward to keep balance.
 - After 60s on rod, animals are returned to home cage and apparatus is cleaned with Virkon between trials.
 - Procedure is repeated for total of three trials separated by 10min intertrial intervals. Trial 3 may be repeated once if animal falls off rod before 60s cutoff, but no more

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than four trials should be run per animal. Subjects must be able to stay on rod rotating at 5rpm for 60s before proceeding to testing.

Testing procedures:

- Apparatus is set to accelerate from 4 to 40rpm in 300s, and animals from same cage are placed in separate lanes on rod initially rotating at 4rpm.
- Trial begins when acceleration is started and ends when animal falls off rod. If animal clings to rod and completes full passive rotation, timer is stopped for animal, passive rotation is noted, and animal is returned to home cage, taking care not to disturb other animals in adjacent lanes. Variations of trial cutoffs and re-run trials can be used (i.e. a fourth re-run trial is done if animal passively rotates (1 or 3 consecutive times can be used), or if animal falls off <5 seconds after the start of trial.
- Apparatus is cleaned with Virkon between trials.
- Procedure is repeated for total of three trials separated by 15min intertrial intervals. At end of Trial 3, animals should be weighed.

Data Analysis

- The following parameters are collected for analysis:
 - Latency to fall
 - Speed at fall