

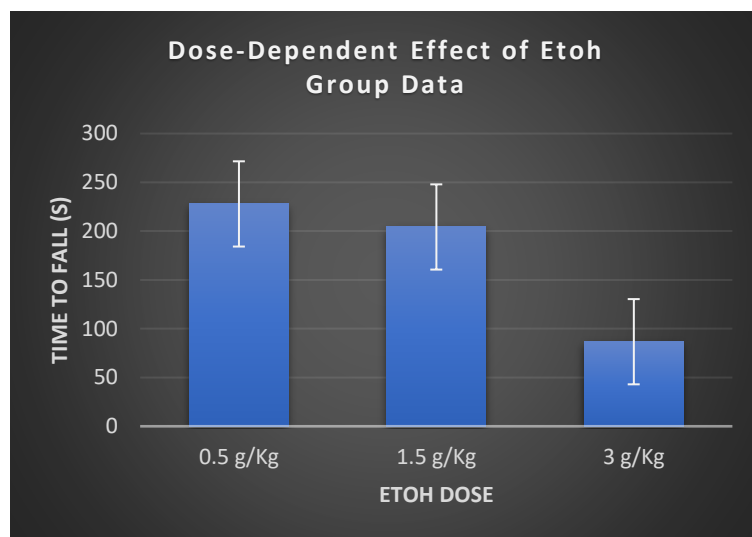
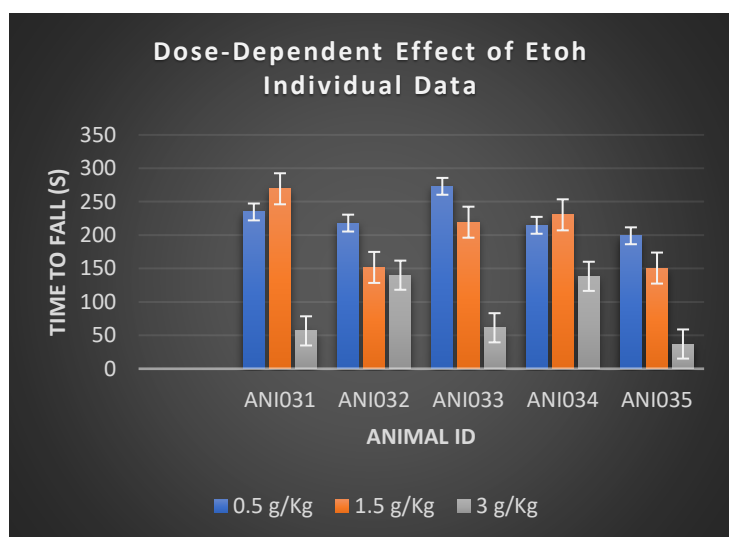
Rotarod Assessment of the Effects of Ethanol on Locomotion

Ethanol has a **dose-dependent impact on locomotion**, affecting motor coordination, balance, and activity levels. At **low doses**, ethanol can act as a stimulant, leading to **increased locomotor activity** due to dopamine release in the **mesolimbic pathway**. However, at **moderate to high doses**, ethanol exerts a **depressant effect** by enhancing **GABAergic inhibition** and reducing **glutamatergic excitation**, leading to **ataxia, impaired motor coordination, and sedation**. Chronic ethanol exposure can further cause **neuromuscular deficits, tolerance, and long-term motor impairments** due to changes in **cerebellar and basal ganglia function**. These effects are commonly studied in **rodents** using open field tests, rotarod assays, and beam-walking tasks.

The rotarod test is a way to assess the motor coordination and neuromuscular coordination of mice and rats.

- Motor symptoms in neurodegenerative diseases: Investigating conditions such as Parkinson's disease, amyotrophic lateral sclerosis (ALS), ataxia, and Huntington's disease, where motor impairments are prominent.
- Drug Development: Evaluating the efficacy and side effects of potential therapeutic agents on motor function.
- Genetic Studies: Understanding the impact of specific gene modifications on motor behaviors.

We tested the dose-dependent effect of ethanol on the locomotion of WT C57/BL6 mice in our facility using the Rotarod Assay.



WT C57/BL6 female mice were treated on 3 separate days with either 0.5 g/Kg, 1.5 g/Kg or 3 g/Kg Etoh 10 minutes prior to being subjected to 3 rotarod trials. Inter trial interval (ITI) = 5 minutes. N=5 mice. Rotarod Setting – 4-40 RPM, 5-minute trials.