

Title: The impact of biological sex on motor function and responses to novel environments in the gray short-tailed opossum (*Monodelphis domestica*).

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Background: Understanding the different stress reactions in different environments can help us understand stress factors. Studying animal behavior is important for translational research for mental health improvement.

Previous literature has shown that stress is a risk factor for higher cancer incidence and poorer cancer survival. (Klejbor & Turlejski., 2012), as well as mental health outcomes. Understanding of how stress is related to cancer can help improve therapeutic outcomes as preventive measures (Glaser et al., 1987).

Methods: Using the Rota Rod apparatus, 12 animals (3 males, 9 females) were tested at 36 rpm for a maximum of 400 seconds (Madroñal et al., 2010). Open field apparatus was used to test 8 animals (4males, 4 females), their locomotor and non-locomotor behaviors were recorded using AnyMaze. Data collected from both experiments were analyzed with SPSS software.

Results: The preliminary results showed sex differences, female's average number of revolutions (44.54) was higher than their male counterparts (26.15).

Results from the open field showed females exhibit less immobile episodes ($f(1)=6.000$, $p<0.05$). The results indicate that females had higher mobility duration than their male counterparts.

Conclusions: Previous literature has shown stress is a risk factor and a major contributor to mental and physical health problems. Preliminary results support the hypothesis that there is a biological component in stress reactivity to novel environments in the *Monodelphis*, and that animal models are a good alternative to study sex differences in stress responses and motor function. Further research is needed to test housing effects in the short-tailed opossums.

References:

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