RISE RESEARCH INNOVATION SCHOLARSHIP ENTREPRENEURSHIP

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Changes In Brain Structure And Function Following Exposure Of Psilocybin During Adolescence

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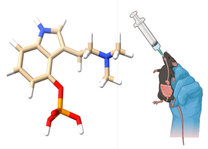
Introduction

In recent years, Schedule I substances such as psilocybin have been resurfacing as scientific interest for treating major depressive disorder (MDD), end-of-life distress, PTSD, and alcoholism.
In this study we examined the long-term effects and potential risks of exposure to psilocybin during adolescence. To investigate long-term impact on brain structure and behavior, sparking further interest in its long term neuroplastic effects

Methods

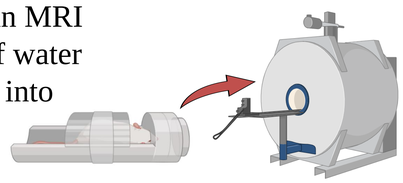
Drug Administration

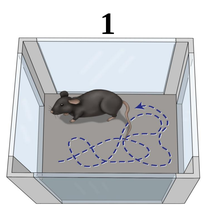


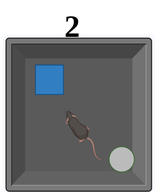
In this study, we administered saline (n=12) or a single oral dose of psilocybin (n=12) every other day over 10 days to adolescent male and female mice using oral gavaging

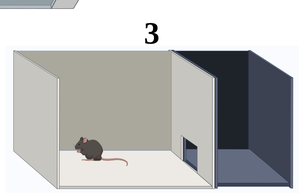
7- Tesla Magnetic resonance imaging

Diffusion-weighted imaging (DWI) is an MRI technique that measures the diffusion of water molecules in tissues, providing insights into microstructural architecture



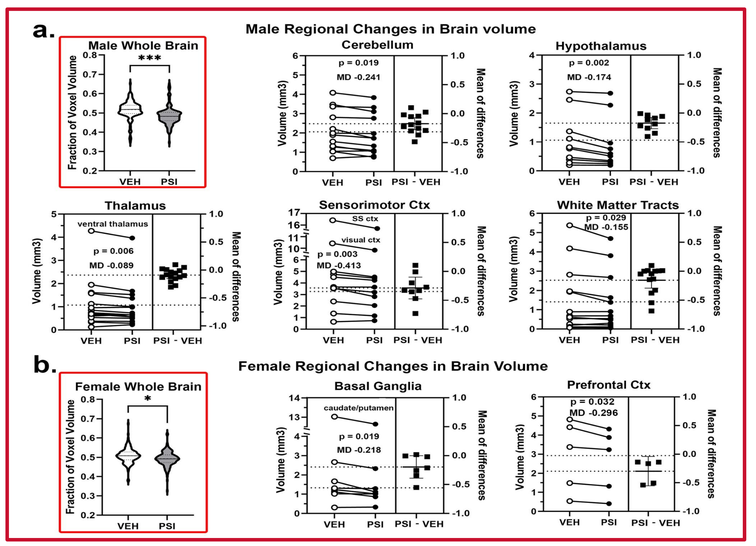


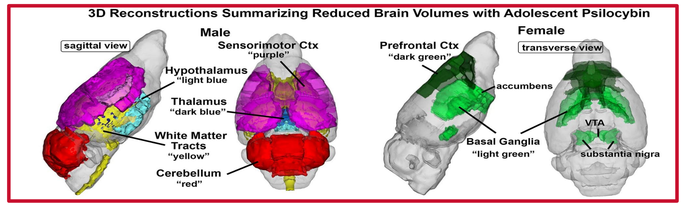


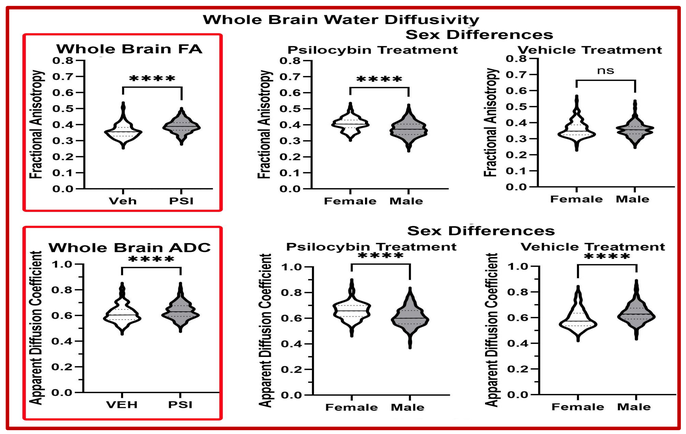


Behavior Assay
1. Open Field Test
2. Novel Object Recognition
3. Light and Dark Box

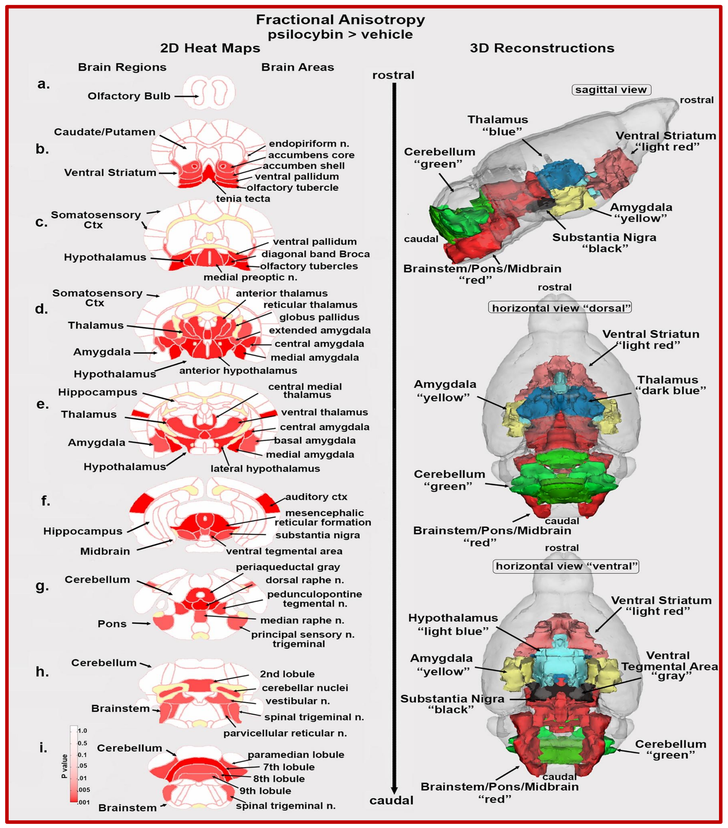
Sex based difference in volumetric Analysis



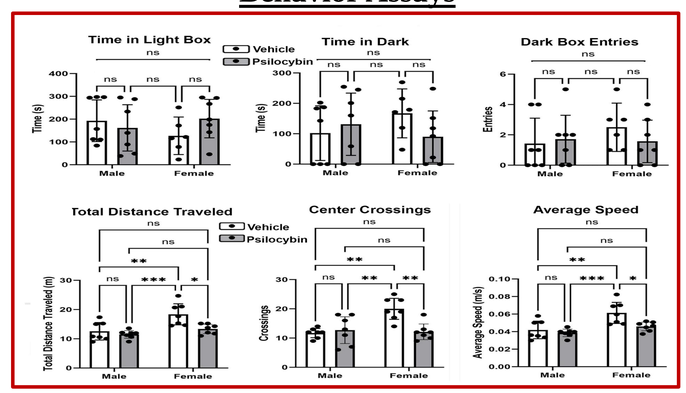




Comparative analysis of fractional anisotropy Psilocybin Vs Vehicle



Behavior Assays



Conclusion

Long lasting changes in hyper connectivity and neuroplasticity.
Significant Changes in Sex based difference in whole brain diffusivity and volumetric morphometry
Potential exploration for Immunohistology in mouse brain tissue and western blot.

Thanks to National Institute on Drug Abuse for providing the psilocybin
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