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## PK11195 Increases Anxiety Like Behaviors in the Open Field

Audrey Donald

*University of Nevada, Las Vegas, DONALD@UNLV.NEVADA.EDU*

Dustin Hines

*University of Nevada, Las Vegas, dustin.hines@unlv.edu*

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Audrey Donald, Dr. Dustin J. Hines

Psychology, Translational Neuroscience, University of Nevada, Las Vegas

## Introduction:

Anxiety is one of the most common mental illnesses in the US. Signaling between regions of the brain can be corrupted causing stress related behaviors. Medications that help treat these behaviors target GABA receptors in an inhibitory manner. However, these medications only work for a period of time. The likelihood of being free of these medications becomes uncertain. Another approach is a protein called translocator protein. TSPO, once known as peripheral benzodiazepine receptor is known to mediate anxiety related behaviors through the synthesis of neurosteroids. While TSPO may mediate these behaviors, its mechanism is not well known. Ligand PK11195 was used to evaluate behaviors in animal models using the open field task.

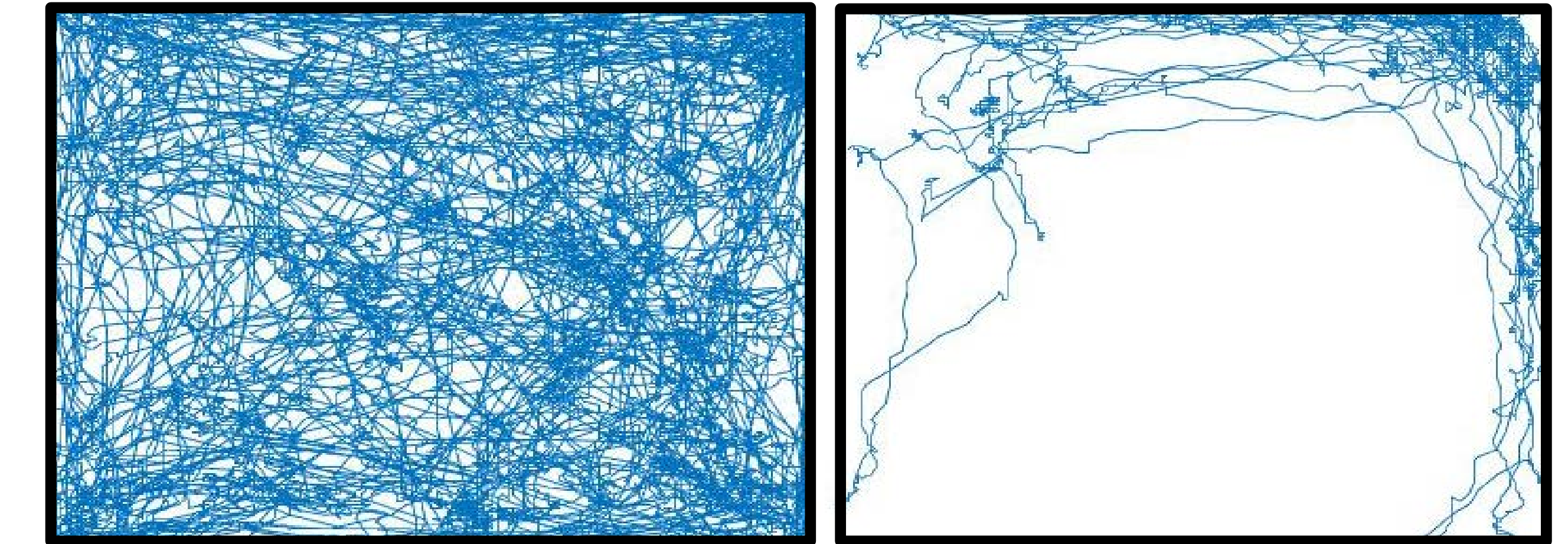
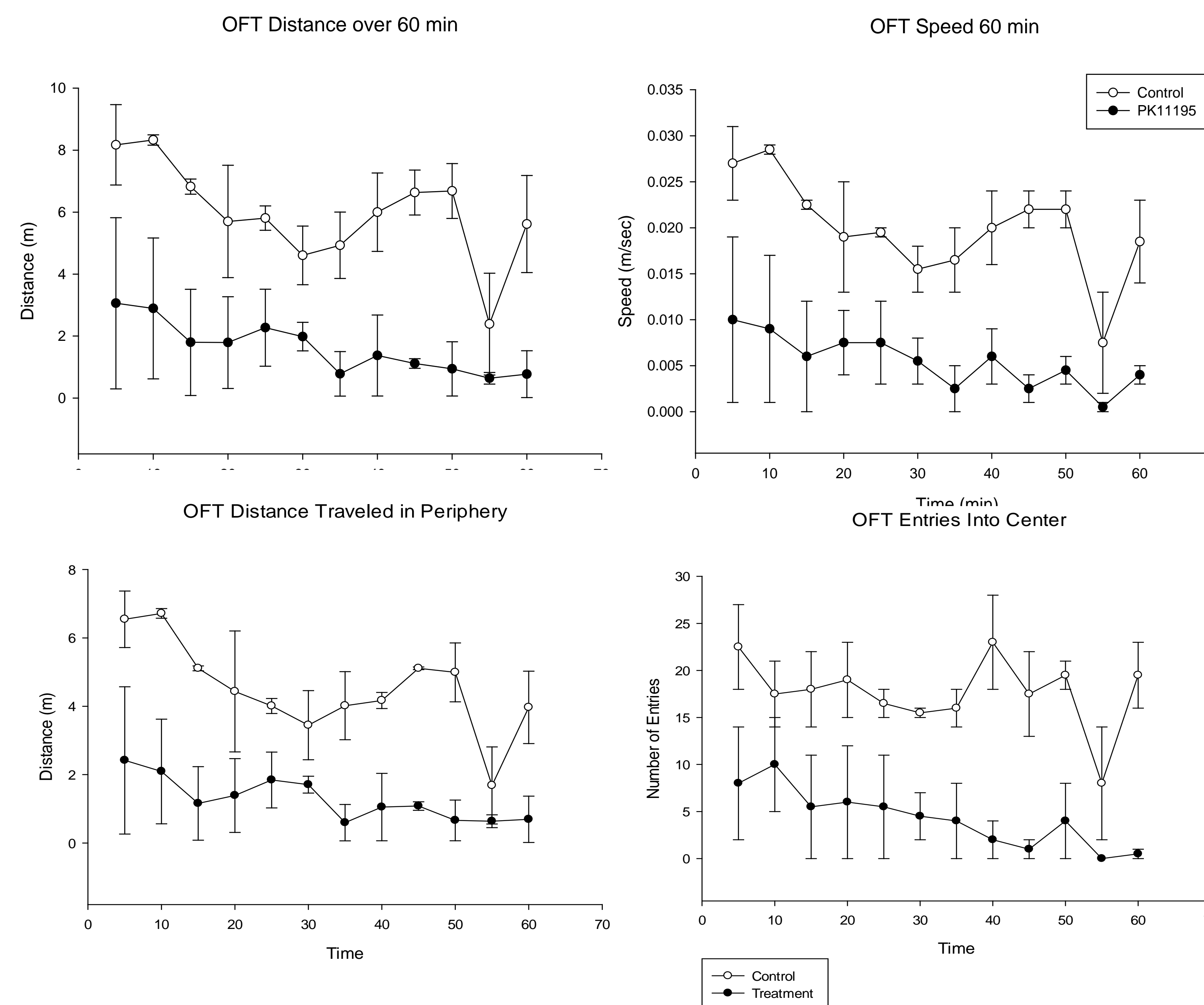
## Methods:

Open field task- four mice were able to move in their own separate (43.5 cm) for sixty minutes. Two of the mice received the treatment of PK11195 and two received a saline solution.



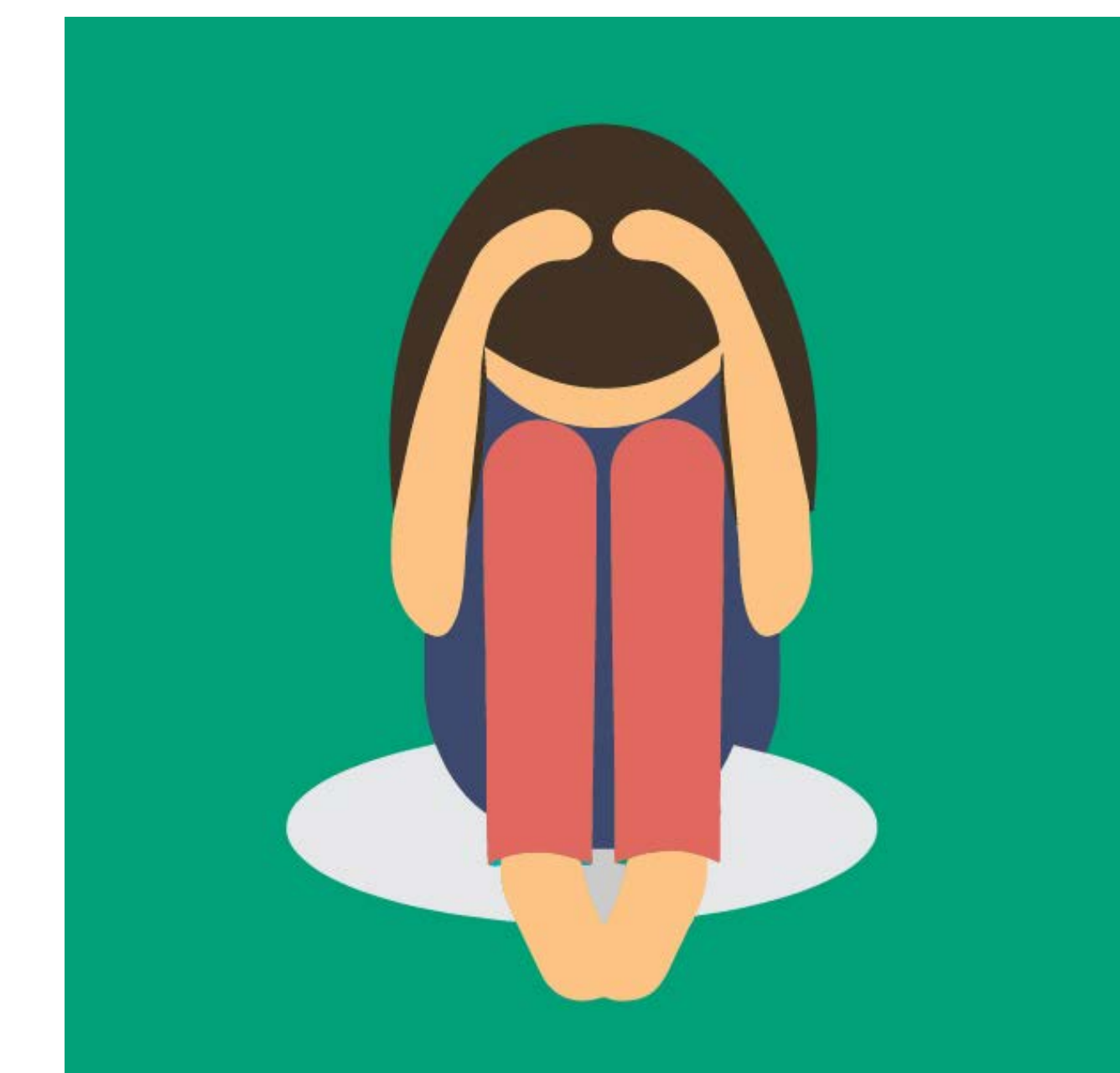
## Results:

While ligands that have an affinity for TSPO can produce anxiolytic effects, PK11195 showed the opposite effect. Animal models that were injected with the novel ligand did not habituate to their environment over the given time of the open field task. This suggests that the action of TSPO was blocked by PK11195, thus enhancing anxiety like behavior.



## Discussion:

Anxiety affects many individuals today. Many of the medications that help treat this are only temporary and are not ideal for normal living. While these medications are still used, there may be better ways in treating anxiety. Translocator protein may be able to aid in the effects of anxiety related disorders through the synthesis of neurosteroids. While TSPO may help, its effect in mediating the disorder may depend on the ligand that is bound to it. This may be a step in creating better mechanisms in which to treat anxiety related disorders.



## Acknowledgements:

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