

# Addiction and Homeostatic Dopaminergic Baseline Activity Alteration in Ventral Tegmental Area and Ventral Striatum



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**Submission:** July 15, 2019; **Published:** July 25, 2019

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## Introduction

Reward system alterations lead to addictive disorders. High availability of dopamine D2 receptor would be protective against alcoholism in the subjects with high inherited risk for alcohol addiction. Ventral striatum dopamine D2 receptors availability in alcohol addicted subjects is decreased. There would be a homeostatic dopamine baseline level in the ventral striatum. In healthy subjects, this homeostatic baseline activity can be reached by some weak triggers during normal life like enjoyments. In the subjects who have inherited a lower dopamine activity, reaching to enough baseline activity requires stronger dopamine activators like drugs. During addiction development, there would be a need for more doses to get the same results of the substance effects. This is based on the fact that the organism shows reaction to high load of dopamine with its receptors down-regulation. This cause the problem to get more complicated in addictive disorders. During the withdrawal time, the subject finds the situation more difficult than the time before addiction development. It is due to the fact that in this situation, the reward system responsivity has been down regulated, and it is hard to maintain homeostatic baseline dopamine activity sufficiently by using natural triggers like usual enjoyments [1-3].

During reward expectation and receiving, in a study to detoxify the alcoholic subjects, the ventral striatum of the detoxified alcoholics showed reduced activity in comparison with controls. Due to the addictive dopaminergic overstimulation and consequently reward system down regulation consequence

or dopamine D2 receptors inherited alterations, weak triggers in the reward system of the addicted brain cannot maintain its activity in a sufficient baseline. General dissatisfaction subjective feeling, is related to this fact. Consequently, the risk of relying on stronger dopaminergic triggers to reach to a homeostatic baseline activity, would be higher [4,5].

## References

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DOI: [10.19080/IJCSMB.2019.06.555681](https://doi.org/10.19080/IJCSMB.2019.06.555681)

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