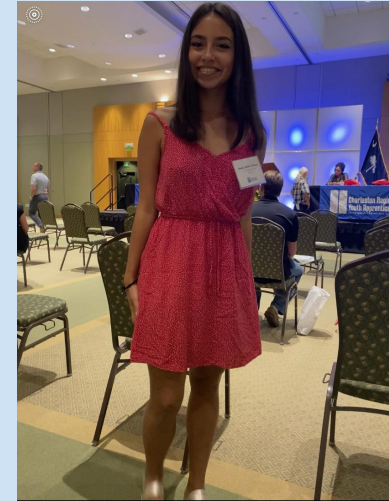


**How do the different brain
factors cause an increase
risk of substance abuse?**

By Anna Sofia Crews

Meet the Ambassador

I am Anna Sofia Crews. I am a junior at James Island Charter High School. I am interested in the STEM field and have had an astounding time working with my mentor, Ms. Browning, and this program. I am fluent in Spanish and proud of my hispanic background. In my free time I love to open up a book at the beach or enjoy some time painting.



Research Exploration

- The amount of illicit drug use has gone down since 2020

- many factors can play into this including the pandemic or lack of access

- **This shows the group were researching (substance abuse) and the a recent time frame**
- <https://nida.nih.gov/drug-topics/trends-statistics/monitoring-future>

- Substance drug abuse correlated with with childhood traumatic experience and PTSD

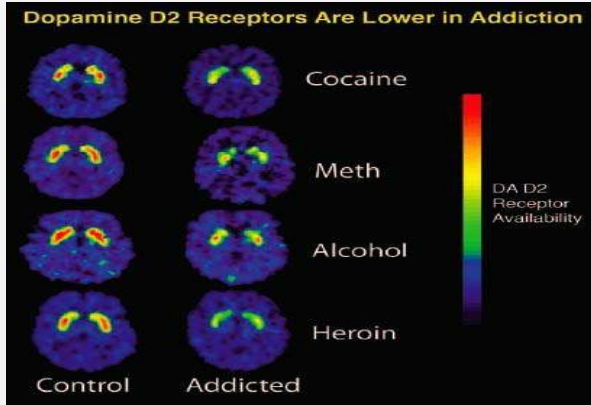
- trauma can have an impact on the neurotransmitters thus increasing the risk of substance abuse

- **People with a early traumatic experience are more vulnerable to substance drug abuse due to the change in neurotransmitters that were affected by trauma**
- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3051362/>

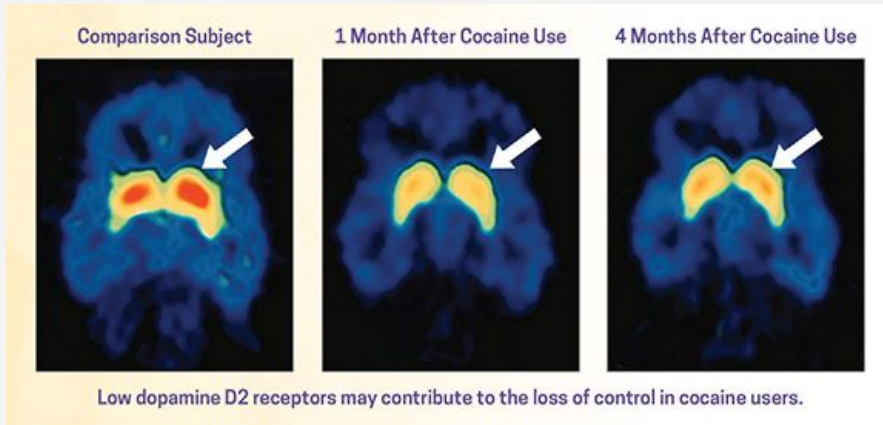
- There are different neurotransmitters affected by substance abuse and certain neurotransmitters can increase the risk of substance abuse

- each transmitter can be affected differently depending on drug
- specifically monoamines and neuropeptides are found with correlation in substance abuse
 - <http://web.mit.edu/zakf/www/druqchart/druqchart11.html>
 - <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3956107/>

Brain Scans of substance abuse effect on dopamine D2 receptors

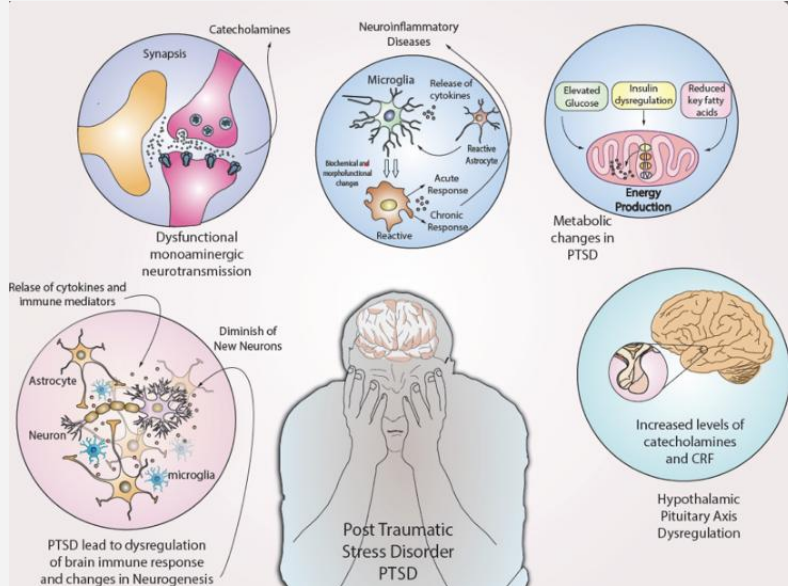


[nidas-newest-division-mines-clinical-applications-basic-research](https://www.mines.edu/newsroom/2015/05/20/150520-01)



[drug-misuse-addiction](https://www.addiction.com)

Breakdown of neurotransmitters affected from trauma



<https://www.mdpi.com/2077-0383/9/9/2951/htm>

Thank You!!

I could not be more thankful for my Mentor and all the inspiring people in this program. I have expanded my mind and knowledge. I look forward to the internship in the fall and all the other paths this will lead too.

