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Carrie Flickinger

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Analysis of Oxycontin Addiction and Recovery From Both a Physical and Psychological Lens

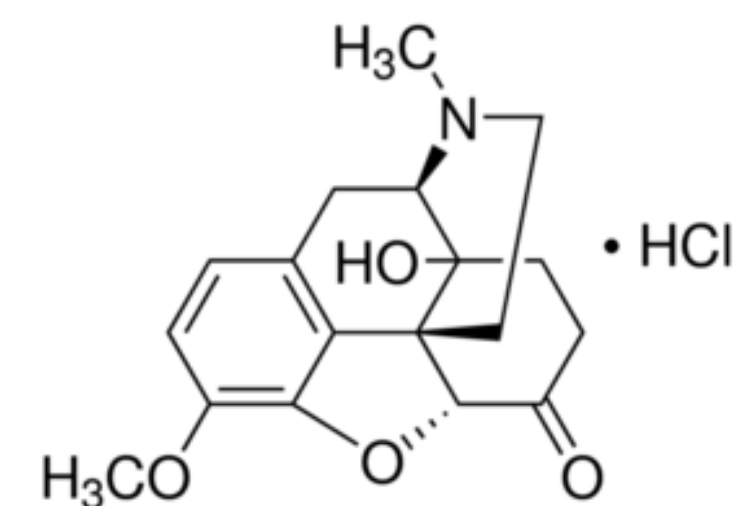
Carrie Flickinger and Meagan Munley
Longwood University, Department of Chemistry and Physics
201 High St, Farmville, VA 23909



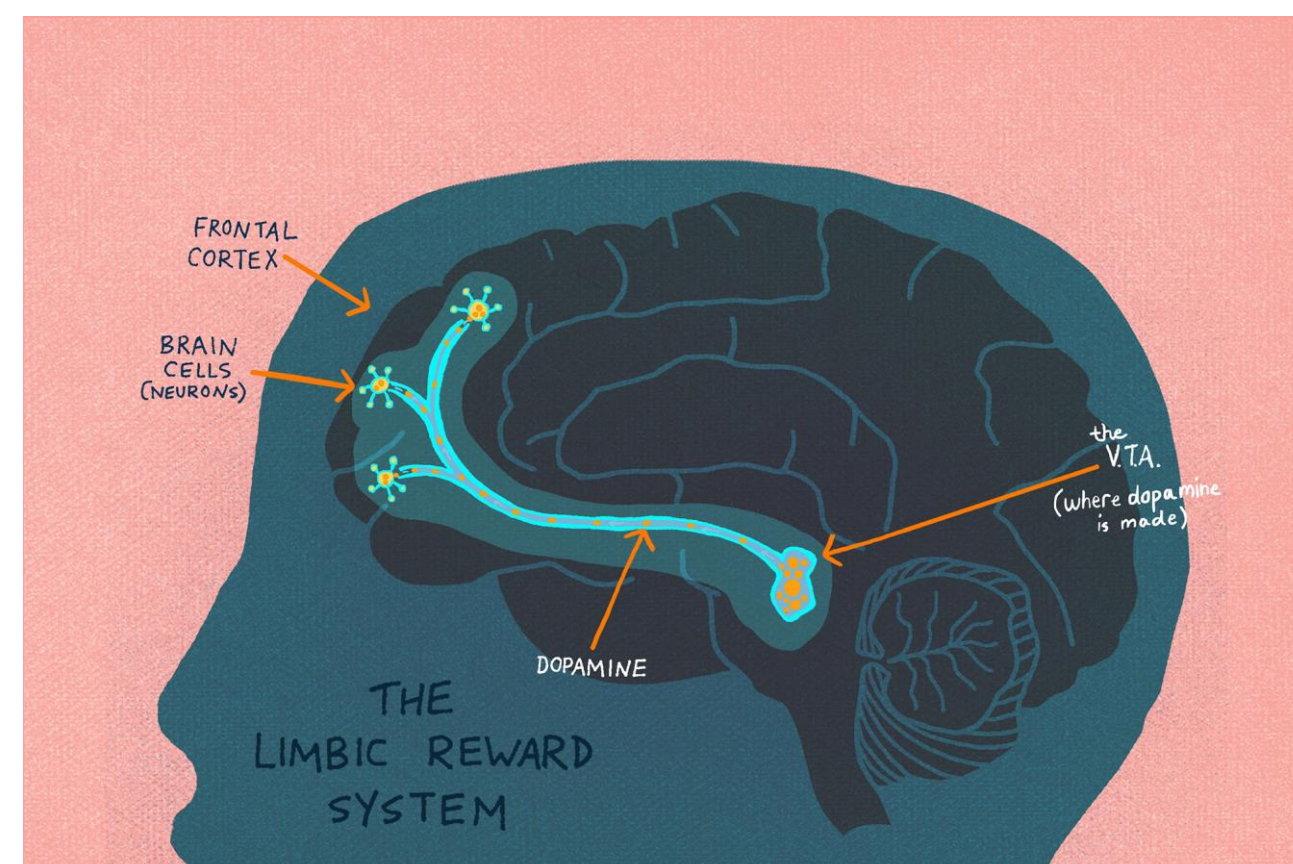
Abstract

We will investigate the physical impacts both short and long term effects of substance use. In doing so we will frame an argument for the substance's addictive properties as it relates to both its physically addictive and sociological addictive properties. In doing so, a stronger understanding of how an individual can move through the stages of substance use, to abuse, and finally addiction will be reviewed. We will then address current treatment strategies for the substance and how they address or fail to address both the physical and sociological impacts of its use.

Physical Effects on Our System



The opioid system is linked to the mesolimbic dopamine system. The μ -opioid receptors found in the mesolimbic system and modulates dopamine release in the nucleus accumbens, which affects responses to drug reward. (1)



Lasting Biological Effects or Signs of Dependence

The key event in the ISR (integrated stress response), regardless of the trigger, is phosphorylation of eIF2 α that modulates expression and translational activation of specific mRNAs, such as ATF4 (Activating transcription factor 4 is a protein that in humans is encoded by the ATF4 gene) and CHOP (Homologous Protein). These both determine if the cell will adapt to the stress condition or undergo to apoptosis (death of cells). (4)



Environment of Typical Use



Easily obtained (2)
Younger individuals use more than older individuals (2)
Higher use in American Indian community (2)



Demographics of Use

A higher percentage of divorced, widowed, and separated respondents and other respondents used the drug to relieve pain (2)

The introduction to oxycodone use can come from peers at school, during the treatment of pain, or from the black market (2)

TABLE 1—Demographic Correlates of Lifetime Nonmedical Use of Oxycodone Among Tribal Members on a Rural Midwestern Reservation, 2009

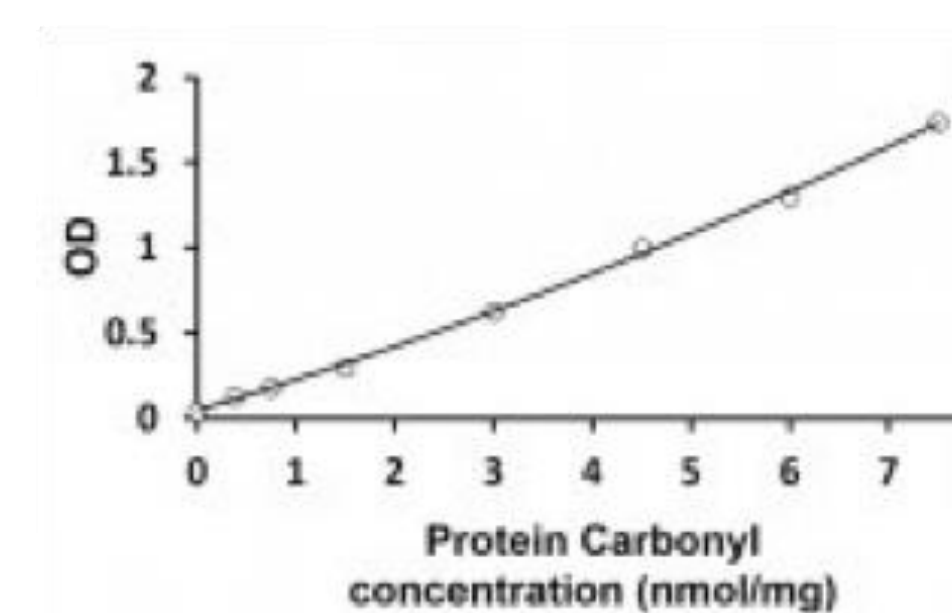
Variable	Ever Used Oxycodone, %
Total	30.0
Tribal affiliation	
No	23.1
Yes	30.4
Lived off reservation in lifetime, y	
0	37.8***
> 0-5	38.0
> 5-10	28.9
> 10-15	36.4
> 15-20	37.9
> 20	30.2
Gender	
Female	31.0
Male	29.2
Age, y	
18-20	46.7***
21-25	65.2
26-34	36.3
35-49	25.2
≥ 50	7.0
Marital status	
Single	39.4***
Married/cohabitating	24.6
Divorced/separated/widowed	15.9

Psychological Dependence

Oxycodone increases protein carbonyl content in rat cortex (Protein carbonylation is one of the most harmful irreversible oxidative protein modifications and is considered a major hallmark of oxidative stress-related disorders). (3)

Oxy affects Nacc, which is a part of the brain that is key in processing emotions (6)

Pre-clinical research has revealed that animals with repeated exposure to oxycodone are impaired on behavioral flexibility tasks (4)



Withdrawal effects once usage has stopped can dramatically affect cravings and desire to relieve the symptoms by beginning to use Oxy again.

Recovery

Group Therapy

Detox

Narcotics Anonymous

12 step programs have also proved effective.



Conclusions

Oxycodone affects dopamine system, which is how people get addicted

Oxycodone is both psychologically and socially addictive

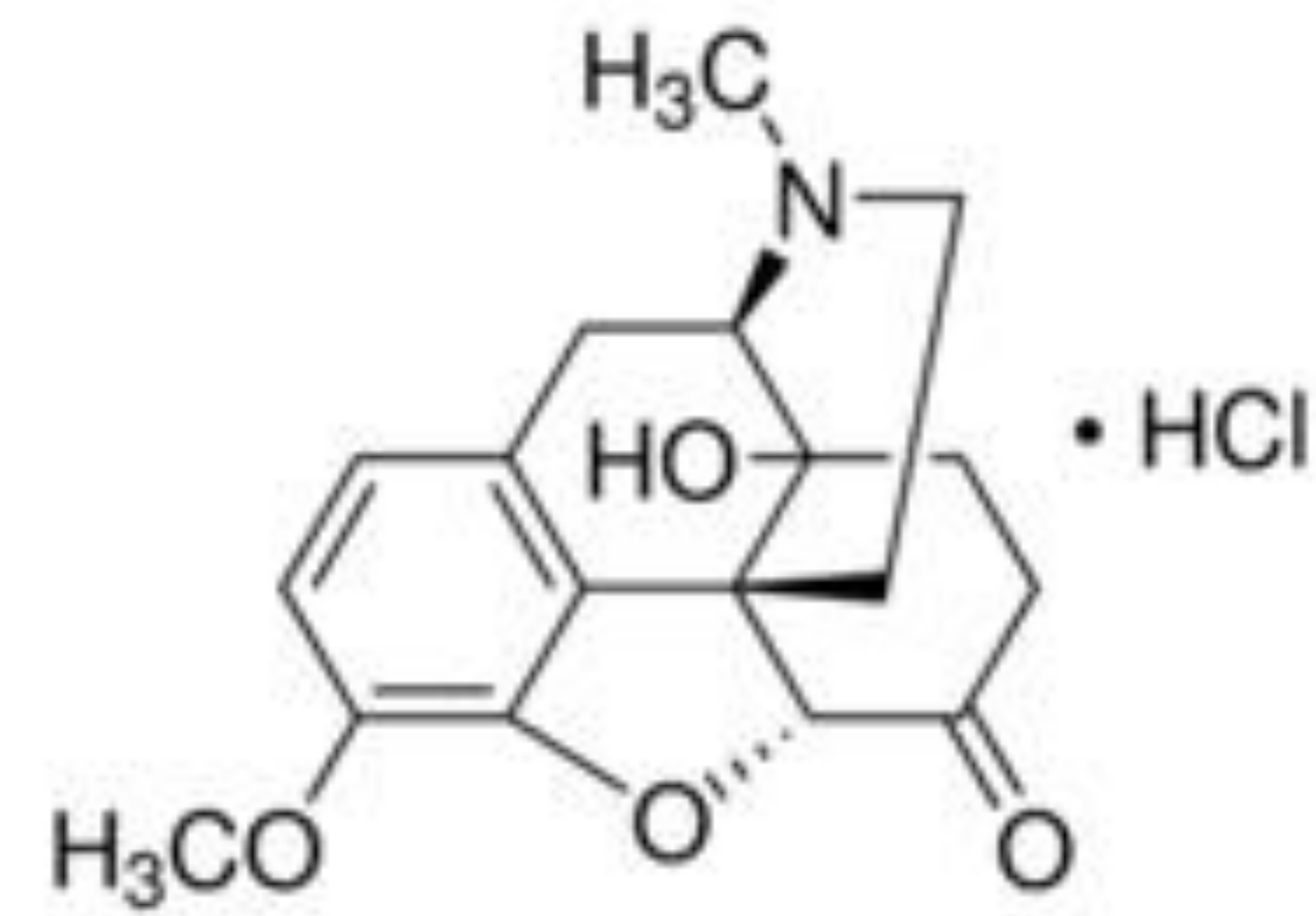
Use of Oxycontin affects the brain in harmful ways by causing the user to experience major withdrawal symptoms if stopped; thus posing a risk of relapse if the individual had desired to stop.

Various methods for treatment of Oxycontin addiction are available for those seeking assistance from group therapy to one-on-one help.

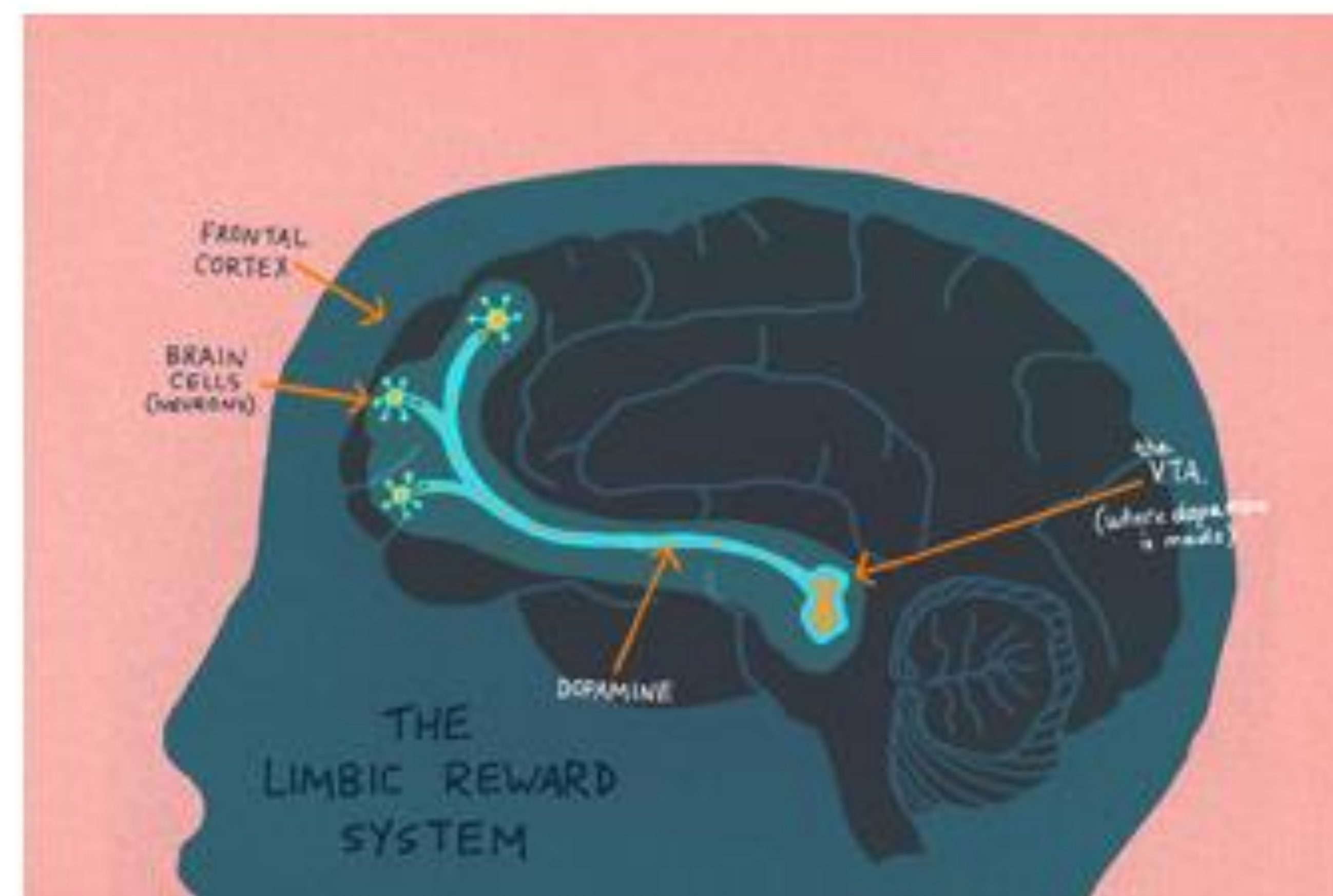
References

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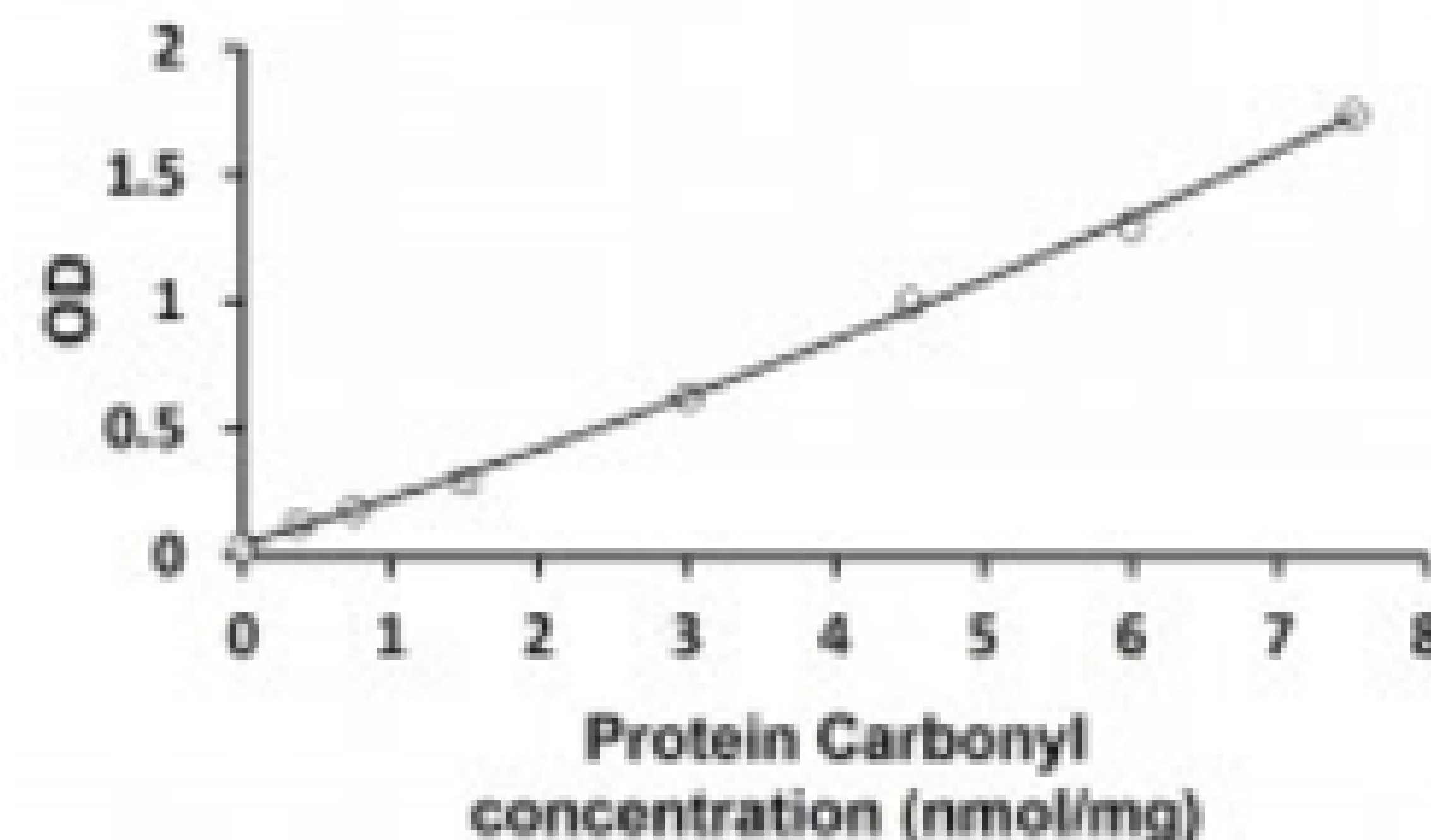
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