



ALASKA NATIVE  
TRIBAL HEALTH  
CONSORTIUM

# How ANTHC is developing immersive holograms to promote substance use dialogue

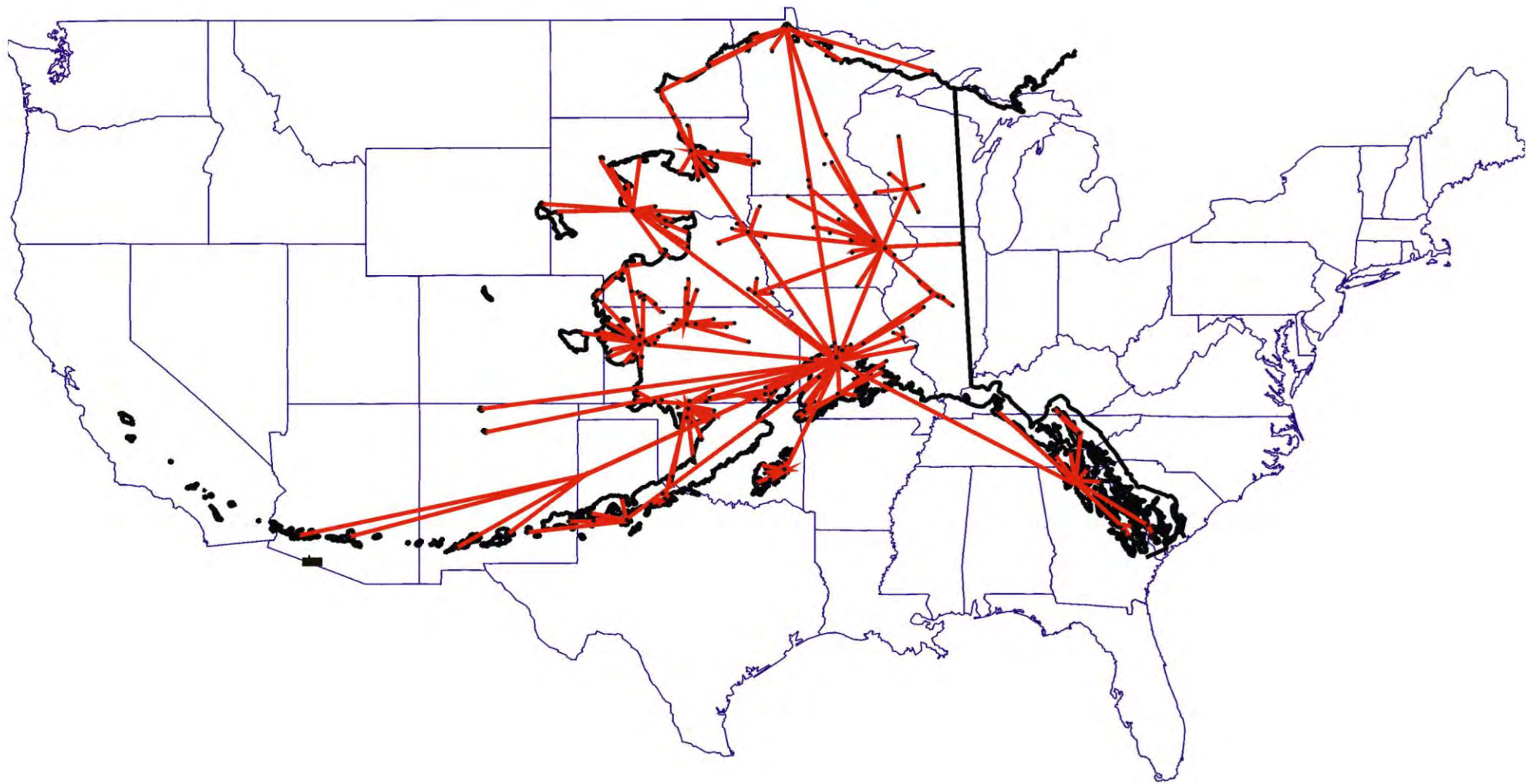
Modeling data and neuroscience in Augmented Reality

February 2020



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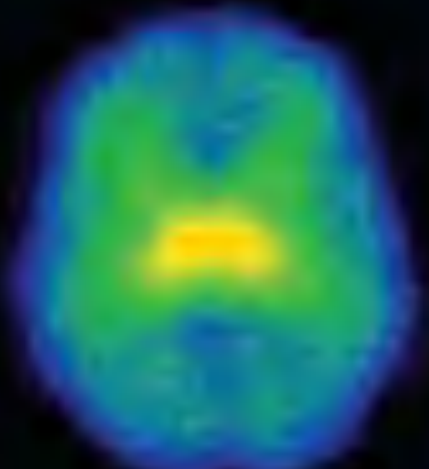
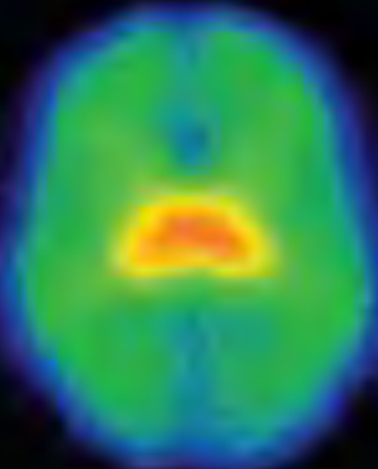
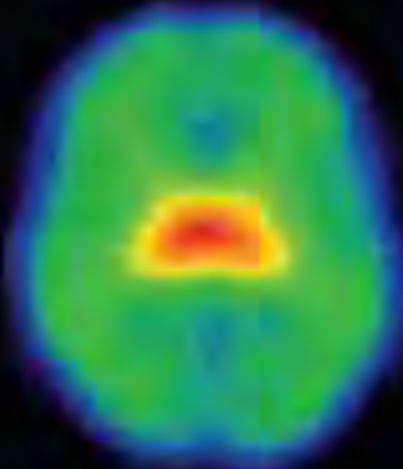
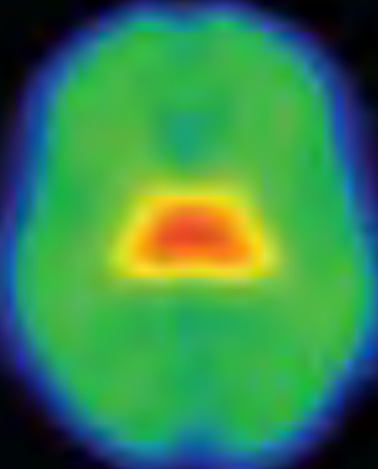
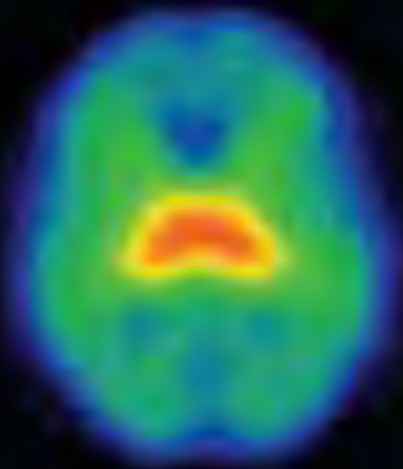
**Nonsmokers**

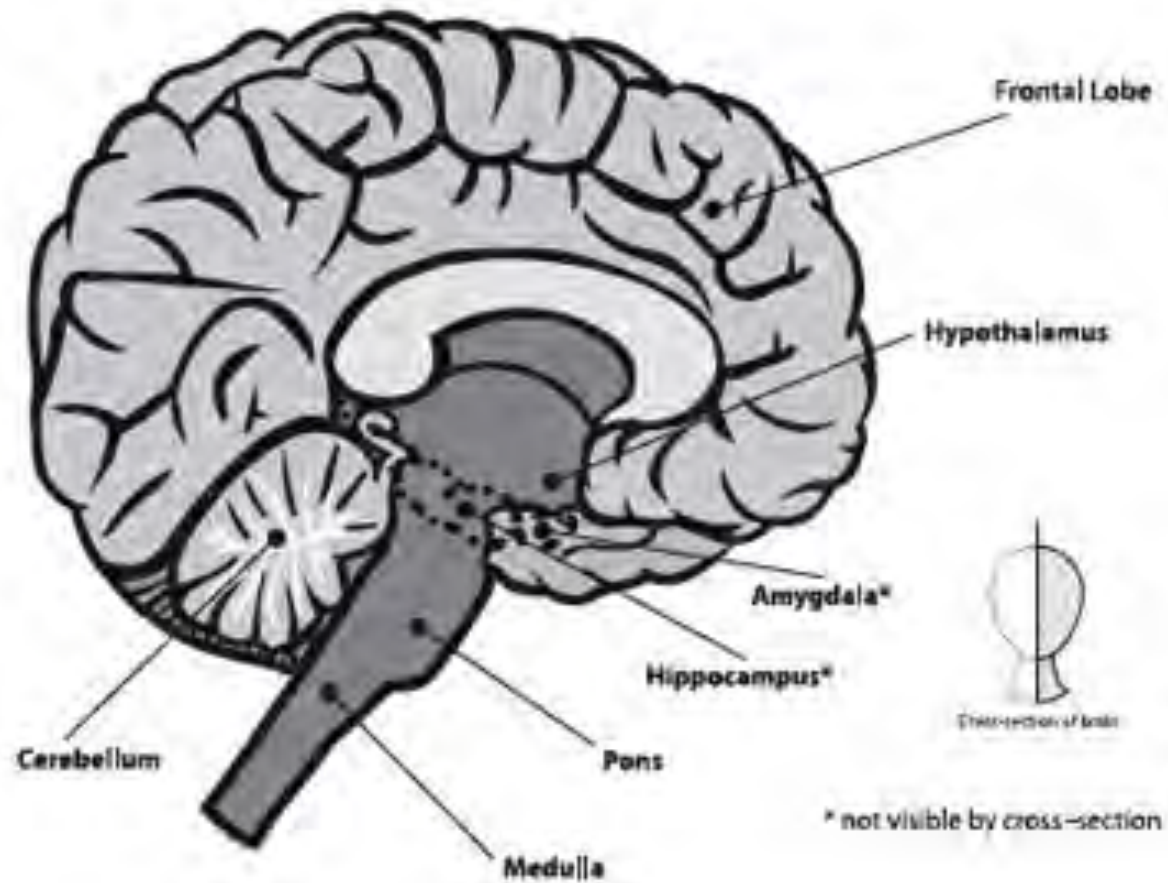
**Smokers  
1 Week**

**Smokers  
2 Weeks**

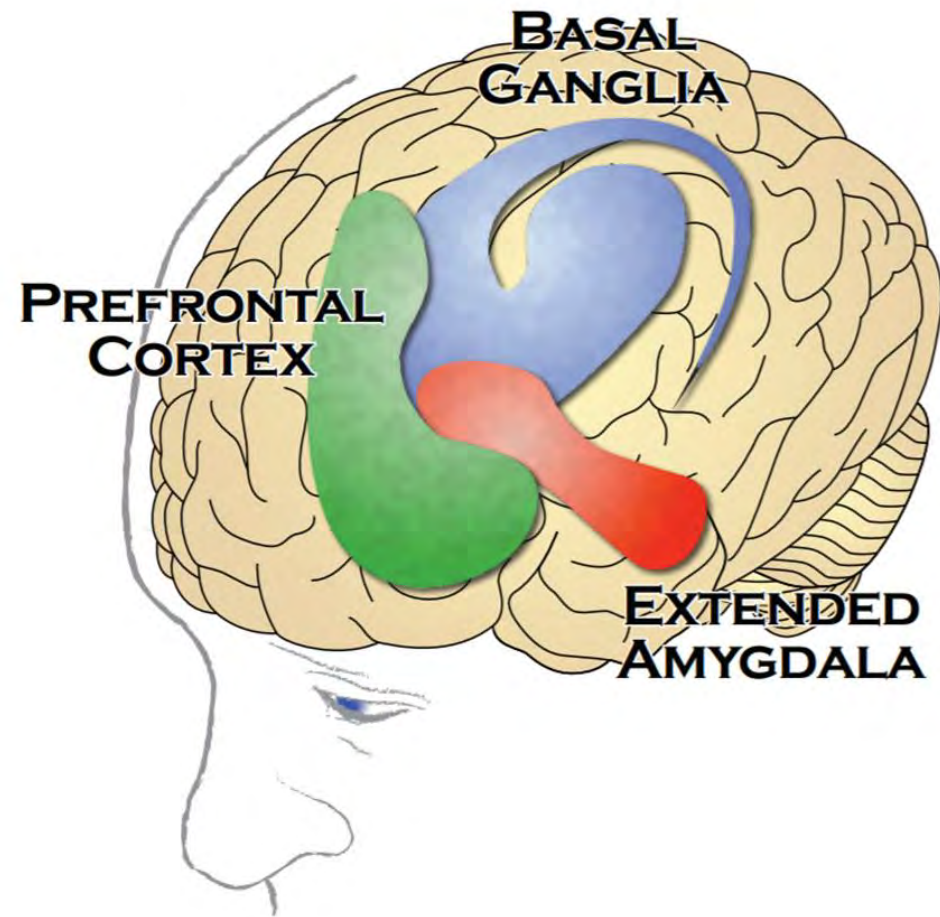
**Smokers  
4 Weeks**

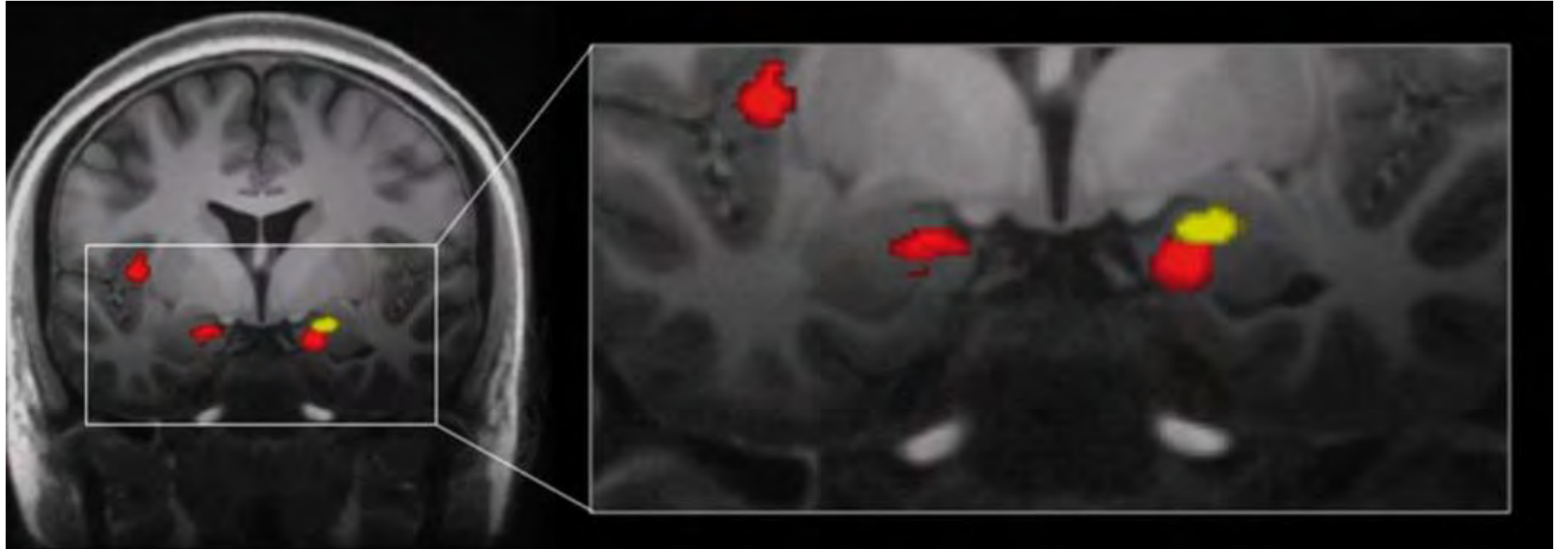
**Smokers  
6-12 Weeks**



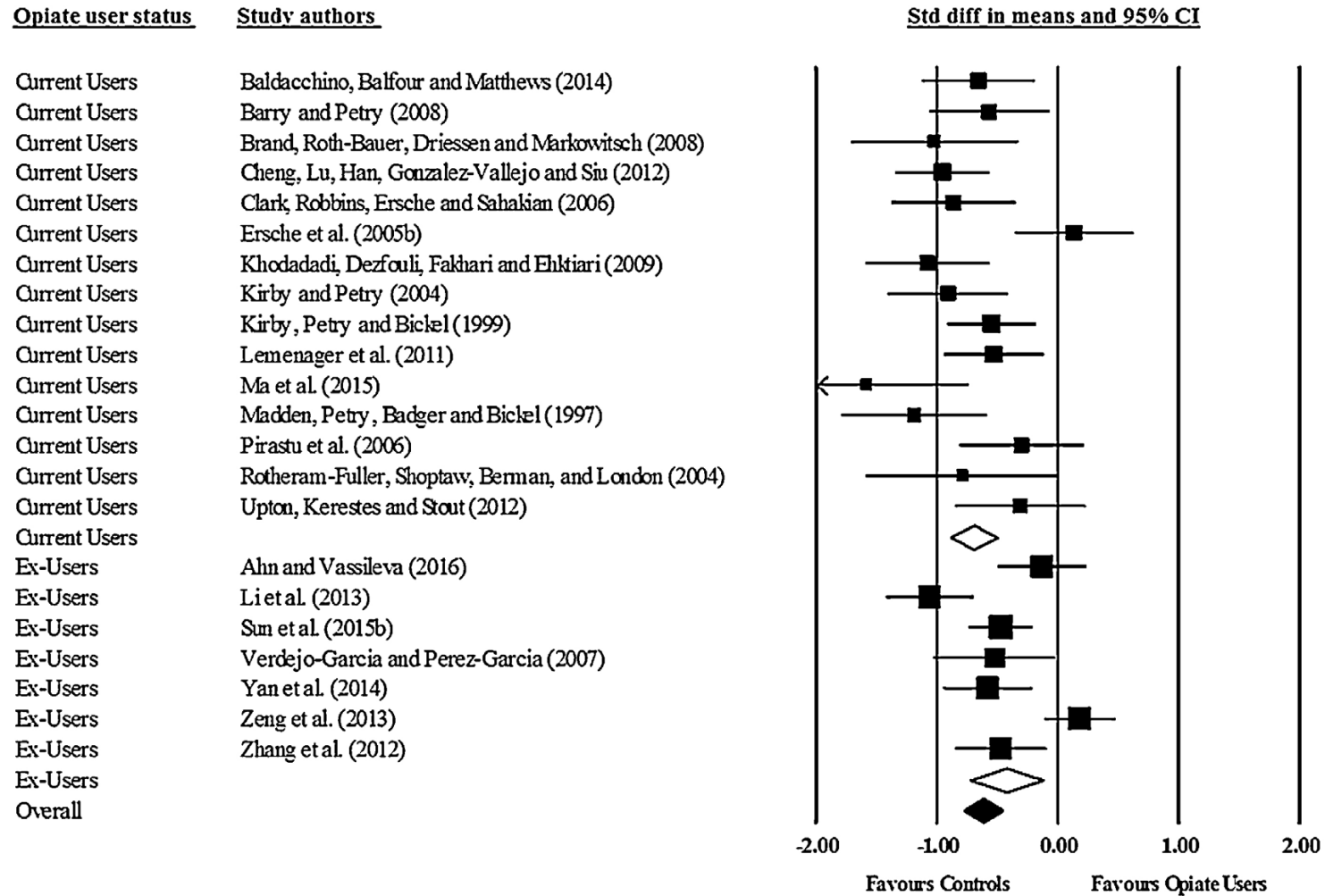


Brain Power: Module 1: An introduction to the brain and nervous system. National Institute on Drug Abuse, Washington, D.C. (June 2007).  
<https://www.drugabuse.gov/publications/brain-power/grades-6-9/introduction-to-brain-nervous-system-module-1>





Lin, J. C., Chu, L. F., Stringer, E. A., Baker, K. S., Sayyid, Z. N., Sun, J., Campbell, K. A., & Younger, J. W. (2016). One month of oral morphine decreases gray matter volume in the right amygdala of individuals with low back pain: Confirmation of previously reported magnetic resonance imaging results. *Pain Medicine (Malden, Mass.)*, 17(8), 1497–1504. Retrieved: <https://doi.org/10.1093/pm/pnv047>







March is colorectal cancer awareness month: Demystifying the colonoscopy. (February 26, 2018). Alaska Native Tribal Health Consortium, Anchorage, AK. <https://anthc.org/news/march-is-colorectal-cancer-awareness-month-demystifying-the-colonoscopy/>





### OPIOIDS AND THE BRAIN

Opioids bind to and activate opioid receptors in the brain, which are part of the endogenous opioid system (EOS). The EOS is a group of brain receptors that are activated by opioids.

**Analgesic effects**  
 Opioids bind to and activate opioid receptors in the brain, which are part of the endogenous opioid system (EOS). The EOS is a group of brain receptors that are activated by opioids.

**Respiratory depression**  
 Opioids bind to and activate opioid receptors in the brain, which are part of the endogenous opioid system (EOS). The EOS is a group of brain receptors that are activated by opioids.



**Constipation**  
 Opioids bind to and activate opioid receptors in the brain, which are part of the endogenous opioid system (EOS). The EOS is a group of brain receptors that are activated by opioids.

# OPIOIDS AND THE BRAIN

- Opioids bind to OPR, OR, and KOR
- OPR is the most important
- OPR is found in the brain, spinal cord, and peripheral nerves
- OPR is responsible for the analgesic and euphoric effects of opioids

## OROPALMUS

OROPALMUS is a type of opiate receptor found in the brain and spinal cord. It is responsible for the analgesic and euphoric effects of opioids.

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