

Too Scientific; Didn't Understand!

Let me explain!

Same disorder, different brains? Cannabis use disorder in men and women

Why?

Men are more likely to use cannabis and to develop a cannabis use disorder (CUD). However, **women** tend to **develop CUD faster** and often experience **more severe mental health symptoms** when they seek help.



Despite these well-known clinical differences, we know surprisingly little about **whether men's and women's brains respond differently to cannabis-related triggers** and whether this is related to differences in craving (the urge to use cannabis) or the amount of cannabis people use. This also results from the **underrepresentation of women** in cannabis research.

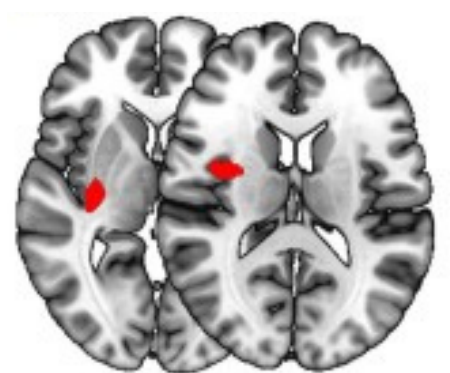
What & How?

We recruited **66 regular cannabis users** (27 women) using 2–7 days per week, and **71 non-using controls** (31 women). Participants completed a **brain scan (fMRI)** while viewing cannabis-related and neutral images – **measuring how strongly the brain responds to reminders of cannabis**.

We also measured **craving** at the start and end of the session, including craving for relief (e.g., to reduce negative feelings) and reward craving (e.g., to seek a positive feeling).

What did we find?

In cannabis users, **women showed a weaker brain response to cannabis images than men**, particularly in regions involved in urges and habit formation (in the image on the right). This pattern was **opposite in non-using controls**, suggesting regular cannabis use may affect the brain differently in women than in men.



In women only:

- Stronger brain responses in multiple brain areas were linked to greater increases in both **relief and reward craving** over the session.
- **Heavier use** was linked to stronger responses in a region implicated in reward processing and craving.

Important!

These findings make clear that men and women cannot simply be treated as interchangeable in cannabis research. **Studies that do not account for gender, or include limited women, may be missing important variation!**

More research is needed to **understand what these brain differences mean for how CUD develops in men and women**. We should also evaluate whether these neural differences have an impact on treatment outcomes and **whether gender-tailored approaches could improve outcomes**.



Kaag, A. M., Cousijn, J., & Kroon, E. (2025). Unravelling gender differences in cannabis cue-reactivity in individuals who use cannabis. Progress in Neuro-Psychopharmacology and Biological Psychiatry, 111515. <https://doi.org/10.1016/j.pnpbp.2025.111515>



By Dr. Emese Kroon