

Brain imaging study suggests both cutting down and quitting drinking linked to healthier brains

October 16 2023



Credit: CC0 Public Domain

The brains of people who reduce their drinking, as well as of people who quit drinking entirely, have greater volume in certain regions than people

who drink more heavily, according to a new study of adults treated for alcohol use disorder. The regional brain volumes of people who resume drinking at low-risk levels (no more than approximately three drinks per day for males, 1.5 drinks per day for females) of alcohol are more similar to the brains of those who remain abstinent than they are to those who drink at higher risk levels (average of five or more drinks per day).

The study, [published in *Alcohol: Clinical and Experimental Research*](#), suggests that reducing [drinking](#) may confer [brain](#) structural and [mental health benefits](#) and be considered a potentially viable or more achievable goal than abstinence for some people with [alcohol use disorder](#).

Researchers used [magnetic resonance](#) imaging to compare the volume of the cortex in various brain regions of people with alcohol use disorder who received treatment and subsequently either stopped drinking, resumed drinking but at low-risk levels, or resumed drinking at higher-risk levels. Approximately eight months after treatment, abstinence and reduced drinking at low and higher risk levels were associated with differences in brain volumes across the cortex.

Thirteen of the 34 regions of the brain studied showed significant differences by group. Compared to a control group of people without alcohol use disorder who don't drink heavily, the higher-risk drinkers showed significantly less cortical volume in 12 of 13 regions of interest in the brain; low-risk drinkers had less cortical volume in nine of the 13 regions; abstainers in six of the regions.

Specifically, the higher-risk drinkers showed less volume than abstainers in four frontal regions and in the fusiform and precentral cortical regions. In contrast, low-risk drinkers only significantly differed from abstainers in the precentral and rostral middle frontal cortex. The frontal regions of the brain play roles in decision-making, self-monitoring, and behavioral control and support higher-order cognitive functions,

including emotion regulation, working memory, and executive functioning. Less volume in these regions may relate to less capacity to perform these activities.

Prior studies have suggested that reductions in drinking levels, even if not completely abstinent, are associated with better mental health, [physical health](#), quality of life, brain structure, and neurocognition. The study provides support for the benefits of reduced drinking on brain health. The authors recommend that researchers and [health care providers](#) consider reduced drinking, not just abstinence, as a potentially viable outcome for people with alcohol use disorder.

Data for the study was collected from sixty-eight participants aged 28 to 70 with alcohol use disorder approximately eight months after treatment for alcohol use disorder was initiated. The control group consisted of 34 similarly aged people who were nondrinkers or light drinkers.

Participants whose daily ethanol consumption was between 1 and 40 grams for men and 1 and 20 grams for women were categorized as low-risk drinkers, and those who drank higher amounts were grouped in the higher-risk [drinker](#) category.

The study's modest sample size, particularly in the heavier drinker category, and the predominantly Armed Service Veteran sample may limit the generalizability of study findings. Future research might assess whether cortical volume differences correspond to differences in participants' quality of life or functioning. Overall, the study findings indicate abstinence and low-risk drinking after treatment were associated with better brain structural outcomes than resumption of higher-risk drinking levels.

More information: A. C. May et al, Non-abstinent recovery in alcohol use disorder is associated with greater regional cortical volumes than heavy drinking, *Alcohol: Clinical and Experimental Research* (2023).

[DOI: 10.1111/acer.15169](https://doi.org/10.1111/acer.15169)

Provided by Research Society on Alcoholism

Citation: Brain imaging study suggests both cutting down and quitting drinking linked to healthier brains (2023, October 16) retrieved 27 April 2024 from

<https://medicalxpress.com/news/2023-10-brain-imaging-linked-healthier-brains.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.