[How Exercise Can Moderate Brain Damage Caused By Drinking](http://healthland.time.com/2013/04/18/study-how-aerobic-exercise-can-alleviate-brain-damage-from-drinking/)

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Aging and drinking result in similar changes in the brain, and if aerobic exercise can alleviate the age-based damage, could it do the same for alcohol-related harm?

That’s the question researchers led by Hollis Karoly, a graduate student at the University of Colorado at Boulder, asked in a new study published in the journal *Alcoholism: Clinical & Experimental Research*. Multiple studies have found that elderly individuals who are physically active are more likely to have sharper brains than those who are more sedentary, and recent results hint that exercise may even be more effective than brain teasers in preserving cognitive function.

Physical activity can maintain the health of blood vessels by combating the damage resulting from high cholesterol and elevated blood pressure that can raise the risk of neurological conditions such as dementia and Alzheimer’s. But exercise may also play a more direct role in maintaining the integrity of brain functions by protecting white matter, which includes the web of nerves that are insulated by a layer of myelin that improves their ability to communicate with other neurons across long distances. The quality of this white matter declines with age, and heavy alcohol consumption, even among younger people, has been linked to similar deterioration of the tissue.

In the new study, researchers studied whether aerobic exercise could reverse or prevent some of this damage from occurring in long-time drinkers, as it does among the elderly. Previous studies showed that physically active older people tended to have a larger volume of white matter than those who weren’t as active, and the exercise also seemed to maintain the integrity of the tissue and its ability to relay brain messages critical for memory and executive functions. “Examining the interaction between alcohol and exercise on white matter seemed to be a logical next step in this area of research,” says Karoly.

She and her colleagues recruited sixty study participants aged 21 to 55 from a database created to study alcohol and nicotine use. The volunteers agreed to a brain imaging test to measure white matter volume, and answered questions about their alcohol, cigarette and drug use, as well as queries about their average level of aerobic exercise.

The researchers then combined the information and modeled the relationship between exercise, alcohol consumption and white matter status and found that the interaction between drinking and white matter integrity was strongly linked to exercise. Among the participants who completed little aerobic exercise, heavy drinking was associated with more damaged white matter. The more active, but heavy-drinking participants showed less compromised white matter.

That’s not to say that exercise can reverse, or protect the brain from potential damage caused by alcohol. The study is still preliminary and only highlights an association rather than a cause and effect relationship. “The results of this study unfortunately don’t allow us to draw any causal conclusion about whether exercise causes white matter to improve among heavy drinkers,” says Karoly. “We cannot say whether exercise would necessarily improve white matter damage in individuals with a history of heavy drinking. However, our findings in combination with the many well-established positive physiological and psychological benefits of aerobic exercise suggest that aerobic exercise could be potentially helpful for individuals with history of heavy alcohol use.”

Future research in which heavy drinkers are randomly assigned to higher or lower physical activity regimens and followed for many years to track changes in their white matter volume could give doctors a better idea of what role exercise might play in addressing some of the harms from drinking. In the meantime, the researchers say that exercise provides other benefits that can help health even if the link between physical activity and improved white matter isn’t confirmed.

*The original text is in the following URL:*

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