

A new theory on reducing cardiovascular disease risk in binge drinkers

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A new study shows that binge drinkers have increased levels of a biomarker molecule—microRNA-21—that may contribute to poor vascular function.

Researchers believe that measurements of microRNA-21 could help determine if a patient with a history of binge drinking is at risk of developing cardiovascular [disease](#).

The Centers for Disease Control and Prevention estimates that one in six adults binge drinks about four times a month and reports that chronic diseases are among the many health problems associated with binge drinking.

"There is a growing body of evidence that suggests [binge drinking](#) behavior contributes to premature [cardiovascular disease risk](#) in [young adults](#), but we do not know much about the biologic link between the two," said Shane Phillips, one of the lead authors on the study.

To understand this link better, Phillips and his colleagues at the University of Illinois at Chicago studied blood samples and tissue biopsies of 14 young adults (ages 18 to 30). Participants with inflammatory or cardiovascular disease, obesity, history of smoking or current pregnancy were excluded from the study group.

Half of the samples were from binge drinkers and half were abstainers. Binge drinking was defined as consuming four or more drinks for women and five or more drinks for men in a two-hour period within the last 30 days. Abstaining was defined as consuming no more than one drink per month.

"We saw that vascular function in the microcirculation, which is a predictor of cardiovascular disease, was worse in binge drinkers," said Phillips, professor and associate head of physical therapy in the UIC College of Applied Health Sciences. "We also saw that binge drinkers had a 4.7 fold increase in microRNA-21 compared to abstainers."

The researchers also found that suppressing microRNA-21 helped to

restore [vascular function](#) in binge drinkers. This effect was not seen in abstainers.

The researchers say that microRNA-21 is a promising potential molecular target for drugs that treat and prevent cardiovascular disease in drinkers.

"Collectively, these study findings provide preliminary evidence for reduced cardiovascular function in binge drinkers, compared to abstainers, and that inhibition of microRNA-21 signaling may help to treat or prevent the early signs of [cardiovascular disease](#)," Phillips said.

The findings are published in *Alcoholism Clinical and Experimental Research*.

More information: Jing-Tan Bian et al, MicroRNA-21 Contributes to Reduced Microvascular Function in Binge Drinking Young Adults, *Alcoholism: Clinical and Experimental Research* (2017). [DOI: 10.1111/acer.13565](#)

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