

Excessive alcohol consumption impacts breathing

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A study led by researchers from Loyola Medicine and Loyola University Chicago has discovered a potential new health concern related to excessive alcohol consumption.

Adults who drink excessively were found to have less [nitric oxide](#) in their exhaled breath than adults who don't drink. The finding, published in the journal *Chest*, is significant because nitric oxide helps protect against certain harmful bacteria.

"Alcohol appears to disrupt the healthy balance in the lung," said lead author Majid Afshar, MD, MSCR. Dr. Afshar is a Loyola Medicine pulmonologist and an assistant professor in the division of pulmonary and [critical care medicine](#) and department of public health sciences of Loyola University Chicago Stritch School of Medicine.

This is the first study to report such a link between [excessive alcohol consumption](#) and nitric oxide.

Dr. Afshar is among the 50 researchers in Loyola's Alcohol Research Program who are studying the effects of alcohol on multiple organ systems. They are researching the molecular, cellular and physiological responses to acute, binge and chronic [alcohol consumption](#). Studies center on endocrine, gastrointestinal, immune, nervous and skeletal systems.

Dr. Afshar and colleagues examined data from the U.S. Centers for Disease Control and Prevention's National Health and Examination Survey (NHANES). NHANES conducts interviews and physical examinations to assess the health and nutritional status of Americans.

The Loyola researchers examined data from 12,059 adults who participated in NHANES between 2007 and 2012. Excessive drinkers were defined as heavy drinkers (more than one drink per day on average for women and more than two drinks per day for men) and people who binge drink at least once per month (four or more drinks per occasion for women and five or more drinks for men).

In the sample population researchers examined, 26.9 percent of the participants were excessive drinkers. After controlling for asthma, smoking, diet, demographics and other factors, researchers found that exhaled nitric oxide levels were lower in [excessive drinkers](#) than in adults who never drink, and the more alcohol an excessive drinker consumed, the lower the level of nitric oxide.

Nitric oxide is a colorless gas produced by the body during respiration. A nitric oxide molecule consists of one nitrogen atom and one oxygen atom. Nitric oxide and similar molecules play an important role in killing bacteria that cause respiratory infections.

In an asthma patient, the amount of exhaled nitric oxide in a breath test provides a good indication of how well the patient's medication is working. Excessive alcohol consumption might complicate the results of such tests. "Lung doctors may need to take this into consideration," Dr. Afshar said.

Dr. Afshar and colleagues concluded: "Accounting for alcohol use in the interpretation of [exhaled nitric oxide] levels should be an additional consideration, and further investigations are warranted to explore the complex interaction between alcohol and nitric oxide in the airways."

More information: Majid Afshar et al, Exhaled Nitric Oxide Levels Among Adults With Excessive Alcohol Consumption, *Chest* (2016).
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