

Biomarkers higher in binge drinkers

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A biomarker found in the blood of alcohol users is significantly higher in binge drinkers than in those who consume alcohol moderately, according to a study by researchers at the University of Illinois at Chicago. The biomarker, called phosphatidylethanol (PEth), could be used to screen young adults for harmful or heavy drinking such as binge drinking.

Having performed extensive research on alcohol and its effects on health throughout her career, Mariann Piano, professor and head of the department of biobehavioral health science in the UIC College of Nursing, knew PEth is a biomarker associated with alcohol consumption, but it had never been measured in young adults.

"Binge drinking is pervasive on college campuses and among young adults," Piano said. "More alarming, though, is the regularity of [binge drinking](#) episodes: one in five students report three or more binge drinking episodes in the prior two weeks."

The National Institute on Alcohol Abuse and Alcoholism defines binge drinking as a pattern of drinking that brings a person's blood alcohol concentration to 0.08 or above. This typically occurs when men consume five or more drinks in about two hours. For women, it's consuming four or more drinks in the same time period.

Piano and co-investigator Shane Phillips, associate professor of physical therapy, measured PEth in blood samples from student participants at two large Midwestern university campuses. Participants were part of a larger ongoing study examining the cardiovascular effects of binge

drinking.

Participants completed a 10-question self-assessment survey to determine their drinking patterns. After the questionnaires were reviewed, the subjects were divided into three groups: abstainers, moderate drinkers and binge drinkers.

Abstainers had not had more than one drink per month in the past two to three years. For men, moderate drinking was defined as consuming three drinks or less per sitting one to two times per week in the past five years. For women, the number of drinks was two. Binge drinkers must have had at least two episodes of [heavy drinking](#) in one sitting in the last month.

The majority of participants were Caucasian females. The majority of moderate and binge drinkers were Caucasian, while abstainers were predominantly Asian.

Following the self-assessment, blood was drawn from each participant to measure blood alcohol levels and PEth. Five blood spots were placed on cards to be dried and measured against the whole blood samples in an off-site drug testing laboratory.

"We discovered a significant correlation between PEth levels in both the whole blood and dried [blood samples](#) and the number of times subjects consumed four to five drinks in one sitting within the last 30 days," Piano said.

The PEth levels in the blood also positively correlated with the self-assessment survey scores, Piano said.

"Using a biomarker of heavy [alcohol consumption](#) such as PEth along with self-reporting could provide an objective measure for use in

research, screening and treatment of hazardous [alcohol](#) use among young adults," she said.

Provided by University of Illinois at Chicago

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