

Excessive alcohol consumption may lead to increased cancer risk

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Researchers have detected a link between alcohol consumption, cancer and aging that starts at the cellular level with telomere shortening.

Results of this cross-sectional study were presented at the American Association for Cancer Research 101st Annual Meeting 2010, held here, April 17-21, at the Walter E. Washington Convention Center.

Telomeres are found at the region of [DNA sequences](#) at the end of a chromosome, and are important for the genetic stability of cells. As people age, telomere length shortens progressively.

Excessive use of alcohol has been linked to oxidative stress and inflammation, two mechanisms that accelerate telomere shortening. Since telomere shortening is thought to increase cancer risk, the researchers speculated that those with shorter telomeres due to heavy alcohol consumption would have an increased risk of cancer.

"Heavy alcohol users tend to look haggard, and it is commonly thought heavy drinking leads to premature aging and earlier onset of diseases of aging. In particular, heavy alcohol drinking has been associated with cancer at multiple sites," said lead researcher Andrea Baccarelli, M.D., Ph.D.

"All the cells in our body have a [biological clock](#) in telomeres," noted Baccarelli, who is head of the Center of Molecular and Genetic Epidemiology, Ca' Granda Hospital Foundation, University of Milan, Italy.

Using real-time [polymerase chain reaction](#), the researchers measured serum DNA among 59 participants who abused alcohol (22 percent consumed four or more alcoholic drinks per day) and 197 participants with variable [alcohol consumption](#) habits (4 percent consumed four or

more [alcoholic drinks](#) per day).

The two groups were similar in age and other factors that might affect telomere length, such as diet, [physical exercise](#), work-related stress and environmental exposures.

Results showed that telomere length was dramatically shortened in those who consumed heavy amounts of alcohol; telomere length was nearly half as long as telomere length in the non-abusers (0.41 vs. 0.79 relative units).

Carriers of the variant genotype ADH1B were more likely to be abusers and had shorter telomere length, according to Baccarelli.

"The decrease we found in telomere length is very sharp, and we were surprised to find such a strong effect at the cellular level," Baccarelli said.

Provided by American Association for Cancer Research

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