Preference for Alcohol in Adolescence May Lead to Heavy Drinking

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Scientists at Duke University Medical Center have shown a connection between early drinking patterns and a tendency to be a heavy drinker in adulthood, in a study of adolescent rats.

"Drinking patterns in adolescents may be set after only a few exposures to alcohol," said Nicole L. Schramm-Sapyta, research associate in the Department of Pharmacology and Cancer Biology at Duke University School of Medicine. "Rats that demonstrated a 'taste' for alcohol after only three nights of drinking were very likely to be the biggest drinkers after longer-term exposure."

During the first three nights of the study, the rats were given only alcohol to consume. After that, for 10 days, they had a choice of water or alcohol. Their drinking was measured right after they had traveled through an elevated maze, a way to raise anxiety levels and measure stress-related hormone levels. They also were tested for drinking after scientists observed their preference for new objects and for exploring a new place.

"We decided to examine stress and novelty seeking because these are two characteristics we see among people who develop problem drinking," said Schramm-Sapyta, first author of the study published in the May issue of Alcoholism: Clinical and Experimental Research. The study was funded by grants from the National Institute on Drug Abuse.

The scientists found that the rats that drank the most on the third day of

the study also consumed the most alcohol in the later days of the study. The rodents sobered up for two days without any alcohol and again were given a choice. When the alcohol was returned, those that drank heavily at the beginning of the experiment returned to their habit.

However, the scientists learned that stress and novelty seeking were not related to drinking outcomes. "This suggests that there are other traits that scientists should be looking for, that are related to the early experiences of drinking," said Schramm-Sapyta.

Based on the fact that rats are mammals with a genome similar to that of humans, Schramm-Sapyta said, "We can cautiously extrapolate from rodents to humans. The findings suggest that early 'big drinkers' are the people who should be targeted for alcoholism-prevention efforts."

"The studies that we have done in rats have not yet been done in humans to our knowledge," she added. "One reason that rats are particularly useful in studies like these is that we can control the opportunity for exposure to alcohol, which we can't do with human adolescents."

Controlling for environment and opportunities to drink is impossible and unethical to do in studies with teenagers, she explained. "We can't take a group of teenagers and experimentally dictate who drinks and who doesn't, because of the risk of long-term health consequences."

Future studies for this research team will focus on causes for those early drinking behaviors – be it the sedative effect of alcohol, avoidance of after-effects or different types of metabolism.

Source: Duke University