

Stress and alcohol 'feed' each other

July 15 2011

Acute stress is thought to precipitate alcohol drinking. Yet the ways that acute stress can increase alcohol consumption are unclear. A new study investigated whether different phases of response to an acute stressor can alter the subjective effects of alcohol. Findings indicate bi-directional relationships between alcohol and stress.

Results will be published in the October 2011 issue of *Alcoholism: Clinical & Experimental Research* and are currently available at Early View.

"Anecdotal reports suggest that [alcohol](#) dampens the physiological or negative emotional effects of [stress](#) but this has been hard to demonstrate in the lab," said Emma Childs, research associate at The University of Chicago and corresponding author for the study. "Another way that stress could increase drinking is by altering alcohol's effects. For example, if stress reduces the intoxicating [effects of alcohol](#), individuals may drink more alcohol to produce the same effect.

Childs explained that the body's reaction to stress involves separate physiological and emotional consequences that occur at different times after the stress. "For example," she said, "the increase in heart rate and blood pressure, the release of cortisol, and also the increased feelings of tension and negative mood each reach a climax and dissipate at a different rate. Therefore, drinking more alcohol might have different effects, depending on how long after the stress a person drinks."

Study subjects comprised 25 healthy men who participated in two

sessions, one where they performed a stressful public speaking task and one with a non-stressful control task.

"The public speaking task we used is standardized and used by many researchers," said Childs. "It reliably produces significant stress reactions, including increases in heart rate, blood pressure, cortisol and feelings of tension. Moreover, because it is so widely used, the results can be compared directly to those from other studies. The public speaking task is also ecologically valid in that it represents a stressful event that many people experience outside the laboratory."

After each task, participants received intravenously administered infusions containing alcohol (the equivalent of 2 standard drinks) and placebo. One group of participants (n=11) received alcohol within one minute of completing the tasks, followed by the placebo 30 minutes later. The other group (n=14) received the placebo infusion first, followed by the alcohol. Researchers measured subjective effects such as anxiety, stimulation, and desire for more alcohol, as well as physiological measures such as heart rate, blood pressure, and salivary cortisol before and at repeated intervals after the tasks and infusions.

"The results demonstrated bi-directional relationships between alcohol and stress," said Childs. "Alcohol can change the way that the body deals with stress: it can decrease the hormone cortisol which the body releases to respond to stress, and it can prolong the feelings of tension produced by the stress. Stress can also change how alcohol makes a person feel: it can reduce the pleasant effects of alcohol or increase craving for more alcohol."

Childs added that it is often hard to separate alcohol's effects upon stress reactions from its effects on the perception of how stressful an experience is. "However, in our study we administered alcohol after the stressful experience, then examined the effects of alcohol on stress

responses so ruling out any [effect](#) of alcohol upon perception of the stress. We showed that alcohol decreases the hormonal response to the stress, but also extends the negative subjective experience of the event. We also showed that stress decreased the pleasant effects of the alcohol. These findings illustrate a complex bi-directional interactions between stress and alcohol."

In summary, said Childs, using alcohol to cope with stress may actually make a person's response to stress worse, and prolong recovery from a [stressor](#). "Stress may also alter the way that alcohol makes us feel in a way that increases the likelihood of drinking more alcohol," she said. "Stress responses are beneficial in that they help us to react to adverse events. By altering the way that our bodies deal with stress, we may be increasing the risks of developing stress-related diseases, not the least of which is alcohol addiction."

Citation: Stress and alcohol 'feed' each other (2011, July 15) retrieved 27 April 2024 from <https://medicalxpress.com/news/2011-07-stress-alcohol.html>

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