Kudzu Extract Reduces Alcohol Consumption in Heavy Drinkers in Small Trial

Reviewed: Lukas S, Penetar D, Berko J, et al. An extract of the Chinese herbal root kudzu reduces alcohol drinking by heavy drinkers in a naturalistic setting. *Alcohol Clin Exp Res.* **2005;29(5):756-762.**

There are no uniformly effective drugs for treating alcohol abuse or dependence. Only three drugs have been approved in the United States for treating alcoholism. Since 600 CE, herbal preparations have been used to treat alcohol-related diseases in various systems of traditional medicine. The Chinese herbal medicine XJL (NPI-028) has been used to lessen alcohol intoxication. NPI-028 contains several plants, including kudzu (*Pueraria montana* [Lour.] Merr. var. *lobata* [Willd.] Maesen & S.M. Almeida, Fabaceae) and an extract of *Citrus reticulata* Blanco, Rutaceae. Kudzu is a legume with large leaves and thick, long roots. Kudzu was introduced to the United States in 1876 to control soil erosion in the Southeastern states; it spread rapidly, engulfing many farms. Since it has no natural predators (e.g., herbivores or insects), it spread unchecked and the vine has become common on trees and telephone/power poles throughout the southern United States. It has been branded "the vine that ate the South."

Previous research on Syrian golden hamsters suggested that kudzu root can inhibit cravings for alcohol.[1] To date, there has been only one efficacy study published on kudzu, especially as it relates to possibly reducing cravings for alcohol; most other reports are anecdotal. Although the anti-intoxication mechanism of action is unclear, the isoflavones found in kudzu are believed to be responsible for the reduced alcohol intake in animals, as documented by several studies. One human clinical trial reported that a kudzu preparation of undocumented analysis had no effect on alcoholism in human subjects (military veterans).[2] Additionally, the authors of the present study discovered negative findings in a preliminary study. In an attempt to increase the potential efficacy, the authors have increased the concentration of kudzu isoflavones from 1% to 25%. The discussion below is a report of the findings. To date, other than its original intention to help stop soil erosion, there is no economic value for kudzu; that is, it is not considered an economically important plant in the United States, as contrasted with Asia, where its roots are commonly used in food (a thickener in sauces and soups) and as a medicinal herb.

In this study, 14 volunteers residing in Massachusetts with a body mass index between 19 and 24 kg/m^2 were screened for alcohol dependence. On the average each drank 25 alcoholic beverages each week, and none had a family history of alcoholism. The experiment was designed to determine whether pretreatment with kudzu extract alters alcohol consumption in a "natural" setting. The natural setting was a house-like environment with a kitchen, stocked with the volunteers' favorite beer and other beverages, and a living room with a television, movies, etc. Volunteers had free access to the beverages and could drink at their own pace.

Kudzu *Pueraria montana* Photo ©2006 stevenfoster.com

Volunteers were first given the kudzu preparation or placebo in a double-blind fashion for 7 days and then given the opportunity to drink beer in the natural laboratory. They were assessed 4 times, each separated by a washout period. One assessment was conducted before receiving kudzu and used as the baseline. Participants took 2 capsules (500 mg each) 3 times daily. Each 500 mg capsule of kudzu (NPI-031, Natural Pharmacia Int., Inc.; Research Triangle Park, NC) contained sugar beet-based filler and 19% puerarin, 4% daidzin, and 2% daidzein. Riboflavin was added to the formulation to measure compliance. Volunteers served as their own controls.

There was a 100% compliance rate. One-week treatment with kudzu extract significantly reduced the number of beers consumed, reduced volume of beer consumed, reduced the average sip size, and increased the average number of sips per beer ($P < 0.0001$-0.019). While taking kudzu, but not placebo, participants reduced their beer consumption from 6 to 4 beers per day. Data collected before each drinking session indicates that there was no change in the desire for alcohol and yet the participants drank less. There were no adverse side effects and the patients could not identify when they were taking the active treatment or the placebo. There were no biochemical changes.

The data suggests that kudzu root probably does not block alcohol's effect but rather prolongs the acute effects of the first drink. This effect may reduce binge drinking. The altered sip pattern may indicate that individuals "titrated" their alcohol intake to a lower amount. The authors suggest that the first 1 or 2 beers may have satisfied their desire for beer. In the pilot study, subjects reported that kudzu plus alcohol made them feel "tired, floating, or intoxicated."

Although the actual decrease in drinking was modest, any decrease is important when the individual is drinking large quantities. The authors conclude that kudzu may help heavy or binge drinkers reduce their alcohol consumption. The lack of adverse side effects indicates that higher doses should be tested and may be more effective. This study was of the highest quality regarding design, which is not surprising considering that it was conducted by researchers from Harvard Medical School and supported by the National Institute on Alcohol Abuse and Alcoholism and the National Institute on Drug Abuse. HG

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References

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