

Differences in effects on atherosclerosis of regular moderate drinking and binge drinking

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An excellent study among experimental mice has reported very dramatic differences between the effects of alcohol administered in moderation on a daily basis and the same total weekly amount of alcohol administered on only two days of the week: (replicating binge drinking). The mice used in the study that were given regular moderate amounts of alcohol showed no weight gain, improved lipid values, and much less development of atherosclerosis than did control animals. However, those given alcohol in a binge-drinking pattern showed worse outcomes than control animals, and much worse outcomes than those given regular moderate doses of alcohol.

The authors examined the effect of daily-moderate (2 drinks/day, 7 days/week) and weekend-binge (7 drinks/day, 2 days/week) patterns of [alcohol consumption](#) on plasma [lipid levels](#) and [physiological parameters](#) of atherosclerotic plaque development. This experimental study provides strong support for the frequent finding among humans in epidemiologic studies, that is: benefits from regular moderate drinking and adverse effects from binge drinking. It is especially important since, being an experimental study, the potential confounding effects of other [lifestyle habits](#), such as smoking or poor diet, are not an issue, as is always the case for observational studies among humans.

One Forum reviewer stated: "This is a very nice study, confirming in an animal model the biphasic nature of the [effect of alcohol](#) on progression

of atherosclerosis. We are still far from tempting to suggest realistic mechanisms. On the other hand, the evidence perfectly fits the usual hormetic mechanism, where low doses regularly supplied are protective while high doses in a single shot are worsening the progression of disease." Another reviewer stated: "By controlled experiment it gives crisp and clear-cut results that are useful and intuitive when considering what we thought we knew, and what we may indeed do know. Cheers to the brave mice!" Still another Forum reviewer thought that it is good to have confirmation in a controlled experiment of what has been shown in epidemiologic studies. "It is nice to not have to agonize over smoking and other lifestyle factors that may confound results in human observational studies — none of the mice were smokers."

More information: Liu W, Redmond EM, Morrow D, Cullen JP. Differential effects of daily-moderate versus weekend-binge alcohol consumption on atherosclerotic plaque development in mice. *Atherosclerosis* 2010, [doi:10.1016/j.atherosclerosis.2011.08.034](https://doi.org/10.1016/j.atherosclerosis.2011.08.034)

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