

Alcohol consumption has the potential to be either harmful or beneficial to health. The results of alcohol intake vary with individual characteristics, and the dose consumed.

The harmful effects of alcohol are familiar to most people. Alcohol is particularly toxic to the liver, where it is metabolized. Excess intake can lead to a form of hepatitis. Over years, alcohol related injury of the liver results in cirrhosis, replacement of the liver with scar tissue. Cirrhosis is a truly terrible condition, and when advanced, is associated with severe liver dysfunction that is incompatible with life. Under such circumstances, a liver transplant is the only hope of survival, and premature death is almost a certainty. Alcohol in excess is also toxic to the pancreas, and can produce life-threatening pancreatitis. Alcohol may raise blood pressure; interfere with red blood cell production in the bone marrow; depress immune function; and contribute to obesity.

However, alcohol in moderation has well-established cardiovascular benefits. Drinking can raise the level of HDL, or high-density lipoprotein, a particle that helps clear cholesterol from the blood. Alcohol intake is also associated with increased levels of TPA in the blood. TPA, or tissue plasminogen activator, helps dissolve blood clots and may lower heart attack risk. It is, in fact, the same substance that is injected, albeit in much higher doses, to dissolve clot during a heart attack.

The dose of alcohol associated with health benefits differs in women and men. In part because women tend to be smaller, and in part because they tend to have less activity of the enzyme alcohol dehydrogenase that breaks down alcohol, women are subject to harmful effects at lower doses. The recommended intake for women who have no particular risk factors for alcohol toxicity is one drink per day, or no more than 7 drinks per week. A "drink" is a glass of wine, a beer, or one mixed drink, each of which contains roughly 15 gm of alcohol. Alcohol is of course not recommended during pregnancy. Men can generally safely drink the equivalent of two drinks per day, or up to 14 drinks per week. Although the levels noted are associated with health benefits, there is some risk even at moderate intake. Some people are particularly susceptible to alcohol-induced liver injury, and develop cirrhosis at a dose others would safely tolerate. Alcohol in women is associated with an increased risk of breast cancer. Apparently even one drink per day can increase the breast cancer risk by approximately 10%. Alcohol is more likely to do harm than good in people with high blood pressure or obesity. Naturally, alcohol should be avoided by anyone with a family history of alcohol dependence, or alcoholism. The tendency to become physically dependent on alcohol can run in families, and is thought to have a genetic basis.

The following recommendations may be helpful. Men without known disease of liver or pancreas, and with no personal or family history of alcoholism, are likely to derive modest health



benefits from 1 to 2 drinks per day. Harm will likely exceed benefit if intake is any higher. Women with a similar profile, with no known risk factors for breast cancer, and with some cardiac risk factors may similarly derive some benefit from up to one drink per day. Women without known cardiac risk factors and with a family history of breast cancer should consider avoiding alcohol completely. Finally, unless there is a personal or family history of alcoholism or liver disease, an occasional drink is unlikely to be harmful. Periodic binge drinking, defined as 5 or more drinks on a single occasion,

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can be harmful even if average alcohol intake is low.

Alcohol, therefore, is the proverbial double-edged sword. Use good judgement to be sure it cuts in your favor.

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of HDL, or high-density lipoprotein, a particle that helps clear cholesterol from the blood. Alcohol intake

