

Alcohol Awareness



Alcohol — Negative Effects

It is common for people to drink alcoholic beverages while socializing. The question is, how much alcohol is too much?

Alcohol metabolism causes free radical formation in the body

Free radicals are small and highly reactive molecules that are naturally generated in small amounts during the body's metabolic reactions and can react with and damage cellular fats, proteins, or DNA*. Alcohol promotes the generation of free radicals, particularly in the liver. It also

stimulates the activity of enzymes that promote free radical production. Further, alcohol can alter the levels of certain metals in the body, and reduce the levels of agents that can eliminate free radicals. The resulting state is known as oxidative stress which can lead to cell injury.

Due to the oxidative stress and cell injury caused by alcohol, drinking can increase your risk for many types of cancers, stroke and heart disease.

It can also increase your risk for diabetes, neurodegenerative diseases, including

Parkinson's disease and Alzheimer's disease, and vitamin deficiencies.

Binge Drinking

Binge drinking is defined as having more than three or four drinks in a short period of time.

Binge drinking may increase a person's risk of a stroke, cardiomyopathy, fetal heart syndrome, or cardiac arrhythmia. Binge drinking has also been shown to lead to increased risk for cardiovascular disease and hypertension.

* NIH

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Alcohol — Cardiovascular Benefits

The American Heart Association recommends that women drink no more than one alcoholic drink per day. Higher intake has been linked to an increased risk of breast cancer. It is recommended that men consume no more than two alcoholic drinks per

day. Men metabolize alcohol faster and they have larger body mass and can therefore metabolize a higher dose. These values are guidelines for alcohol consumption as it relates to decreasing the risk of a heart attack. A large study by the *New England Journal of Medicine*

(2003) found that all types of alcoholic beverages have the same potential to reduce the risk of having a heart attack. Moderate alcohol consumption has been linked to increasing HDL (good cholesterol) levels by about twelve percent!

Alcohol Awareness

American Heart Association
National Institutes of Alcohol Abuse and Alcoholism

About alcohol



Alcohol consumption can have detrimental effects and even a moderate intake can lead to serious side effects in certain individuals. People should not consume alcohol if you have the following:

- Personal or family history of alcoholism
- Uncontrolled high blood pressure
- High blood triglyceride levels
- Pancreatitis
- Liver disease
- Porphyria
- Heart Failure
- Pregnancy or if you think you may become pregnant
- If you take aspirin regularly; it may cause blood to become too thin with alcohol consumption.
- If you use medication that can have adverse reactions when mixed with alcohol.

Do not mix alcohol and medications, either over the counter or prescription. Alcohol is a depressant that slows down brain activity and reduces inhibitions. Some medications cause you to become sleepy, drowsy, or lightheaded. Drinking alcohol while taking medicines can intensify these effects. Alcohol can reduce the effectiveness of some medications, and it can combine with other medications to cause or increase side effects.

Alcoholism contributes to hepatitis, cirrhosis of the liver, malnutrition, pancreatitis, stomach ulcers, fetal alcohol syndrome, heart disease, and some cancers.

Risks from alcohol consumption*

It is important to understand that excessive alcohol intake is linked to weakening of the heart muscle, hemorrhagic stroke, cirrhosis of the liver, pancreatitis, certain types of cancers, trauma, suicide, and homicide. Alcohol has also been shown to increase blood pressure. The following are serious conditions that can occur with alcohol consumption.

Fetal Alcohol Syndrome
Fetal alcohol syndrome (FAS) is the most common known preventable cause of mental impairment that occurs when a pregnant woman consumes

alcohol. Babies with FAS have distinctive facial features, they are born small, and many have behavioral impairments as well. The brain damage that occurs with FAS is lifelong resulting in learning, memory, attention, and problem solving impairment. It is not known if there is any safe drinking level during pregnancy; nor is there any stage of pregnancy in which drinking—at any level—is known to be risk free. **If a woman is pregnant, or wants to become pregnant, she should not drink alcohol.**

* CDC

Alcoholic hepatitis

More common in women than in men.

Brain disease

Loss of mental function, reduced brain size, and changes in the function of brain cells.

Cancer

Many studies report that heavy drinking increases the risk of breast cancer, cancers of the digestive track and of the head and neck.

Heart disease

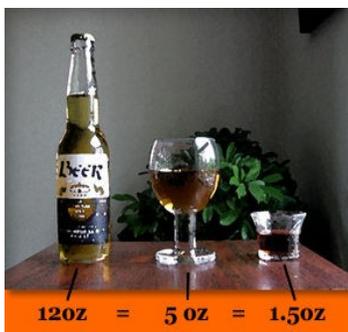
Chronic heavy drinking is a leading cause of cardiovascular disease.



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Did You Know That...

- One 'drink' is defined as:
 - 12 ounces of beer
 - 5 ounces of wine
 - 1.5 ounces of spirits



- Alcohol may protect against heart attacks by inhibiting constriction of the coronary arteries, which limits clot formation and decreases the level of homocysteine, an amino acid that is commonly linked to an increased risk of heart attack.
- In a study from the journal *Addiction*, 427 men who recently had a nonfatal heart attack were compared with 905 similar men who had never had a heart attack. The men who drank alcohol daily in the previous two years, were 59% less likely to have a heart attack than life long abstainers. Those who drank alcohol less frequently than daily, including those who drank less than once a week, also had a decreased risk of heart attack.
- Men who drank two drinks per day were fifty percent less likely to die of any cause, when compared to those who drank once per week or less.
- Women who drank alcohol about one to six drinks per week or less were twenty-eight percent less likely to die of any cause, when compared to those who drank less frequently.
- Alcohol, or a substance such as resveratrol, which is found in red wine, may prevent platelets in the blood from sticking to one another. This may reduce clot formation, thus decreasing the risk of a heart attack.
- The best known beneficial effect of alcohol is that it causes a small increase in the levels of HDL cholesterol (good cholesterol); however, regular physical activity is another way to raise HDL cholesterol levels. Niacin supplements may also cause a further increase in

HDL cholesterol.

- As we age, it takes longer for us to metabolize any given amount of alcohol.
- Large consumption of alcohol may raise triglyceride levels and lead to high blood pressure, heart failure, and increased caloric intake.
- Drinking more alcohol increases the risk for alcoholism, breast cancer, high blood pressure, obesity, suicide and accidents.
- Heavy drinking is defined as having more than one drink a day for women and more than two drinks a day for men.
- Drinking **more than three** drinks per day has a direct toxic effect on the heart and other organs.
- Heavy drinking can damage the heart and lead to high blood pressure, alcoholic cardiomyopathy, congestive heart failure, and stroke.
- Heavy drinking can cause cirrhosis of the liver and destruction of liver cells.



Liver is the most affected organ by alcohol due to its central role in metabolizing it.



Facts About Alcohol

Metabolism*:

Alcohol has 7 calories a gram. Alcohol gets priority in metabolism over carbohydrate and fat. This priority is one of the reasons that alcoholics can get fatty liver. Fat has the last in priority for metabolism and it can build up in the liver. Alcohol metabolism is controlled by an enzyme alcohol dehydrogenase. Some individuals have low level of alcohol dehydrogenase enzyme and alcohol can therefore build up in the

bloodstream. Individuals with a defect in alcohol dehydrogenase enzyme metabolize alcohol slowly, it can build in the bloodstream, and it's metabolic intermediate can lead to unpleasant symptoms such as facial flushing, light-headedness, palpitations, and nausea. Alcohol metabolism may be reduced in individuals from Native American, Japanese, Chinese, and Korean backgrounds, mainly due to variation in the amount and activity of alcohol dehydrogenase enzyme, making it less effective. Some Caucasian groups as well have variations in the enzyme

activity which can impede alcohol metabolism. Individuals who have impaired alcohol metabolism are at a low risk of becoming an alcoholic due to the unpleasant side effects, however, those that metabolize alcohol effectively are at a higher risk of becoming alcoholics. Alcohol absorption varies with the concentration of alcohol in the beverage, the rate at which alcohol is consumed, and the presence of food in the stomach or whether alcohol is consumed together with meals.

* <http://pubs.niaaa.nih.gov/>

About Pennington

The Pennington Biomedical Research Center is a world-renowned nutrition research center.

Mission:

To promote healthier lives through research and education in nutrition and preventive medicine.

The Pennington Center has several research areas, including:

- Clinical Obesity Research
- Experimental Obesity
- Functional Foods
- Health and Performance Enhancement
- Nutrition and Chronic Diseases
- Nutrition and the Brain
- Dementia, Alzheimer's and healthy aging
- Diet, exercise, weight loss and weight loss maintenance

The research fostered in these areas can have a profound impact on healthy living and on the prevention of common chronic diseases, such as heart disease, cancer, diabetes, hypertension and osteoporosis.

The Division of Education provides education and information to the scientific community and the public about research findings, training programs and research areas, and coordinates educational events for the public on various health issues.

We invite people of all ages and backgrounds to participate in the exciting research studies being conducted at the Pennington Center in Baton Rouge, Louisiana. If you would like to take part, visit the clinical trials web page at www.pbrc.edu or call (225) 763-3000.

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