

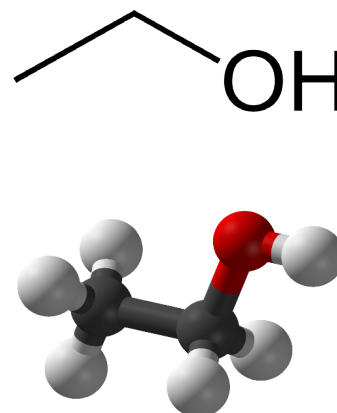
Nutrition and Health Info Sheet: Alcohol

For Health Professionals

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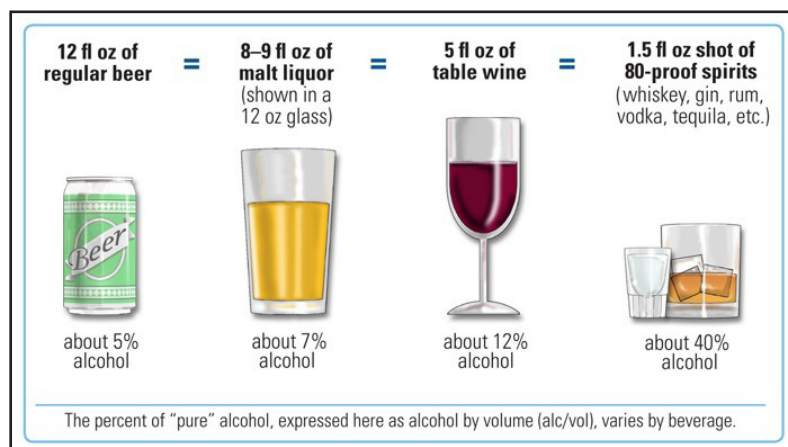
What is alcohol?

Alcohol, also referred to as ethyl alcohol or ethanol, is a component of some foods and beverages produced by the fermentation of sugars by yeast. Alcohol is mainly consumed by drinking wine, beer and alcoholic spirits.¹ Alcohol is widely consumed in the United States; the 2015 National Survey on Drug Use and Health found that 86.4% of people over the age of 18 had drunk alcohol in their lifetimes and 56% reported that they had consumed alcohol in the past month. An estimated 88,000 deaths per year, including almost 10,000 alcohol-impaired driving fatalities, are a result of alcohol-related causes, making alcohol use the third leading preventable cause of death in the United States.²



How is alcohol metabolized?

Alcohol is either absorbed quickly into the bloodstream (~20%) or absorbed at some point in the gastrointestinal tract; a small percentage is not metabolized and circulates through the body, ending up in the saliva, the breath, sweat and urine. Following absorption from the digestive tract, the liver metabolizes the alcohol using an alcohol-specific enzyme called alcohol dehydrogenase that converts alcohol into acetaldehyde. Acetaldehyde is then converted to acetic acid through further enzymatic activity.³ Reactions to alcohol vary widely and depend on several factors including race, sex, age, amount of alcohol consumed, use of drugs or prescriptions, family history, medical conditions, and how quickly the alcohol was consumed.¹



What is considered 'one drink' in the United States?

One standard drink is defined as containing 0.6 ounces of pure alcohol. This can be found in 12 ounces of beer with 5% alcohol content, 8 ounces of malt liquor with 7% alcohol content, 5 ounces of wine with 12% alcohol content, or 1.5 ounces of distilled spirits with 40% alcohol content. Moderate alcohol consumption has been defined as up to one drink per day for women and up to two drinks for men.¹

What are the recommendations regarding alcohol?

The Dietary Guidelines for Americans 2015-2020 does not recommend anyone who does not currently consume alcohol or drink to begin drinking for any reason, and beyond this, identifies groups of people that should not drink at all. Those who should completely abstain from drinking alcoholic beverages include:^{1,4}

- Those under the legal drinking age of 21 years old.
- Women who are or may be pregnant.
- Those driving, planning to drive, or those participating in any activity requiring skill, coordination, and alertness.
- Those taking medications, both over-the-counter and prescription, that may interact with alcohol.
- Those with certain medical conditions.
- Those who are unable to control the amount they drink or are recovering from alcoholism.

Those under the age of 21 should not consume alcohol. Youth who consume alcohol before the age of 15 are six times more likely to become alcohol dependent than adults who begin drinking at the legal age.¹ Other negative consequences of youth alcohol use include increased risk of fatal and nonfatal injuries, risky sexual behaviors, suicide, homicide, and poor school behavior.¹

Are there health benefits associated with alcohol consumption?

Some research has demonstrated that moderate consumption of alcohol may confer protective effects against coronary heart disease in healthy adults when compared to non-drinkers.^{4,5} Studies have shown that moderate consumption of red wine, in particular, may have health benefits to the consumer. This is due to the presence of resveratrol, a compound in grape skin, that can reduce symptoms of cardiovascular disease.⁶ Additionally, a review of 143 papers found that light to moderate alcohol consumption may reduce the risk of developing dementia and cognitive decline.⁷

What are the negative implications of alcohol consumption?

While many Americans recognize that alcohol use can lead to motor-vehicle accidents and dependence, it should be recognized that alcohol consumption can be harmful to overall health for many reasons.⁴

Cognitive function: Alcohol consumption, at any level, can impair cognitive function by interfering with cognitive pathways. In addition to slowing reaction time, alcohol consumption also impairs coordination and judgment, alters speech, and negatively impacts balance and motor skills.^{1,5} Alcohol consumption has also been shown to disrupt mood and behavior, making it harder to think clearly.⁵ These effects result in increased risk of injury, violence, and motor-vehicle crashes.¹ Research has also shown that prolonged heavy alcohol consumption shrinks the size of the brain, and alters the patterns of neurotransmitters.⁴

Liver function: Heavy use of alcohol can cause severe damage to the liver. Heavy alcohol drinking can cause fat to build up in the liver, causing various health implications from fatty liver, called steatosis, to alcoholic hepatitis, fibrosis, or cirrhosis.^{4,5} Excessive damage to the liver can lead to alcoholic hepatitis, dangerous inflammation preventing the liver from functioning fully. Statistically, one in four heavy drinkers will develop cirrhosis.⁴

Chronic damage and scarring to the liver is called cirrhosis, and is irreversible damage done to the cells of the liver from the compounds released from the breakdown of alcohol; these compounds, particularly ammonia, can also adversely affect the brain.^{1,4}

Cancer risk: Risk for developing certain types of cancers increases with excess alcohol. These include mouth, esophageal, throat, liver and breast cancers.⁵ Of those diagnosed with mouth cancer, seven out of ten people report drinking heavily; the World Cancer Research Fund reports that women who drink five alcoholic drinks each day increase their risk of developing colon or rectal cancer by 1.2 times compared to women who do not drink at all.⁴

Pancreatic function: Heavy consumption of alcohol may cause pancreatitis, a dangerous inflammation and swelling of the pancreas.⁹ Severe cases can result in kidney failure, infection, diabetes, or pancreatic cancer.⁹ Because the pancreas secretes the enzymes needed for digestion, as well as hormones needed to maintain blood sugar levels, digestion and metabolic processes can be severely affected by overuse of alcohol.⁵

Cardiovascular effects: Most immediately, the rapid dilation of blood vessels may result in a warm feeling, but results in rapid loss of body heat.¹ Prolonged alcohol consumption can also affect the integrity of the heart muscle, causing arrhythmias, stroke, or high blood pressure.⁵ A heart weakened by prolonged alcohol consumption may develop cardiomyopathy, impairing proper pumping. Research demonstrates that those who binge drink are 56% more likely to suffer from a stroke compared to those who never binge drink.³

Risk of Fetal Alcohol Spectrum Disorder: Damage to a developing fetus is a serious risk if pregnant women consume alcohol because alcohol in the mother's bloodstream is transmitted to the fetus through the placenta.^{1,8} Excessive alcohol use has been associated with an increased risk of Sudden Infant Death Syndrome (SIDS) and Fetal Alcohol Spectrum Disorders (FASD). Fetal Alcohol Spectrum Disorder is a birth defect spectrum characterized by physical and mental abnormalities such as reductions in brain function and overall growth as well as abnormal facial features.⁴ Recent reports indicate that the prevalence of fetal alcohol spectrum disorders in the US may be as high as 50 cases per 1,000 births.² For these reasons, there is no known safe level of alcohol consumption during pregnancy.^{1,8}

What is binge drinking?

According to the National Institute on Alcohol Abuse and Alcoholism, binge drinking is a pattern of alcohol consumption that brings the blood alcohol concentration level to 0.08% or higher; this equates to, in ~2 hours, consuming approximately 5 or more drinks for men or 4 or more drinks for women. Binge drinking usually results in "getting drunk", or acute intoxication.¹ The 2015 National Survey on Drug Use and Health reported that 26.9% of people aged 18 years or older engaged in binge drinking in the past month.²

What are the signs, symptoms and implications of alcoholism?

Alcoholism is a chronic disease, now referred to as severe alcohol use disorder. While there are many signs and symptoms, some include: inability to limit drinking, continuing to drink despite personal and professional problems, the need to drink more for the same effect, and the

inability to focus on other tasks due to the desire for a drink.¹ If a drinking problem is suspected, a healthcare provider should be consulted. The National Drug and Alcohol Treatment Referral Routing Service can also provide information for treatment centers in a community and equip professionals and consumers to effectively communicate about alcohol problems. The NDATRRS can be reached at 1-800-662-HELP.¹

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