

# Alcohol

## Profile

Alcohol is the most widely abused psychoactive drug in the United States today. Slang terms include booze, bubbly, firewater, joy juice, sauce, liquid courage, and many others. Legal for those aged 21 and over, drinking is a deeply rooted aspect of our culture. While there are many types of alcohol (an entire class of chemicals), the type that is found in drinks and medicines is known as 'ethyl alcohol' or 'ethanol.' A yeast enzyme changes the simple sugars that are found in grapes, potatoes, or corn into ethanol – the alcohol found in beer, malt liquor, wine, liquors such as vodka and whiskey, wine coolers, and liqueurs like Irish cream.<sup>1</sup> Though many consider alcohol to have stimulant effects, it is actually classified as a depressant – a substance that slows the central nervous system. Other purposes for ethyl alcohol include uses as a chemical solvent, a local anesthetic, and an irritant.

When a person drinks an alcoholic beverage, it is very unlikely that he or she is actually drinking pure alcohol; pure alcohol is extremely potent and takes only a few ounces to raise a person's blood alcohol level into the danger zone. The ethanol concentration for common types of alcoholic drinks is as follows:<sup>2</sup>

- Beer: 4-6%
- Malt liquor: 5-8%
- Wine: 7-15%
- Wine coolers: 5-10%
- Champagne: 8-14%
- Hard liquor (Distilled spirits - vodka, rum, whiskey, etc.): 40-95%
- Grain Alcohol: 95-97.5%

A standard drink contains 12 grams of pure ethanol – approximately the amount found in one 12 oz. beer, one 5 oz. glass of wine, or one 1.5 oz. 'shot' of hard liquor.

- Beer 12 Oz. (1 Can or Bottle)
- Wine 5 Oz. (1 Glass)
- Hard Liquor 1.5 Oz. (1 Shot)

In general, it takes the average drinker's body one hour to metabolize one drink. As the amount of alcohol consumed exceeds the body's ability to metabolize it, the user's blood alcohol concentration (BAC) increases, and he or she begins to feel the effects of alcohol intoxication. As one's BAC continues to increase, the user will experience different levels of intoxication.

## EFFECTS

The effects of drinking depend on a variety of factors, including, but not limited to the:

- Amount of alcohol consumed
- Time taken to consume it

- Individual's gender, weight, body size, and percentage of body fat
- Amount of food in the stomach
- Use of medications, including non-prescription drugs
- Mindset of the individual at the time of consumption
- Setting in which the drinking takes place

Also, mixing alcohol with other drugs can drastically increase the damaging effects of drinking. For example, combining alcohol with narcotics (i.e., heroin, Oxycontin®, methadone) can cause slowed breathing, heart attack, and death. For some, even the combination of alcohol and aspirin can be extremely dangerous.

### **Short-Term Effects**

The short-term effects of drinking alcohol can cause numerous adverse effects on the user, including:<sup>3</sup>

- Slowed reaction times and reflexes
- Poor motor coordination
- Blurred vision
- Slurred speech
- Lowered inhibitions and increase in risk behavior
- Lowered reasoning ability, impaired judgment
- Memory loss
- Confusion, anxiety, restlessness
- Slowed heart rate, reduced blood pressure
- Slowed breathing rate
- Heavy sweating
- Nausea and vomiting
- Dehydration – a leading cause of condom breakage
- Coma
- Death from respiratory arrest

A person who consistently uses alcohol over a period of time will develop a tolerance to the effects of drinking; that is, it takes progressively more alcohol to achieve the same effects. Over time, that person may grow dependent on alcohol, and in some cases this can lead to a vicious cycle of addiction.

### **Long-Term Effects**

Over time, heavy drinking can cause permanent damage to the user's body and brain. Several factors affect the severity and extent of this damage, including the drinker's age and gender as well as the duration and extent of abuse.

The physical damage caused by sustained alcohol abuse includes:<sup>4</sup>

- Liver damage
- Accumulation of fat in the liver

- Cirrhosis – heavy scarring of the liver prevents blood flow; usually fatal
- Alcoholic hepatitis – swelling of liver cells, causing blockage; sometimes fatal
- Liver cancer
- Heart damage
- High blood pressure
- Coronary disease – narrowing of the arteries, leading to heart attack or death
- Enlarged heart
- Irregular heartbeat, which can lead to heart attack or death
- Decreased blood flow to the arms and legs
- Stroke – blocked blood flow to the brain
- Brain damage
- Lowered cognitive abilities
- Destruction of brain cells, producing brain deterioration and atrophy
- Mental disorders – increased aggression, antisocial behavior, depression, anxiety
- Damage to sense of balance, causing more accidental injuries
- Bone damage
- Bone growth that normally takes place in teenage years is stunted
- Osteoporosis – severe back pain, spine deformity, increased risk of fractures
- Pancreas damage
- Pancreatitis – inflammation of the pancreas, causing abdominal pain, weight loss, and sometimes death
- Cancer
- Alcoholism increases a person's chances of developing a variety of cancers of the pancreas, liver, breasts, colon, rectum, mouth, pharynx, and esophagus.
- Sexual problems
- Reduced sperm count and mobility, as well as sperm abnormality
- Menstrual difficulties, irregular/absent cycles, and decreased fertility
- Early menopause
- Birth defects
- Drinking any alcohol during pregnancy can cause permanent, severe damage, by putting the child at risk for Fetal Alcohol Syndrome

### **Alcohol-Related Problems**

- Premature aging
- Heartburn, nausea, gastritis, and ulcers
- Poor digestion and inflammation of the intestines
- Malnutrition
- Water retention
- Weakened vision
- Skin disorders
- Korsakoff's Syndrome – amnesia and delirium after long-term alcohol abuse

## **Symptoms of Alcohol Poisoning**

- Person is passed out and extremely difficult to wake
- Cold, clammy, pale or bluish skin
- Slow or irregular breathing
- Vomiting; person vomits while passed out

## **Alcohol and Gender**

Women are more vulnerable than men to the negative effects of drinking. Women have less total body water and less alcohol dehydrogenase – the stomach enzyme involved in metabolizing alcohol. As a result, the female body takes longer to break down alcohol. Also, the fluctuations in hormone levels that women experience during the menstrual cycle can make a woman more susceptible to the effects of drinking.<sup>5</sup> And because alcohol increases estrogen levels, birth control pills or other medications containing estrogen can increase intoxication.<sup>6</sup>

Two-thirds of alcoholics are men; however, the negative effects of heavy drinking are more severe for women. Female alcoholics are more likely to suffer alcohol-related damages and diseases than alcoholic men.<sup>7</sup>

## **Alcoholism Warning Signs**

There are several indicators that can signify a budding alcohol problem. The Mayo Clinic lists twelve warning signs of problematic drinking:<sup>8</sup>

- Drinking alone or in secret
- Inability to limit amount of alcohol consumed
- Experiencing blackouts
- Making a ritual of having drinks before, with or after dinner and becoming annoyed when this ritual is disturbed or questioned
- Losing interest in hobbies or activities that used to bring pleasure
- Feeling a need or compulsion to drink
- Irritability when normal drinking time approaches, especially if alcohol is not available
- Keeping alcohol in unlikely places at home, at work or in the car
- Gulping drinks, ordering doubles, becoming intoxicated intentionally to feel good or drinking to feel “normal”
- Having legal problems or problems with relationships, employment or finances
- Building a tolerance to alcohol so that an increased number of drinks is necessary to feel alcohol’s effects
- Experiencing physical withdrawal symptoms, such as nausea, sweating and shaking, when not drinking

## Links

- [National Institute on Alcohol Abuse and Alcoholism](#)
- [In The Know Zone: Alcohol](#)
- [How Stuff Works: How Alcohol Works](#)

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<sup>1</sup> In The Know Zone. Alcohol: Straight Facts – Serious Dangers. Retrieved October 11, 2006, from <http://www.intheknowzone.com/alcohol/index.htm>.

<sup>2</sup> How Stuff Works. How Alcohol Works. Retrieved October 11, 2006, from <http://www.howstuffworks.com/alcohol.htm>.

<sup>3</sup> In The Know Zone.

<sup>4</sup> In the Know Zone.

<sup>5</sup> National Institute on Alcohol Abuse and Alcoholism. (1990, October). Alcohol and Women. Retrieved October 11, 2006, from <http://pubs.niaaa.nih.gov/publications/aa10.htm>.

<sup>6</sup> Facts On Tap. How Alcohol Discriminates. Retrieved October 11, 2006, from <http://www.factson tap.org/factson tap/risky/discrimination.htm>.

<sup>7</sup> In The Know Zone.

<sup>8</sup> Mayo Clinic. (2006, June 21). Alcoholism. Retrieved October 11, 2006, from <http://www.mayoclinic.com/health/alcoholism/DS00340/DSECTION=2>.