

Chapter 1

Alcohol



Everything can be taken away from a man but one thing: the last of the human freedoms—to choose one's attitude in any given set of circumstances, to choose one's own way.

-Viktor Frankl

What Is Alcohol?

Alcohol is a drug, as surely as cocaine and marijuana are. Alcohol is the name to given a variety of related compounds; the drinkable form is ethanol, or ethyl alcohol. It is a powerful, addictive, central nervous system depressant produced by the action of yeast cells on carbohydrates in fruits and grains.

A liquid that is taken orally, alcohol is often consumed in abundant quantities. Surveys of adolescent and young adult drinkers indicate that they are particularly likely to drink heavily with the intention of getting drunk—often every time they drink.

There are three basic types of alcoholic drinks.

- **Beer** is made from fermented grains and has an alcohol content of three to six percent.
- **Wine** is made from fermented fruits and has an alcohol content of 11 to 14 percent. Some wine drinks, such as wine coolers, have fruit juice and sugar added, lowering alcohol content to between four and seven percent. Fortified wines, such as port, have alcohol added, bringing alcohol content to between 18 and 20 percent.
- **Liquor** is made by distilling a fermented product to yield a drink that usually contains 40 to 50 percent alcohol. The alcohol content in liquor is sometimes indicated by degrees of proof, which in the United States is a figure twice as high as the percentage. Thus, 80-proof liquor is 40 percent alcohol.

A 12-ounce glass of beer, a 5-ounce glass of wine, and a 1.5-ounce shot of liquor all contain the same amount of alcohol and, therefore, have an equal effect on the drinker. All three forms of alcohol have the same potential for intoxication and addiction.

What Is the Scope of Alcohol Use In the United States?

Alcohol is the oldest and most widely used drug in the world. Nearly half of all Americans over the age of 12 are consumers of alcohol. Although most drink only occasionally or moderately, there are an estimated 10 to 15 million alcoholics or problem drinkers in the United States, with more than 100,000 deaths each year attributed to alcohol. Among the nation's alcoholics and problem drinkers are as many as 4.5 million adolescents, and adolescents are disproportionately involved in alcohol-related automobile accidents, the leading cause of death among Americans 15 to 24 years old.

How Does Alcohol Affect You?

When a person consumes alcohol, the drug acts on nerve cells deep in the brain. Alcohol initially serves as a stimulant, then induces feelings of relaxation and reduced anxiety. Consumption of two or three drinks in an hour can impair judgment, lower inhibitions, and induce mild euphoria. Five drinks consumed in two hours may raise the blood alcohol level to 0.10 percent, high enough to be considered legally intoxicated in every state. Once a drinker stops drinking, his or her blood alcohol level decreases by about 0.01 percent per hour.

Interactions With Medications

Drinking alcohol while taking certain medications can cause problems. In fact, there are more than 150 medications that should not be mixed with alcohol. For example, if you are taking antihistamines for a cold or allergy and drink alcohol, the alcohol will increase the drowsiness that the medicine alone can cause, making driving or operating machinery even more dangerous. And if you are taking large doses of the painkiller acetaminophen (Tylenol®) and drinking alcohol, you are risking serious liver damage. Check with your doctor or pharmacist before drinking any amount of alcohol if you are taking any over-the-counter or prescription medicines.

Social and Legal problems

The more heavily you drink, the greater the potential for problems at home, at work, with friends, and even with strangers. These problems may include:

- Arguments with or separation from your spouse and other family members
- Strained relationships with coworkers
- Absence from or lateness to work with increasing frequency
- Loss of employment due to decreased productivity
- Committing or being the victim of violence

Alcohol-related Birth Defects

If you are pregnant or trying to get pregnant, you should not drink alcohol. Drinking alcohol while you are pregnant can cause a range of birth defects, and children exposed to alcohol before birth can have lifelong learning and behavioral problems. The most serious problem that can be caused by drinking during pregnancy is fetal alcohol syndrome (FAS). Children born with FAS have severe physical, mental, and behavioral problems. Because scientists do not

know exactly how much alcohol it takes to cause alcohol-related birth defects, it is best not to drink any alcohol during this time.

Long-term Health Problems

Some problems, like those mentioned above, can occur after drinking over a relatively short period of time. But other problems—such as liver disease, heart disease, certain forms of cancer, and pancreatitis—often develop more gradually and may become evident only after many years of heavy drinking. Women may develop alcohol-related health problems sooner than men, and from drinking less alcohol than men. Because alcohol affects nearly every organ in the body, long-term heavy drinking increases the risk for many serious health problems, some of which are described below.

Alcohol-related Liver Disease

More than 2 million Americans suffer from alcohol-related liver disease. Some drinkers develop alcoholic hepatitis, or inflammation of the liver, as a result of heavy drinking over a long period of time. Its symptoms include fever, jaundice (abnormal yellowing of the skin, eyeballs, and urine), and abdominal pain. Alcoholic hepatitis can cause death if drinking continues. If drinking stops, the condition may be reversible. About 10 to 20 percent of heavy drinkers develop alcoholic cirrhosis, or scarring of the liver. People with cirrhosis should not drink alcohol. Although treatment for the complications of cirrhosis is available, a liver transplant may be needed for someone with life-threatening cirrhosis. Alcoholic cirrhosis can cause death if drinking continues. Cirrhosis is not reversible, but if a person with cirrhosis stops drinking, the chances of survival improve considerably. People with cirrhosis often feel better, and liver function may improve, after they stop drinking. About 4 million Americans are infected with hepatitis C virus (HCV), which can cause liver cirrhosis and liver cancer. Some heavy drinkers also have HCV infection. As a result, their livers may be damaged not only by alcohol but by HCV-related problems as well. People with HCV infection are more susceptible to alcohol-related liver damage and should think carefully about the risks when considering whether to drink alcohol.

Heart Disease

Moderate drinking can have beneficial effects on the heart, especially among those at greatest risk for heart attacks, such as men over the age of 45 and women after menopause. However, heavy drinking

over a long period of time increases the risk for heart disease, high blood pressure, and some kinds of stroke.

Cancer

Long-term heavy drinking increases the risk of certain forms of cancer, especially cancer of the esophagus, mouth, throat, and larynx (voice box). Research suggests that, in some women, as little as one drink per day can slightly raise the risk of breast cancer. Drinking may also increase the risk for developing cancer of the colon and rectum.

Pancreatitis

The pancreas helps regulate the body's blood sugar levels by producing insulin. The pancreas also has a role in digesting the food we eat. Long-term heavy drinking can lead to pancreatitis, or inflammation of the pancreas. Acute pancreatitis can cause severe abdominal pain and can be fatal. Chronic pancreatitis is associated with chronic pain, diarrhea, and weight loss.

If you or someone you know has been drinking heavily, there is a risk of developing serious health problems. Because some of these health problems can be treated, it is important to see a doctor for help. Your doctor will be able to advise you about your health and your drinking.

What Are the Signs and Symptoms of Alcohol Use and Intoxication?

- Smell of alcohol on breath
- Irritability
- Euphoria
- Loss of physical coordination
- Inappropriate or violent behavior
- Loss of balance
- Unsteady gait
- Slurred and/or incoherent speech
- Loss of consciousness
- Slowed thinking
- Depression
- Impaired short-term memory
- Blackouts

What Are the Signs and Symptoms of Alcohol Withdrawal Experienced By Problem Drinkers?

- Tremors
- Agitation
- Anxiety and panic attacks
- Paranoia and delusions
- Hallucinations (usually visual)
- Nausea and vomiting
- Increased body temperature
- Elevated blood pressure and heart rate
- Convulsions
- Seizures

What Is Alcohol Abuse?

Alcohol abuse differs from alcoholism in that it does not include an extremely strong craving for alcohol, loss of control over drinking, or physical dependence. Alcohol abuse is defined as a pattern of drinking that results in one or more of the following situations within a 12-month period:

- Failure to fulfill major work, school, or home responsibilities.
- Drinking in situations that are physically dangerous, such as while driving a car or operating machinery.
- Having recurring alcohol-related legal problems, such as being arrested for driving under the influence of alcohol or for physically hurting someone while drunk.
- Continued drinking despite having ongoing relationship problems that are caused or worsened by the drinking.

What Are the Dangers of Alcohol Abuse?

In addition to risk of injury or death as a result of accident or violence, alcohol abuse poses a broad range of physiological and psychological dangers.

- **Neurological** dangers include impaired vision and impaired motor coordination, memory defects, hallucinations, blackouts, and seizures. Long-term consumption can result in permanent damage to the brain.
- **Cardiological** problems include elevated blood pressure and heart rate, risk of stroke and heart failure.
- **Respiratory** dangers include respiratory depression and failure, pneumonia, tuberculosis, and lung abscesses. Addi-

tionally, alcohol abuse increases the risk of mouth and throat cancer.

- **Liver** disease caused by chronic alcohol abuse, including alcoholic fatty liver, hepatitis, and cirrhosis, kills 25,000 Americans each year.

Other physiological dangers include damage to the **gastrointestinal system** (including duodenal ulcers, reflux, and diarrhea), the **pancreas**, and the **kidneys**. In addition, alcohol consumption may cause malnutrition, disrupt the absorption of nutrients in food, and suppress the **immune system**, thus increasing the potential for illness.

Psychological dangers include impaired judgment and verbal ability, apathy, introversion, antisocial behavior, inability to concentrate, and deterioration of relationships with family, friends, and co-workers.

What Is Alcoholism?

Chronic abuse of alcohol can lead to addiction or alcoholism. The behavior of abusers and consequences of that behavior are better indicators of alcoholism than how often or how much a person may drink. Alcohol addiction can be characterized by increased tolerance, causing the abuser to drink greater amounts to achieve the same desired effect. When an alcoholic stops drinking, he or she will typically experience the symptoms of withdrawal.

Although alcohol abuse is basically different from alcoholism, many effects of alcohol abuse are also experienced by alcoholics.

Where Can I Get Further Scientific Information About Alcohol?

Information on alcohol can be accessed through NIAAA's home page at www.niaaa.nih.gov or by contacting the National Clearinghouse for Alcohol and Drug Information (NCADI) Web Site www.health.org.