Alcohol

History

Depending on the accuracy of historians, the making of wine is first mentioned on an Egyptian papyrus from approximately 4,000 BC. This reference likely reflects practices that date from an earlier time. Distillation is the process of separating ethanol from a fermented alcoholic beverage, like wine or beer, and re-introducing it in order to make the drink stronger. This practice seems to date to just after the birth of Christ. Its invention is attributed to either the Chinese or the Arabs. Interestingly, legend has it that the Chinese used distillation to make perfume, while the Arabs had applied it to the making of alcoholic beverages.

The process of distillation is used by modern manufacturers to produce what we refer to as “spirits”. The high alcoholic content is achieved today, as it was in the past, by re-circulating the distilled alcohol from one beverage into another, and thus fortifying the drink to the 40 proof (20 percent alcohol), 80 proof (40 percent alcohol), and 100 proof (50 percent alcohol) levels we are accustomed to purchasing in stores.

What Is Alcohol?

Alcohol, strictly classified as a drug, is composed of hydrogen, oxygen, and carbon. From a chemical perspective, ethanol, the psychoactive component of alcoholic beverages, is classified as a depressant, although in its early stages it acts as a stimulant. Before advanced chemistry provided more effective drugs, alcohol was used as an anesthetic because of its ability to “put the brain to sleep”.

Alcohol is probably best described as a colorless liquid with a sharp burning taste. Any color found in the liquid comes from the wood of casks in which the alcohol has been fermented or from artificially added colorings. No matter what the form, alcohol is the most commonly abused drug in the United States. It causes more accidents, illness, and death than all other drugs combined.

Use of alcohol is defined as the consumption of any beverage, mixture, or preparation, including medications, which contains alcohol. The effects vary by consumer, depending on the amount consumed in relation to time, the presence of food in the stomach to slow absorption, and even, the user’s mental state. Physical factors are also involved. Weight, metabolism and general physical health can also affect the way the drug acts on the body.

How Is Alcohol Different?

Alcohol normally enters the system through the mouth and flows down the throat and into the stomach. In the stomach, alcohol performs somewhat differently than all other substances. Unlike other drugs, alcohol does not need to be digested before it enters the circulatory system. About 10 percent of the alcohol consumed passes directly through the stomach walls. The remaining 90 percent passes through the pyloric sphincter and enters the blood stream through the first 10 inches of the small intestine. Because of this fast absorption feature, alcohol has come to be used as a “delivery system” for introducing other drugs into the body. Only recently has the need for alcohol-free medications been recognized.

How Does the Body React to Alcohol?

The body treats alcohol as a toxic poison and uses its elimination system to rid itself of the drug. While in the system, the drug affects virtually every cell, and therefore every organ. The heart muscle’s control of blood flow, the liver’s metabolizing and expulsion of drugs and toxins, and the stomach’s increased secretion of acid are among the common effects. Alcohol also affects all aspects of brain function including the ability to process information, to reason and remember, to regulate heart rate and to govern balance and coordination.

How Much Alcohol Can a Person Safely Consume?

While body size and weight do play a role in how ethyl alcohol affects the body, it is generally agreed that the body can safely handle/process approximately one drink or 0.6 of an ounce of ethyl alcohol per hour. Ethyl alcohol is the chemical found in beverage alcohol. One 12 ounce bottle of beer, one 5 ounce glass of wine or one cocktail with a shot and a half of spirits is approximately equivalent to 0.6 ounce of ethyl alcohol. This means that the body eliminates approximately that amount of alcohol in one to one and a half hours through its natural processes. Obviously, if more than that amount is ingested, it remains active in the body until enough
time passes for its elimination. There are only three ways the drug can be eliminated from the body—through the breath, through the skin, or through the excretion system. Although there are many folk remedies for “sobering up”, only the passage of time and the referenced processes cause the alcohol to exit the body.

Is Alcohol a Problem?

Yes. Alcohol sedates the brain and slows down its critically important safety functions. The National Institute on Alcohol Abuse and Alcoholism (NIAAA) reports that two out of every three adults, 12 years and older, drink occasionally while one out of every two adults, 12 and older, say they are current drinkers, which means they consumed alcohol in the last 30 days. Although estimates vary, there are statistics that give us grounds to believe that 3.2 million workers used alcohol on the job, and another 14 million come to work hung over. Of those 16 yrs and older in the USA, over 32 million report driving on alcohol.

Alcohol use can become problematic in part because of its fast absorption rate. Once introduced into the body, alcohol reaches the brain very swiftly—in approximately one to three minutes. This means that the abuser does not always understand that the drug has already started to work and that it would be wise to give oneself time to feel the effects before consuming more. In that same vein, a person’s ability to safely control a motor vehicle is typically impaired long before the user shows visible signs of intoxication.

Alcohol misuse is estimated to claim 85,000 lives annually in the U.S. Worldwide estimates reach over one and one half million annually. That number exceeds the loss of life due to illegal drugs by a multiplier of 25. It is not surprising therefore, that motor vehicle accidents are the primary cause of death for the American population between five and 34 years of age, and account for half of all injury deaths. More people are injured or die in motor vehicle-related accidents each year than from heart disease, cancer, and stroke combined.

Besides the injuries and fatalities caused by alcohol on our highways, its use is documented in 25 percent of the 2,000,000 traumatic brain injuries that occur each year. Accidents involving alcohol account for 500,000 of these life-devastating injuries. Workers impaired by alcohol are also responsible for approximately 45 percent of workplace injuries and 40 percent of all industrial fatalities. While actual percentages may vary by study, alcohol is also believed to be involved in approximately 60 percent of all suicide attempts, 75 percent of all murders and 65 percent of all drownings.

Driving skills begin to deteriorate after consumption of one and a half drinks. Studies have shown that even this small amount can:

- Slow reaction time.
- Decrease comprehension.
- Affect stopping distance.
- Increase steering errors.
- Decrease the ability to perform multiple tasks simultaneously.

The financial impact is also significant. Alcohol abuse in America is estimated to cost $100 billion dollars a year. These costs are incurred in lost lives, personal injuries, property damage, and business losses. Lost productivity, absenteeism, increased health care costs and environmental damage are also among the most common contributors to business losses caused by alcohol use. The increased cost to business, industry and government is shifted to the consumer in the form of increased costs of goods and services.

What Is the Difference Between Alcohol Abuse and Alcoholism?

Alcoholism was classified as a disease in 1958 by the American Medical Association (AMA). Classification as a disease requires meeting two criteria—1) morbidity, that is the body is affected negatively, and 2) the disease has readily identifiable signs and symptoms. Over 100 symptoms for alcoholism are currently listed in scientific literature. Alcoholism can strike anyone. Scientists continue to believe alcoholism can be transmitted genetically and recent laboratory research suggests it may be a lack of a certain chemical in the brain which causes the body to crave alcohol. If that is so, there may be gene therapy which will help cure this debilitating disease.

There are two general categories of alcoholics:

For **Type 1**, the problem is slight. Generally they experience problems late in life, tend to stay employed, do not normally experience extreme depression, and respond well to treatment.

For **Type 2**, the problem is severe. Generally they are thought to be predisposed to the disease through genetics (father to son or grandson) and have great difficulty responding to treatment.
Currently, scientists estimate that genetic factors account for 40% to 60% of a person’s addiction vulnerability. Children of an alcoholic seem to be three times more likely to develop the problem while children of an addicted couple are five times more likely to have to fight addiction.

**Alcohol abuse** differs from alcoholism in that it does not include an extremely strong craving for alcohol, loss of control of the amount consumed at any one time, or the development of physical dependence. In addition, alcohol abuse is less likely than alcoholism to include the phenomenon of tolerance—the acclimation of the user to the drug which gradually requires increasing amounts of alcohol to achieve a “high”.

**Alcohol abuse is defined as a pattern of drinking that is accompanied by one or more of the following situations within a 12 month period:**

1. Failure to fulfill work commitments or home responsibilities.
2. Drinking in situations that are physically dangerous.
3. Recurring alcohol-related legal problems, such as DUI citations or involvement in altercations.
4. Relationship problems caused by alcohol in which the drinking continues.

**Alcoholism is a disease that is characterized by:**

1. A craving for alcohol—a strong need or compulsion to drink.
2. Loss of control—the inability to stop drinking once one has begun.
3. Physical dependence—withdrawal symptoms such as nausea, shakiness and anxiety when alcohol use is stopped.
4. Increased tolerance—the need for increasing amounts of alcohol to achieve a “high”.

**Do People Who Abuse Alcohol Hold Down Regular Jobs?**

Research shows Americans consider a job one of the most important things in their lives. It becomes even more important to a person who is experiencing an alcohol problem. In almost all instances, it is the last thing the substance abuser will allow to become affected by the excessive drinking. In order to prove their maintenance of control over the substance, common disclaimers heard from abusers include “I never miss work so I’m not an alcoholic” and “I always bring my paycheck home, so I don’t do anything that hurts my family”, etc. What this actually means is that employers should expect to find alcohol abusers in the workplace since most will go to extraordinary lengths to cover up their problem and stay on the job.

**How Alcohol Misuse Starts**

Alcohol misuse starts by slowly replacing the four basic relationships that are the building blocks of life. These are the relationships that meet our human need for emotional stability and intimacy i.e., relationships with family and friends, our intimate and caring relationship with ourselves, spiritual relationships, and relationship with the community around us. As misuse of alcohol progresses, abusers give up these four relationships and look exclusively to the substance to meet their needs.

**Effects of Alcohol Misuse on Health, Work, and Personal Life**

Alcohol is a central nervous system depressant. Taken in large enough quantities, it causes not only the euphoria or “high” associated with “being drunk” but also adversely affects judgment and the ability to think, and disrupts the normal motor functions of the body. It is quite common for users to literally drink themselves to death. Besides the deaths among chronic alcoholics, death due to alcohol overdose is not uncommon on college campuses. Death under these circumstances is generally referred to as alcohol poisoning. This type of accident takes place when the amount of alcohol that is consumed cannot be removed from the system in a timely manner by normal bodily functions. Since alcohol is an anesthetic, an overdose can literally put portions of the brain “to sleep”.

If this should happen to the portion(s) that control involuntary bodily functions, such as breathing, the lungs can, in effect, be “turned off”. Alcohol can also accumulate around vital organs when the body is not able to expel it fast enough and, through its anesthetic ability, put the organ itself “to sleep”. In either of these cases, vital functions such as breathing and blood supply to the body can be affected and result in death.