

Narcotic Educational Foundation of America

Drug Abuse Education Provider of the:

California Narcotic Officers' Association

ALCOHOL - A POTENT DRUG

QUICK FACTS:

Ethyl Alcohol is a legal and highly addictive drug. Alcohol dependence (addictive) producing properties are displayed by: 1. Abusive regular use of the drug. 2. Sudden attempts to stop using the drug will cause significant and painful symptoms. 3. Abuse may lead to compulsive drug seeking behavior (craving), and 4. Abuse leads to increase in the frequency or dosage of the drug (tolerance).

Alcohol's primary addictive qualities are exerted on that region of the brain and central nervous system that is responsible for the "divided attention" mechanism and the region that produces the classical "physical / psychological dependence syndrome." The brain's neurochemicals associated with alcohol controls muscle relaxation and has a tranquilizer effect. These drug actions account for the abuser's loss of control. Alcohol itself, as well as the "drug abusing" lifestyle, may suppress the body's enzyme system by sclerosis of the liver. This suppression makes them "high risk" for infections, some life threatening. Alcoholics and intravenous drug abusers account for the highest percentage of hepatitis C virus infection. This infection has a high mortality rate.

HISTORY OF DRUG

Although American society generally accepts the use of alcoholic beverages, the misuse or abuse of alcohol is still a major drug problem and health risk. Alcohol abuse is a matter of public concern because excessive drinking cannot only affect the individual drinker; excessive use also affects family, friends, fellow workers and neighbors.

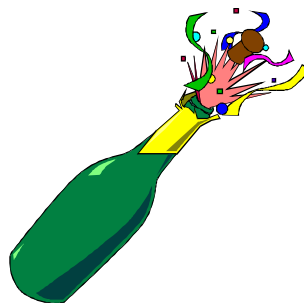
The use and misuse of alcoholic beverages has long been a controversial issue. The issue has been contested by various interest groups and legislative bodies ever since the birth of this country.

Alcohol is associated with the "good times" in life. Unlike other drugs, it is legal, it is advertised and sold on the retail market. In fact, alcohol plays a large part in the economy of many cities and states. Alcohol is used in religious ceremonies, weddings, wakes, and it is quite often given as a gift to celebrate many different occasions.

Alcohol is controlled by the government. Different states have various laws and regulations concerning the legal age when alcohol can be purchased and consumed. Some states and governments actually sell alcohol in government operated stores. There is a substantial tax on all alcohol and government's role, interest, and control of alcohol, in part is related to this tax.

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ALCOHOL ... SOCIETY'S LEGAL, OLDEST AND MOST POPULAR DRUG!



TYPE AND QUANTITY OF BEVERAGE FOR ONE OUNCE OF 100 PROOF

Type Quantity Alcohol	Percent	
Beer	5%	12 oz
Wine	12%	4 oz
Bourbon	43%	1.5 oz
Scotch	50%	1 oz
Bacardi	75.5%	1.5 oz
Moonshine	100%	0.5 oz

History - *(continued from column 1)*

There is no one national attitude toward moderate or social drinking that is acceptable to everyone. Perhaps there will never be such an agreement. However, there is a developing of commonality concerning the excessive drinker, the problem drinker, and the alcoholic. This is based upon the growing recognition that alcoholism and excessive drinking represents not simply moral issues; but medical problems with complicated and interrelated chemical, physiological, psychological, and sociological aspects.

While it has become clear that most people would continue to insist on their right to drink, it has also become evident that drinking to excess and endangering the lives of themselves and others is no longer acceptable. The problem of alcoholism is now recognized as a public health problem that urgently demands intelligent, practical action based on better knowledge of its causes and potential cures.

Drinking by drivers plays a greater role as the severity of the crash increases. Up to 59 percent of fatal crashes, and 25 percent of non fatal crashes involve drinking drivers. Highway deaths have continued to rise steadily, until nearly 70,000 Americans are now killed yearly. It has been shown that alcohol is involved in half of the highway fatalities. Drivers with chronic drinking problems

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History of Drug - (continued from page 1)
are responsible for about two-thirds of the alcohol related deaths. Young drivers and social drinkers with a high blood-alcohol level at the time of the accident cause the remaining one-third. These figures do not include the over 500,000 people injured annually.

Studies show that alcohol tends to decrease fear and increase the likelihood that an individual will accept risks.

Alcoholic beverages have no food value, are high in calories, and have insignificant amounts of vita-

THE PHARMACOLOGY OF ALCOHOL IN THE BODY

Alcohol's primary effects are in the central nervous system and the brain, although the whole body is affected.

Alcohol is classified as a depressant drug, because it will depress the body and the mind. Another way to put it is that alcohol will cause relaxation, sedation, and if a sufficient quantity is consumed, the result will bring on coma and even death. Reasoning and judgment are two of the most significant personality changes that occur. The intensity of which is dose related.

The speed of alcohol absorption affects the rate at which one becomes drunk. Unlike foods, alcohol does not have to be slowly digested. It is immediately absorbed into the blood, having passed directly through the walls of the stomach and mostly the small intestine. The blood rapidly carries it to the brain. As a person drinks faster than the alcohol can be eliminated, the drug accumulates in the body, resulting in higher and higher levels of alcohol in the blood.

Alcohol is metabolized, burned, and broken down in the body at a fairly constant rate. The length of time for total alcohol metabolism affects the rate at which one becomes sober again.

MAJOR HEALTH PROBLEMS

STOMACH: Acids are secreted leading to irritation, gastritis, and ulcers. The digestive system can be damaged, causing malnutrition and hemorrhaging.



LIVER: Alcohol decreases the liver's ability to metabolize fat. As fat builds up in the liver, blood flow to other liver cells is cut off and they die. This leads to hepatitis and cirrhosis. Cirrhosis is the 7th leading cause of death in the United States.



BRAIN: Alcohol affects all parts of the brain which also affects the heart rate, coordination, speech, and destruction of brain cells.

HEART: The abuse of Alcohol has specific effects upon the heart muscle that can result in disease. Alcoholic cardiomyopathy has symptoms of chronic shortness of breath, and signs of congestive heart failure. It causes enlargement of the heart, abnormal heart signs, edema, enlargement of the spleen and liver. It has been further reported that chronic drinking can lead to coronary artery disease.

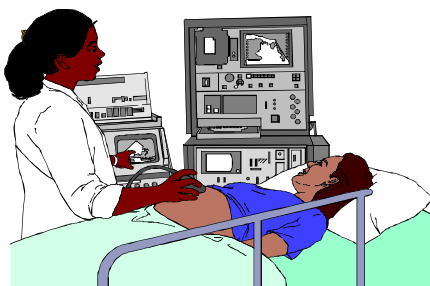


BLOOD PRESSURE: A study of over 80,000 individuals demonstrated a highly significant increase in diastolic and systolic blood pressure in those who consumed three or more drinks per day.



PSYCHOLOGICAL RISKS: Irritability, hyperactivity, anxiety, paranoia, hallucinations, and other psychiatric problems are associated with alcohol.

REPRODUCTIVE SYSTEM: Alcohol use during pregnancy can increase the number of miscarriages and infant death.



Pharmacology - (continued from column 1 - this page)

Once in the bloodstream and carried throughout the body, alcohol undergoes metabolic changes and eventually is reduced to carbon dioxide and water. Most of these processes take place in the liver, although about 2 to 5 percent of the alcohol is excreted chemically unchanged in urine, breath, and sweat. This "burn off rate" is approximately 0.015 to 0.020 percent blood alcohol per hour (about 2/3 of one drink).

ALCOHOL TOLERANCE

Tolerance for the many effects of alcohol is easily developed. Larger amounts of alcohol can lead to acute and chronic tolerance in which higher and higher "doses" are need to produce the desired effects. Due to the aging process, the liver cannot process the alcohol. Therefore, we cannot drink as much alcohol as we did when we were younger. Tolerance can lead to both physical and psychological dependence, as demonstrated by abstinence symptoms ranging in severity from mild to life threatening.

ETHYL ALCOHOL - DRUG INTERACTION

Alcohol interacts with many, if not all drugs. One interaction effect is potentiation. Alcohol potentiates the action of the CNS depressants. This capability can present life-threatening risks.

Alcohol can form new metabolites in the body which can enhance the action of the parent drug. Researchers have isolated the metabolite "cocoethylene" which is a combination of cocaine and alcohol. It is reported to extend the cocaine action

BEHAVIORAL EFFECTS AND BLOOD ALCOHOL LEVELS

% Blood Alcohol	Signs and Symptoms
.02	Sense of warmth and well being.
.04	Most people feel relaxed, energetic, and happy. Time seems to pass quickly. Skin may flush and motor skills may be slightly impaired.
.05	More observable effects begin to occur. Individual may experience lightheadedness, giddiness, lowered inhibitions, and impaired judgment. Coordination may be slightly altered.
.08	Muscle coordination definitely impaired, and reaction time increased; driving ability suspect. Heavy pulse and slow breathing.
.10	Clear deterioration of coordination and reaction time. Individual may stagger and speech may become fuzzy.
.15	All individuals experience a definite impairment of balance and movement.
.20	Marked depression of motor and sensory function. Slurred speech. Decidedly intoxicated.
.30	Individual is confused or stuporous.
.40	Usually unconscious. Alcohol has become deep anesthetic. Skin may be sweaty and clammy.
.45	Circulation and respiration functions are depressed and can stop altogether.
.50	Near death.



ALCOHOL-RELATED AUTO ACCIDENTS



OBSERVABLE SIGNS AND SYMPTOMS OF ALCOHOL ABUSE

After drinking, the most visible objective symptoms are:

- ◆ Poor coordination
- ◆ Thick, slow, and deliberate speech
- ◆ Odor of substance on the breath
- ◆ Excessive nasal secretions
- ◆ Watering of the eyes
- ◆ Possibly enlarged pupils
- ◆ Horizontal gaze nystagmus
- ◆ Nausea and headache

ALCOHOL DEVELOPS TOLERANCE

Drinking large amounts of alcohol over long periods of time seems to change the sensitivity of the brain to the effects of alcohol. This means that larger amounts of alcohol are required to produce the same effects. This adaptation is called "tolerance." It shows up in the use of all addictive drugs.

The dependent person shows extraordinary adaptation to alcohol. He must take relatively huge amounts to produce the changes in feelings and behavior which he previously attained with smaller quantities. Moreover, his or her capacity to drink very large quantities without losing control of actions also marks as different from the moderate or heavy drinker. Later in the chronic stage, tolerance decreases markedly until the person may become drunk on relatively small amounts of alcohol.

At present it is not known what accounts for the dramatic "behavioral tolerance" of the alcohol-dependent person. Normal drinkers and alcoholic persons do not differ much in their overall rate of alcohol metabolism. This argues that the adaptive changes must occur in the brain rather than in the liver.

IRREVERSIBLE BRAIN DAMAGE

Heavy drinking over many years may result in serious mental disorders or permanent, irreversible damage to the brain or peripheral nervous system. Mental functions such as learning ability, memory, and judgment can deteriorate severely, and grasp on reality may disintegrate as well.

Even low doses of alcohol reduce sensitivity to taste and odors. Alcohol has little effect on the sense of touch, but dulls sensitivity to pain.

Several drinks before bedtime has been found to decrease the amount of REM (rapid eye movement) or dreaming sleep. The consequences are impaired memory and concentration, as well as anxiety, tiredness, and irritability.

SYNERGISTIC EFFECTS

1 + 1 = 6, 8, 10

Combined use of alcohol and other drugs frequently has supra-additive effects. These effects can be medically hazardous and occasionally are fatal. Impaired ability during performance tasks such as driving is also dangerous, especially when the hazards are not recognized. Alcohol in combination with other drugs is the second most frequent cause of drug related medical crises. Tranquilizers are the drugs most frequently combined with alcohol and can fatally depress cardiac functioning and respiration.

