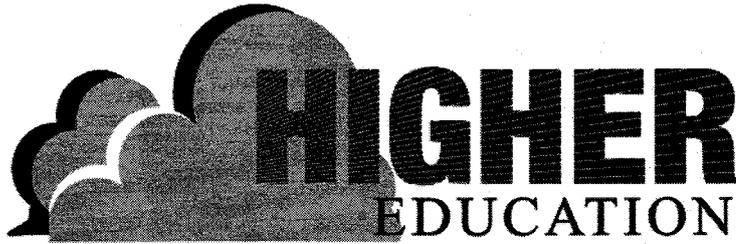


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An Informational Newsletter

KSU Alcohol and Other Drug Education Service

Alcoholism: Nature vs. Nurture

Scientists have long recognized that multiple members of the same family may develop alcoholism, but the debate for the past 40 years has been over what contributes more to this pattern: nature or nurture (i.e., heredity or environment)? Despite many years of research, the answer remains somewhat unclear.

According to the National Institute on Alcohol Abuse and Alcoholism (NIAAA), alcoholism currently affects 4-5% of the population. During an individual's entire lifetime, the chance of becoming an alcoholic is about 12%. An easier way to imagine this statistic is that in any given group of 100 people, approximately 12 of them will develop alcoholism at some point in their life.

Generally defined, an alcoholic is someone who continues to use alcohol despite the fact that alcohol consumption consistently results in negative consequences. Those consequences might show up as legal problems (e.g., MIP or DUI), financial difficulties, problems in significant relationships, problems with school or work, and/or health issues.

Other ways of describing alcoholism are:

Substance Dependence – One develops a need to drink increasing amounts of alcohol to get the desired effect (i.e., tolerance); more alcohol is consumed than was intended; preoccupation with drinking develops; efforts to quit are unsuccessful; day to day activities are neglected.

Substance Abuse - Failure to meet obligations at work, school, or in the family; use of alcohol in hazardous situations; alcohol related legal problems; an individual continues to drink despite a knowledge that problems are developing, or have developed.

As would be expected, even if an individual has a significant physiological predisposition for alcoholism, if he or she chooses not to drink alcohol, there is no chance of developing alcoholism! But in those who choose to drink alcohol, can we ever predict who will become an alcoholic and who will not?

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Family History

It is generally believed that there are many factors that contribute to someone developing a dependency on alcohol, but a family history of alcoholism seems to be a strong predictor.

Family studies have provided important information about the way alcoholism may be passed down. Children of alcoholics who were adopted at birth and had no contact with the alcoholic parent developed alcohol dependence more frequently than adopted children whose birth parents were not alcoholic. Other studies have shown that 18% of boys whose parents are alcoholic develop alcoholism; this rate is four times higher than boys with non-alcoholic parents.

In fact, studies of identical twins who have been adopted, and who share virtually the same genetic make-up, have led to a better understanding of the genetic component of alcoholism. Identical twins show a much stronger similarity to one another in alcohol use patterns, even if they are raised separately in different families, with different drinking or non-drinking environments, and in different social situations.

Current research suggests that about 50-60% of the risk of developing alcoholism can be attributed to genetics. A person with a family history of alcoholism is said to inherit a *genetic predisposition* to alcoholism – a higher likelihood of becoming alcohol dependent. Some experts suggest that children of alcoholic parents are three to four times more likely to become alcohol dependent than children with non-alcoholic parents.

It is generally believed that the remaining risk factors for developing alcoholism are environmental or psychological, such as exposure to alcohol, modeling behavior, antisocial tendencies, or mental or psychological deficiencies or challenges.

Personality

Personality traits are part inherited and part learned. Scientists have not been able to identify a specific personality type that is more prone to alcohol dependency, although certain traits may be *associated* with high alcohol use. Low self-esteem is sometimes correlated with alcohol dependency, as is risk-taking or poor impulse control. Individuals who experience depression, anxiety, or phobias are also often at higher risk for developing alcohol dependence. Debate continues, however, over which comes first! Is a depressed or anxious person more likely to use alcohol to relieve their symptoms? Or, is a person who abuses alcohol more likely to become depressed and anxious? These are questions that researchers haven't definitively answered.

Environment

All individuals grow up in a cultural environment as well as a family environment. An acceptance of heavy alcohol use may be a part of one's ethnic, religious or social upbringing. One study estimated a person was 50% more likely to drink heavily if he or she had friends and family members who also drank heavily.

Genetics

Those with a family history of alcoholism may inherit a susceptibility to becoming alcoholic, but what exactly does one inherit that leads to potential alcohol dependency? Many theories have been proposed, and research continues to reveal possible traits that may be responsible.

Below are some of the genetic traits that research indicates *may* increase one's risk for developing alcohol dependency:

- **Differences in how alcohol is metabolized by the body** – There are genetic variations in how individuals process the alcohol they drink, and this appears to be linked to the existence of certain liver enzymes. Because of these enzymes, some individuals will have a negative reaction to alcohol (e.g., nausea or elevated heart rate) and are therefore less likely to develop dependency.
- **Brain response to alcohol** – Certain genes may influence the way the brain's neurotransmitters respond to the presence of alcohol, impacting how likely it is that one becomes addicted.
- **Pleasure sensors** - Some individuals may experience a greater positive mood reaction to alcohol, increasing the likelihood that they will want to consume more alcohol. Scientists believe this may be related to the release of endorphins (the chemicals that reduce pain). The strength of endorphin response to alcohol can vary from person to person.
- **Sensitivity to odors** – The response to the aroma of alcohol can vary based on a certain gene. Individuals who find alcohol especially rewarding will respond strongly to the way it smells, which can often trigger cravings.
- **Brain chemical levels** – Those who become alcohol dependent may have lower levels of the naturally occurring chemicals that relieve pain and create a sense of exhilaration. They may use alcohol or other drugs to create the sensations they desire.
- **Withdrawal sensitivity** - Genetic traits may influence how severe the withdrawal symptoms are when an individual attempts to reduce or quit alcohol consumption. When symptoms are severe, one is less likely to want to quit.
- **Sweet cravings** – Recent studies have looked at the connection between cravings for sweet, sugary foods, and alcohol dependence. Children of alcoholics often seem to inherit a tendency to become addicted to sweets. Sugar can act as a mood elevator, and children who “self-medicate” with sugar may develop similar cravings for alcohol later in life.

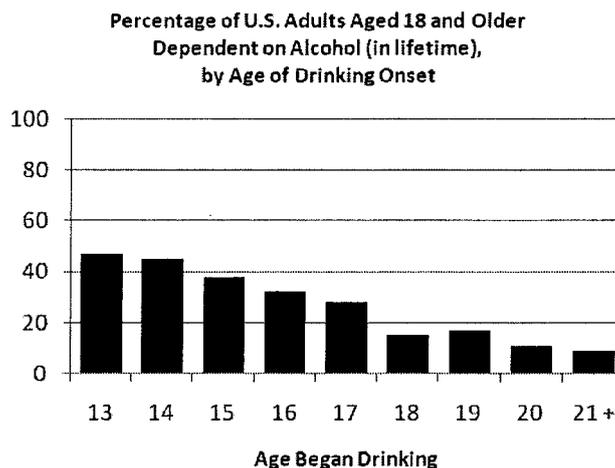
A Combination of Factors

Most experts would agree that it is probably a combination of **all** these factors – family history, personality, environment, and genetic predisposition – that leads to someone becoming an alcoholic.

Interestingly, alcoholism can sometimes appear to skip a generation in families. For example, as a result of exposure to negative alcohol-related behaviors from their parents during childhood, adult children of alcoholics, even though they have inherited the genetic risk for alcoholism, will choose to avoid all use of alcohol for themselves. They may also work hard to prohibit the use of alcohol by their children. However, if their children, who have also inherited the genetic predisposition for alcoholism, use alcohol, they may quickly develop alcohol abuse or addiction.

Early Alcohol Use

According to data from the National Epidemiologic Survey on Alcohol and Related Conditions, early alcohol use increases the risk of developing alcohol dependence later in life. Data analysis shows that approximately half (47%) of individuals who started drinking before age 14 were alcohol dependent at some point in their life, and 13% were dependent in the past year. For those who began drinking after age 20, those numbers are 9% and 2% respectively. This research suggests that the longer you wait to begin drinking alcohol, the less likely you will be to become dependent on alcohol in your lifetime.



In addition to the risk of becoming alcohol dependent, adolescent drinkers may also be harming certain areas of the brain that are still developing and maturing during this time. The prefrontal cortex (an area at the front of the brain involved with decision-making and planning) is one of the last areas to mature, and it undergoes significant changes during adolescence. In fact, the brain is not fully mature until age 25. Research studies suggest that alcohol use by teens and young adults may interfere with brain development, and could cause lasting damage.

RESOURCES

KSU Counseling Services
English/Counseling Services Bldg.
Phone: 532-6927

KSU Alcohol & Other Drug Education Service
Director: Bill Arck
214 English/Counseling Services Bldg.
Phone: 532-6927

Alcoholics Anonymous
Noon Meeting (Mon.-Sat.)
Blue Valley United Methodist Church
835 Church Ave.
Phone: 537-9260

The intent of Higher Education is to provide accurate, timely information representing the current state of alcohol/drug knowledge. Keep in mind that research on these matters continues daily and is subject to change. It is our intention to keep you informed, not to diagnose or treat illness. For personal alcohol and other drug problems, please consult your physician or counselor.

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