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# ANTICRAVING MEDICATION IN ALCOHOL DEPENDENCE-A REVIEW

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## ABSTRACT

*Alcohol dependence* is one of the leading major chronic disorder with high rate of mortality and morbidity in the today's world. For this reasoning, reports of people drinking alcohol for recreational or social purposes may be found in almost every culture throughout history. Alcohol dependency syndrome (ADS), one of the most common mental illnesses treated in institutions, is linked to a significant risk of demise and disability. Relapse prevention is the main focus of alcohol addiction therapy. People with severe alcoholism have a strong desire to drink. The term "craving" comes from the English meaning of "strong desire" or "intense longing." Studies suggested that occasional drinker's reports low craving level.

**KEYWORDS:** Alcohol, Alcohol dependence Syndrome, craving, etc.

## INTRODUCTION

Alcohol is a depressive, which means it slows down critical processes including speech, movement, perception, and reaction time. This may lead to problems such as stammering and awkwardness. In terms of cognitive effects, it is best described as a medication that clouds judgment and impairs logical thought. Despite alcohol's depressant label, its effects are modifiable by the quantity consumed. In moderation, alcohol may have a stimulating impact, but too much of it can have the opposite, depressing, effect.

### What is alcohol?

Beer, wine, and spirits all include different types of alcohol, sometimes referred to as ethanol or ethyl alcohol, which is what makes them intoxicating. Wine is produced when yeast ferments (breaks down without oxygen) the sugar in grapes, beer is produced when yeast ferments (breaks down) the sugar in malted barley, cider is produced when yeast ferments the sugar in apples, and vodka is produced when yeast ferments the sugar in potatoes, beets, or other plants.

### Alcohol content

Beer, wine, and other fermented beverages typically range in alcohol content from 2% to 20%. The alcohol level in distilled beverages, sometimes known as liquor, typically ranges from 40% to 50%.

**Alcohol beverages**

The average amount of alcohol in each beverage is:

| | |
|---|---|
| Beer 2–6% alcohol | Cider 4–8% alcohol |
| Wine 8–20% alcohol | Tequila 40% alcohol |
| Rum 40% or more alcohol | Brandy 40% or more alcohol |
| Gin 40–47% alcohol | Whiskey 40–50% alcohol |
| Vodka 40–50% alcohol | Lique Beer 2–6% alcohol |
| Cider 4–8% alcohol | Wine 8–20% alcohol |
| Tequila 40% alcohol | Rum 40% or more alcohol |
| Brandy 40% or more alcohol | Gin 40–47% alcohol |
| Whiskey 40–50% alcohol | Vodka 40–50% alcohol |
| Liqueurs 15–60% alcohol | alcoholurs 15–60% |

**Metabolism of Alcohol**

Alcohol is absorbed in all tissue and all blood stream

⇩

Metabolised in the liver in 2 stages

1. Alcohol —(***Alcohol dehydrogenase***, ***Acts rapidly***)→ Acetaldehyde*

2. Acetaldehyde —(***Aldehyde dehydrogenase***, ***Acts slowly***)→ Acetic acid

**Local action**

If massaged into the skin, alcohol acts as a moderate rubefacient and counterirritant. It cooled the environment because water is removed. When applied to sensitive areas, such as the scrotum or mucous membranes, it causes discomfort and burning. Do not put sprit or any other highly concentrated alcohol in your mouth, nose, or anywhere else your body's fluids enter. It was injected subcutaneously, and it resulted in severe discomfort, inflammation, and necrosis. If injected near a nerve, it causes permanent damage.

**BENEFICIAL EFFECTS**

Alcohol's complicated consequences on CV disease are well-documented. More than 40 prospective studies in various populations, however, have demonstrated that moderate alcohol usage is inversely associated with coronary heart disease (CHD). There is evidence that mild to moderate alcohol consumption (one to three drinks per day) protects against coronary heart disease and reduces the risk of CHD in both men and women by 10-40% compared to total abstinence. Effects on anti-inflammatory mechanisms may explain why moderate intake lowers cardiovascular risk. Up to three drinks per day, the majority of studies demonstrate a linear reduction in coronary heart disease. Alcohol's positive effects on haemostatic factors and lipids may account for this decrease.

In moderation, alcohol consumption raises "good" HDL cholesterol levels and thus lowers the risk of cardiovascular disease. With regards to the connections between alcohol, myocardial infarction, and HDL levels, the results of previous research with low sample sizes have been somewhat contradictory. In particular, sub-fractional investigations of HDL revealed that $HDL_2$ and a lower risk of myocardial infarction were related, but that $HDL_3$ had a less consistent effect. Results from a few small studies also showed that moderate alcohol use enhanced $HDL_3$ but not $HDL_2$ values.

Alcohol intake may lessen the chance of gaining weight, according to a study of adult nonsmokers in the United States. The connection between drinking and alcoholism was investigated here. According to this study, those who drink heavily—defined as having four or more drinks per day—have a far higher chance of gaining weight or becoming obese. Only those who used 1-2 alcoholic beverages daily increased their risk of obesity by 0.46 and 0.59 times, respectively.

## HARMFUL EFFECTS

### On blood pressure

People that drink everyday in the moderate range often don't detect any changes in hemodynamics. Several studies have found that having more than five beers at once is related with a short-term rise in blood pressure of between 4 and 7 mmHg for systolic blood pressure and between 4 and 6 mmHg for diastolic blood pressure.

Alcohol has a stronger influence on systolic blood pressure (BP) than diastolic BP, as reported by the World Hypertension League (WHL), which may lead to an imbalance between CNS variables, alter peripheral arteries, and lower cardiac output (CO). Many experiments on rats have shown that ethanol causes blood arteries to constrict. A change in the adsorption of calcium ions (Ca2+) in the smooth muscles of the arteries and arterioles may be the cause of the increased sensitivity to endogenous vasoconstrictor.

### On heart and skeleton muscles

Alcohol abuse has detrimental effects on the skeletal system in addition to the striated muscles of the heart. Alcohol is thought to cause comparable injuries to both the skeletal and cardiac muscles because of their similarities. Myofiber fibrosis, interstitial fibrosis, and acute and chronic inflammation are histological findings associated with advanced stages of myopathy caused by heavy alcohol use in both the heart and skeletal muscles.

### On adipose tissue

An organ that stores energy as ATP, adipose tissue also releases hormones and cytokines known as adipocytokines or adipokines, which play a major role in the production of aldehyde dehydrogenase (ALD). Alcohol's influence on adipose tissue and the subsequent rise in Body Mass Index has been shown in a number of observational studies (BMI). One way in which alcohol may cause damage to tissues is by interfering with the innate immune system and the metabolic processes of adipocytes. Moderate alcohol consumption still has an effect on adipose tissue function. Overweight alcoholics have a higher risk of death and illness from liver disease, perhaps due to the proportional increase in visceral adipose tissue associated with heavy alcohol use.

**On the liver**

Steatosis, steatohepatitis, progressive fibrosis, cirrhosis, and hepatocellular carcinoma are all part of the spectrum of liver diseases that go under the overarching concept "alcoholic liver disease" (ALD). ALD is a leading global killer and handicap issue, affecting millions annually.

Hepatic steatosis, or the accumulation of fat inside liver cells (hepatocytes), is the liver's first reaction to heavy alcohol use. An increase in NADH/NAD+ in liver cells, caused by alcohol use, inhibits fatty acid oxidation.

Alcohol abuse leads to fibrosis and eventually cirrhosis of the liver. Consequences include ascites, variceal hemorrhage, bacterial infections, hepatic encephalopathy, and renal failure become more probable as the condition worsens. Despite a thorough understanding of how the disease develops, there is no medication licensed by the FDA that can stop or even slow its development in people.

**On the brain**

Abnormalities in brain structure and function may develop with chronic and heavy alcohol consumption, as is well known. When ingested in excess of safe levels, it has a profound effect on mental function. This may equate to more than 35 units per week for women and more than 50 units per week for males. In some people, especially if they drink at such high rates over long periods of time, alcohol may cause permanent damage to brain tissue (ARBD). A person's health is only one of many things that might be negatively affected by heavy drinking, and addiction is just another.

Alcohol causes chemical changes in the brain and causes brain tissue to shrink, leading to ARBD. People who have been drinking are more likely to trip and get into fights, both of which can result in serious head injuries that may contribute to the onset of ARBD. Numerous studies have shown that excessive drinking raises a person's risk of cardiovascular illness, including their blood pressure, cholesterol, and chance of having a stroke or heart attack. There is a possibility that the brain will be harmed by all of the above. Alcohol-related dementia, often known as alcoholic dementia, is the most prevalent kind of ARBD. Alcohol abuse was shown to be common in both those who abused alcohol and those who developed dementia (studies found a frequency of 9–22% in those with dementia and 10–24% among those who abused alcohol).

**On the endocrine system**

By transmitting signals from one set of organs to another, the endocrine system is essential in preserving homeostasis. Due to the disturbance of the immunological system, neurological system, and endocrine system's communication mechanism, excessive alcohol consumption results in significant hormonal alterations and subsequent behavioural and physiological effects. Plasma renin activity, adrenocorticotropic hormone release, plasma aldosterone, and cortisol levels were all shown to rise after alcohol consumption.

**Factors affecting alcohol consumption and alcohol-related harm**

Drinkers and those around them may be at risk for alcohol use disorders and other alcohol-related difficulties due to a wide variety of circumstances, some of which are unique to the person and others of which are shared by society at large. Societal vulnerability, historical patterns of alcohol use, and alcohol-related harm may be explained by environmental factors such economic development, culture, availability of alcohol, and the amount and efficiency of alcohol regulation.

The evidence shows that the more vulnerabilities a person has, the greater the likelihood that they may develop alcohol issues, however there is no particular risk factor that is dominating.

In the context of public health, vulnerability refers to a person's sensitivity to ill health or disease, which may manifest itself in a number of ways (including alcohol-related issues) on the physical, mental, and social levels.

In addition to one or more risk factors (such as poor diet, insufficient exercise, or cigarette use), it has been shown that susceptible people are more likely to have many risk factors at once.

**Age** - When compared to adults, young persons, and the elderly are more susceptible to alcohol-related damage from even moderate use. Moreover, the chance for alcohol dependency and misuse later in life is enhanced if alcohol consumption is initiated at a young age (before 14 years old), and this is another predictor of poor health.

Monitoring alcohol use and policy responses are broken down by age group because of the inherent risk that comes with increasing age. Restrictions on specific forms of advertising, minimum ages at which alcohol may be purchased, and measures meant to dissuade young drivers from consuming alcohol at all fall under the banner of age-based vulnerability-based alcohol laws.

**Gender** - Women may be more susceptible to the deleterious consequences of alcohol at any level of usage or drinking behaviour, while men between the ages of 15 and 59 who drink heavily are at the greatest risk of dying. Since alcohol consumption among women has been continuously growing with economic affluence and changing gender roles, and because it may have substantial health and social repercussions for infants, the vulnerability of females to alcohol-related harm is an important public health concern. Alcohol contributed to 4.0% of female fatalities in 2012, compared to 7.6% of male fatalities (as described in Chapter 3). In terms of disability-adjusted life years (DALYs), the proportion of the total illness burden that may be attributable to alcohol is also substantially greater in men than in women (7.4% for men vs. 2.3% for women).

**Familial Risk Factors -** Due to genetic and environmental factors, having a family history of alcohol use disorders is a strong predictor of the development of alcohol use disorders in one's own life. A large percentage of the diversity in alcoholism may be attributed to heritable or genetic risk factors. Some people are more predisposed to alcohol's poisonous, psychotropic, and dependence-producing qualities because of the effect of several genes on alcohol's start, metabolism, and reinforcing properties.

**Socioeconomic Status-** Surveys and mortality studies, especially in the developed world, show that people from higher socioeconomic position drink more frequently, have more opportunities to drink, and have safer drinking habits than those from lower socioeconomic status. However, it seems that the concrete issues and repercussions of alcohol drinking are more noticeable among those with lower socioeconomic status (SES).

**Alcohol Dependence**

Substance abuse, including alcoholism, is a complex chronic disease with roots in the individual's biology, their relationships, and their surroundings. "Even while alcohol misuse is likely to have decreased as a result of social and cultural shifts, the rate of alcohol dependency seems to have remained rather stable. When dealing with alcoholism, detoxification and recovery are the two most common approaches. Early detoxification focuses on relieving the most

severe withdrawal symptoms.

Interventions for alcohol intoxication, symptoms of withdrawal, alcohol-related neuropsychiatric disorders (such as seizures and psychosis), comorbid psychiatric disorders, and the initiation and maintenance of abstinence (i.e. relapse prevention) or reduction in alcohol intake are all part of the biological treatment of alcoholism. Several drugs have been studied for these purposes during the last seventy-five years, and a few have emerged as effective therapies for AUDs.

Signs of alcoholism, also known as alcohol dependence, include:
**Craving:** having an uncontrollable urge to consume alcohol, unable to regulate one's drinking, or being unable to restrict one's alcohol consumption on a given occasion.

**Physical dependence:** After a long period of excessive drinking, stopping might cause withdrawal symptoms including nausea, sweating, trembling, and anxiety. Severe alcoholism causes potentially fatal withdrawal symptoms, including convulsions, which often begin 8-12 hours after the last drink. Three to four days after the first symptoms appear, the delirium tremens (D.T.'s) phase occurs, during which the patient becomes deliriously agitated, tremors, hallucinates, and loses all sense of reality.

**Tolerance:** A higher alcohol intake is required for the same effect. A person whose drinking is becoming worse will frequently declare that he can quit anytime he wants, but he never really does.

To become an alcoholic is not a final goal but the beginning of a protracted, downward spiral in which one's quality of life steadily diminishes.

**Alcohol Effects**

**Short term**

Drinking alcohol may have negative effects on health, although the severity of such effects depends on factors including how much is consumed and the person's overall health:

- Speech slur
- Drowsiness
- Vomiting
- Diarrhea
- Trouble digesting
- Headaches
- Difficulty in taking a breath

**Long term**

Large quantities of alcohol use are linked to a number of health issues, including:

- Accidental injuries including drowning, burns, falls, and automobile crashes
- Victims of intentional acts of violence, such as shootings, sexual assaults, and family violence
- Increased work-related injuries and decreased output
- Rapidly deteriorating domestic strife and strained relationships
- Alcoholic poisoning

- Cardiovascular illnesses include high blood pressure and stroke
- Hepatic dysfunction
- Broken nerves
- Diseases relating to sex issue
- Risk of irreversible brain injury
- Deficiency of vitamin B1, which may cause a syndrome of memory, lethargy, and disorientation.
- Ulcers
- Gastritis (inflammation of stomach walls)
- Malnutrition
- Pharynx and oral cancer.[28]

**Craving Agents**

It is commonly acknowledged that a knowledge of desire is crucial to comprehending the pathophysiology and maintenance of addiction, as well as the processes behind relapse or restart of drinking. The term "craving" is often used to describe the intense desire to once again feel the effects of a psychoactive drug. Despite the apparent clarity of this description, many other notions of desire are employed in the academic and clinical literature and practice. There has been some debate on whether or not seeking is primarily an emotional (e.g., subjective) reaction (e.g., want or urge), physiological (e.g., pulse rate) response (e.g., the sympathetic nervous system activity), or cognitive (e.g., selective attention bias) reaction (e.g., mood) to an internal (e.g., mood) or external stimulus (e.g., alcohol odor). There is also a chance that these seeking characteristics represent various yearning (sub) types or related craving elements.

An alternate theory proposes that the rewarding benefits of alcohol and drugs trigger alcohol need. The ventral striatum's opioidergic and dopaminergic neurotransmission is involved in alcohol craving.

In most cases, it is assumed that alcoholics' cravings stem from one of two places: a desire to enjoy alcohol's euphoric effects or a fear of experiencing alcohol withdrawal. Other theories have proposed other critical components of craving, such as the motivation and drive to drink, the inability to limit one's alcohol consumption, and an obsession with drinking. To avoid confusion, the word "craving" is recommended to be used simply to describe a "strong urge" to consume a substance, regardless of the model used to comprehend it. Depending on how long they cover, measures of desire may be classified as either state or global. Condition measures inquire about the patient's immediate desiring state, whereas global measures cover longer time periods, such as a day, a week, or a month. There are a number of possible advantages to include monitoring of cravings in standard therapeutic practice. Patients' abilities to notice and monitor their own internal states associated to drinking may be improved via its evaluation, which can then be used to guide recommendations for therapy as well as judgments about the severity and length of that treatment. Anti-desire medications, like as naltrexone, have shown the best success with alcoholics who report the highest levels of craving, according to studies.

**CONCLUSION**

Alcohol dependence is one of the leading major chronic disorder with high rate of mortality and morbidity in the today’s world. So, throughout human history, there has been evidence that people have used alcohol to unwind or

socialize. Without exaggeration, it can be said that alcohol dependency syndrome (ADS) is one of the mental problems that doctors treat the most often and that it has a significant risk of mortality and impairment.

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