

# Alcohol Dependence (Alcoholism)



## Yesterday

- Thirty years ago, little was known about the genetic basis of alcohol dependence, or the nervous system changes that occur as a result of prolonged heavy drinking.
- Alcohol dependence was thought to be a disease of middle age.
- Disulfiram (Antabuse®) was the only medication approved for treating alcohol dependence. Antabuse® produces acute sensitivity to alcohol. This sensitivity causes a highly unpleasant reaction when the patient ingests even small amounts of alcohol.
- Other treatments included various behavioral approaches, mostly group counseling and referral to Alcoholics Anonymous (AA). These treatments were only offered in intensive programs provided at specific locations separated from mainstream health care.
- NIH-supported research demonstrated that relatively few people with alcohol dependence ever received treatment.

## Today

- NIH-supported researchers have identified genes that increase an individual's risk for becoming alcohol dependent, as well as genes that protect against alcohol problems.
- The neural basis of alcohol dependence was clarified. Research showing that drinking is influenced by multiple neurotransmitter systems, neuromodulators, hormones, and intracellular networks provides evidence of a number of potential target sites for which new medications may be developed.
- Multiple excellent animal models provide valuable tools for today's researchers.
- Clinicians have access to a wide range of treatment options that can be tailored to patients' specific needs, and a broad array of drinking problems can be effectively treated by non-specialists.

- Screening and Brief Intervention – one to four repeated short counseling sessions focused on increasing motivation to reduce drinking – has recently emerged as an effective strategy for addressing high-risk drinking.
- Investigators developed screening tools that allow clinicians to quickly and reliably determine if their patients' alcohol consumption patterns place them at risk for future adverse consequences. Studies show that brief interventions delivered in trauma units can reduce subsequent drinking and injuries. Brief interventions with high-risk college students successfully reduce alcohol consumption and/or the related consequences.
- Efforts to develop medications for alcohol use disorders have expanded rapidly in recent years. In addition to disulfiram, naltrexone and acamprosate are now approved for use in treating alcohol dependence. Naltrexone and acamprosate reduce relapse to heavy drinking in people who want to quit by normalizing brain dysfunction caused by alcohol dependence.
- When used in conjunction with behavioral therapies, medications improve the chance for recovery and the lives of those who suffer from alcohol dependence.
- Several behavioral approaches, such as motivational enhancement therapy, cognitive-behavioral therapy, and Twelve-Step facilitation, are effective in treating alcohol dependence, offering the patient and therapist a choice of approach. Brief counseling by a health professional combined with medication recently was found to be as effective as specialized counseling. Thus, it may be possible to provide access to effective treatment to many more people in primary care and mental health clinics.
- Recent studies have shown that alcohol-dependent individuals have exceptionally high rates of co-occurring psychiatric disorders and poorer prognosis in treatment. Researchers are evaluating the efficacy of various pharmacotherapies and behavioral treatments for these populations.

## Tomorrow

**The future holds promise for a substantially reduced public health burden of heavy drinking to our society, through carefully targeted behavioral and pharmacological therapies for individuals who develop alcohol dependence.**

- An important direction for medications development research lies in pharmacogenetic research—the identification of genetic subtypes of alcohol dependence that respond to specific pharmacologic agents. The recent discovery of specific genetic variants that may contribute to the risk for alcoholism could help define sub-sets of alcohol dependent individuals who respond to a specific therapeutic agent. Other studies will pursue biobehavioral markers of therapeutic response through human laboratory studies.
- *Improved treatment for comorbid alcohol-dependent individuals.* Ongoing studies seek to determine how best to diagnose and treat alcoholics with comorbid psychiatric disorders. Under investigation is research on potential genetic, psychological and biochemical correlates of alcoholic comorbidity that may lead to the identification of clinically useful biomarkers and new molecular targets for treatment. Other studies will pursue the optimal integration and sequencing of treatments to improve compliance and enhance treatment outcome.

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