

Alcohol Information and Education

How Alcohol Affects Us

Almost all of us have heard that alcohol is a drug, but many of us do not think of the act of drinking alcohol as putting a drug into our bodies. It is important for people to understand that alcohol use impairs judgment, the peripheral nervous system (which controls motor skills), and the functions of the brain.

How does impairment happen?

When a person drinks alcohol, it enters the bloodstream. The molecular structure of alcohol (ethanol, to be specific), is small and it can be absorbed or transferred into the blood through the walls of the stomach and the small intestine.

The stomach has a relatively slow absorption rate; it is the small intestine that absorbs most of the alcohol. This is why we want to keep the alcohol in the stomach as long as possible by eating food, which dilutes the alcohol and keeps it from entering the small intestine so quickly.

Alcohol also affects different people in different ways. Some of the characteristics that determine the effects of alcohol for an individual include the following:

- Body Weight/Body Mass Index (BMI) - Not only heavier but more muscular individuals have more blood to dilute the alcohol, resulting in a lower blood alcohol concentration (BAC).¹
- Gender - Women produce less of the alcohol metabolizing enzymes ADH and ALDH, meaning that it takes a woman longer to breakdown the same amount of alcohol than a man of equal size.² Women also generally have more body fat and less body fluid than men.¹ Less body fluid to dilute the alcohol means a higher BAC.
- Full/Empty Stomach - Caloric content in the stomach slows the release of its contents into the small intestine. This means that diet sodas, which contain artificial sweeteners, when used as mixers are released much quicker into the small intestine than their calorie rich counterparts. i.e. the alcohol can enter your blood stream faster.³
- Type of Food or Drink in the Stomach - For example, protein slows the stomach's release of substances into the small intestine and the subsequent alcohol absorption, more than any other kind of food.
- Speed of Consumption - Faster consumption (e.g. chugging, shooting) results in a higher peak BAC.
- Use of Medication or Other Drugs - For example, Acetaminophen competes with alcohol for breakdown sites in your liver, and acute liver failure can result as the organ struggles to break down both drugs.⁵ The use of drugs, prescription or otherwise, may intensify or alter the *effects* of alcohol, but they do not change a person's BAC level.

Once alcohol gets into the bloodstream, it moves through the body and comes in contact with virtually every organ. Alcohol easily crosses the blood-brain barrier where it has some of the greatest impacts. These are discussed in the next section.

It is important to know that the body is quite efficient when it comes to processing alcohol. The liver is designed to metabolize the majority of alcohol as we drink it. Enzymes break down the alcohol into harmless products that are then excreted. However, the liver can only process so much alcohol at a time. For a person of average weight and body type, the liver and small intestine can process alcohol at a rate of about one drink per hour. If a person drinks at a faster rate than one drink per hour, the alcohol simply stays in the blood, waiting its turn to be metabolized. Since there is more alcohol in the body than can be metabolized, the result is increasing levels of intoxication.