



# Center for Behavioral Health Studies

## Medical Consequences of Alcohol Abuse

### The Mechanism of Alcohol Damage

Studies on the medical consequences of alcohol abuse have shown alcohol affects practically every system, every organ and every tissue in the body to cause a great variety of disorders. There is growing evidence that there may be a basic mechanism of cellular damage that is common to all sites which involves damage to the cell membranes.

Research has shown that alcohol freely penetrates these cell membranes and, in doing so, disrupts their molecular organization. Disorganization of the cell membrane by alcohol can disturb the function of enzymes located in the membrane, many of which are involved in the movement of nutrients and electrolytes through the cell membranes.

### Effects On The Digestive System

- The Stomach

The first system that comes into contact with alcohol is the stomach which is the body's major digestive organ. When alcohol enters the stomach it can alter the stomach lining and affect stomach functioning. Recent research indicates that a substantial amount of alcohol metabolism can occur in the stomach only when alcohol is consumed at low or moderate doses.

- The Intestine

Alcohol affects nutrition in two ways: by interfering with the intake of adequate food (primary malnutrition) and by interfering with the absorption of nutrients from the small intestine (secondary malnutrition) and their subsequent use by the body. Empirical evidence has shown vitamin deficiencies are frequently seen in alcoholics.

- The Liver

Damage to the liver, the primary site of alcohol metabolism, can occur if alcohol consumption is frequent and heavy. The principal liver disorders associated with chronic heavy drinking are fatty liver, alcoholic hepatitis, and cirrhosis—an irreversible condition in which normal liver tissue is replaced by scar tissue. Alcohol abuse is the leading cause of cirrhosis in the United States, and cirrhosis is the ninth leading cause of death in this country.

### Effects on the Cardiovascular System

Heavy alcohol consumption increases the risk of death from coronary heart disease and other cardiovascular diseases.

Two recent studies have shown that acute alcohol consumption causes reduced contractility of the heart even in young adults, perhaps as a result of direct effects on the heart muscle. The weakening effect on the heart contraction depends on the alcohol dose, with the change being more pronounced when at rest than during periods of exercise.



Although the effect is small in healthy, non-alcoholic individuals, it can cause major complications for people with heart disease.

Several population studies have found associations between elevated blood pressure and alcohol consumption. Subjects who already had problems with high blood pressure had even higher elevation levels after consuming alcohol. This finding that

alcohol aggravates high blood pressure has been corroborated in several studies.

**Protective Effects of Drinking Questioned**

Evidence of any “protective effect” has recently been questioned on conceptual and methodological grounds. A major criticism is that while alcohol does raise the levels of certain high-density lipoproteins in the blood, it does not raise the level of the particular kind of high-density lipoprotein

that is believed to protect against coronary heart disease.

**Effects on the Immune System**

Chronic alcohol abuse is associated with an individual’s increased susceptibility to several infectious diseases and certain kinds of cancers. In fact, acute and chronic doses of alcohol have been shown to suppress all parts of the immune system, and it is likely that these effects are involved in the increased susceptibility of alcoholics to infectious diseases.

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