



Alcohol

:: FACTS AND EFFECTS ::

ALCOHOL ADVISORY COUNCIL OF NEW ZEALAND
Kaunihera Whakaturupato Wāipiro o Aotearoa



Effects of alcohol

The kind of alcohol we drink is called ethyl alcohol. It is one of the family of alcohols. Most alcohols are highly poisonous to humans, but ethyl alcohol can be tolerated in the human body in small amounts.

When people start drinking they initially feel relaxation and pleasure. As the blood alcohol level rises, it slows the body's reactions down. This is why it's classified as a sedative-hypnotic drug. People can get into trouble when they drink a lot of alcohol very quickly; this may result in alcohol poisoning.

People can and do die of alcohol poisoning, but only if their blood alcohol concentration is at least 350mg per 100 millilitres of blood, which is more than four times the legal limit for driving. An average man would reach this concentration if he drank a 750ml bottle of whisky in less than one hour.

When alcohol is swallowed it passes more or less unchanged into the bloodstream through the walls of the stomach and small intestine. Only minutes after drinking, the circulation system begins distributing the alcohol to every part of the body. From the stomach and the intestine, the alcohol travels to the liver where it is ultimately broken down by enzymes into other products such as water and carbon dioxide.

These products are mainly eliminated from the body in the urine.

The liver does this job at a slow, constant rate. It takes one to two hours to process one standard drink. So when people drink alcohol faster than the liver breaks it down, alcohol concentration increases in the blood.

As the alcohol travels around the body via the bloodstream, it starts to slow down the operation of various sorts of cells. This causes the familiar symptoms of different stages of intoxication and drunkenness – relaxation, laughter, slurred speech, inability to walk straight, and impaired judgement and co-ordination. Because bigger people have more water in their bodies than smaller people, the same amount of alcohol is more diluted in their bodies and they will tend to get drunk more slowly.

The rate of intoxication also depends on other factors like gender. Women are affected more rapidly than men, because of their generally lower bodyweight, and smaller volume of blood. Also, the enzyme called alcohol dehydrogenase which acts to break down alcohol in the stomach is 70-80 percent less effective in women.

Eating food before or during drinking slows the rate alcohol is absorbed into the body.

Immediate physical effects of heavy drinking

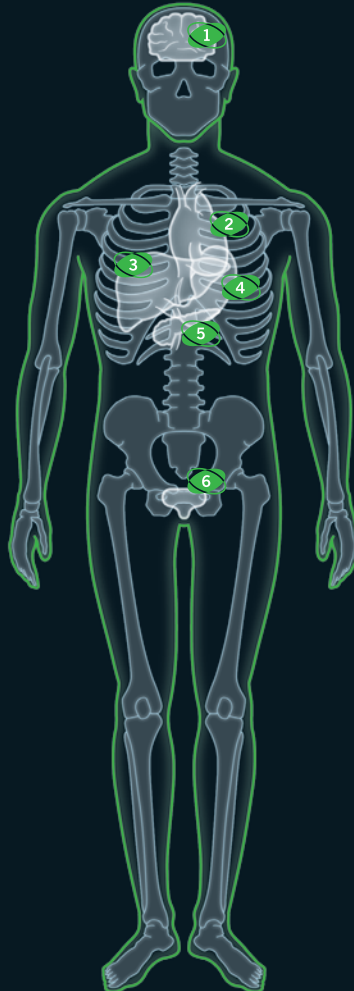
Long term physical effects of heavy drinking

(1) **BRAIN**
The action of the brain is slowed down causing changes in inhibitions and self-control

(3) **LIVER**
The liver begins to remove alcohol from the blood

(4) **STOMACH**
Heavy drinking stimulates sentry receptors which send a message to the vomit centre in the brain

(6) **SEXUAL ORGANS**
Effects sexual performance by inhibiting the physical responses of the sexual organs



BRAIN (1)
The brain cells may be damaged by drinking large amounts of alcohol often

HEART (2)
Increased risk of heart disease

LIVER (3)
Diseases such as hepatitis and cirrhosis can occur

STOMACH (4)
Upsets and gastritis may be caused by heavy drinking

PANCREAS (5)
Pancreatic disease and onset of diabetes may occur

SEXUAL ORGANS (6)
Inhibits sexual drive, can cause testicular shrinkage, irregular menstruation and premature menopause

HANGOVERS

A hangover can be described as the body's 'rebounding' from the effects of alcohol. It is partly due to

dehydration, as alcohol directly stimulates the excretion rate of kidneys and the formation of urine.

What is it?

There are three main types of alcoholic drink; beer, wine and spirits. In all three, the alcohol is produced by the same chemical process. The sugar and water found in ripe fruits, grains or vegetables is combined with yeast and fermented to produce alcohol and carbon dioxide.

The yeast builds up a concentration of alcohol and when it reaches about 15 percent, the alcohol kills off the yeast so that it cannot ferment anymore. This means that drinks with more than 15 percent alcohol content have had extra alcohol added, usually obtained by distillation. Beer is the main alcoholic beverage drunk in New Zealand and usually has about five percent alcohol. Wine has around 12-14 percent alcohol, and fortified wine such as sherry and port about 18 percent. Spirits such as whisky, gin and brandy have about 40 percent alcohol. Ready-to-drink (spirit-based drinks) are usually around five percent.

It is helpful to know how much alcohol is in what we drink. To help us work this out we refer to 'standard drinks'. Each standard drink contains 12mls (10 grams) of pure alcohol.

Alcohol is a poor source of carbohydrates compared to some foods, but it has a lot of calories packed into it. The calories content of each standard drink may range between 60-200.

Sweet wines have a lot of sugar, and the calories in a standard drink of sweet wine may total over 100. One way to reduce calorie intake to the desired level may be to drink less.

Alcoholic beverages do not contain significant amounts of protein and vitamins, which are vital ingredients of the human diet, and so alcohol cannot be regarded as a substitute for food.

As a general guide, a sensible upper limit for adult men is no more than six standard drinks on any one occasion; for adult women no more than four standard drinks on any one occasion. In any one week, it is recommended that men drink no more than 21 standard drinks and women no more than 14 standard drinks. These guidelines do not apply in all situations, for instance when driving or pregnant.

TIPS FOR SAFER DRINKING

- :: Quench your thirst with a non-alcoholic drink.
- :: Eat before you drink, especially if you plan to party.
- :: Drink alcohol slowly.
- :: Alternate alcoholic and non-alcoholic drinks.
- :: Arrange safe transport home.
- :: Look after your friends.

Standard Drinks ▶ Know how much alcohol you're really drinking

WHAT IS A STANDARD DRINK?

Standard drinks measure the amount of pure alcohol you are drinking. One standard drink equals 10 grams of pure alcohol.



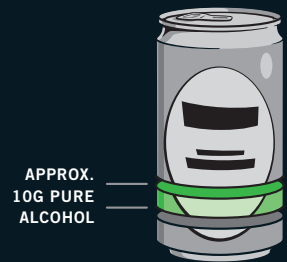
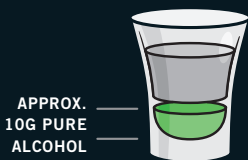
THE AMOUNT OF ALCOHOL

It's not the amount of liquid you're drinking that's important – it's the amount of alcohol. If you drink: 30mls of straight spirits or a 100ml glass of table wine or a 330ml can of beer – you are drinking approximately 10 grams of pure alcohol, depending on the alcohol percentage (see below). Each of these is a standard drink.

Standard Drinks measures the amount of alcohol, not the amount of liquid you're drinking – because it's the alcohol content that's important to track.

Because drinks have different amounts of alcohol in them, the number of standard drinks in each bottle, can or cask will be different.

30ML OF STRAIGHT SPIRITS OR 100ML GLASS OF TABLE WINE OR 330ML CAN OF BEER



HOW MANY STANDARD DRINKS ARE THERE IN WHAT I'M DRINKING?

You'll find the standard drinks content on the label of each bottle, can or cask. If the label shows that your bottle of beer contains 1.5 standard drinks, then you're drinking 15 grams of pure alcohol. If the bottle of spirits contains 32 standard drinks and you pour it into 16 glasses, each glass will contain two standard drinks, even if you add a mixer to it.

Look on the label to see how many standard drinks there are in what you are drinking.



Costs

There can be two main costs of alcohol consumption – problems caused by drunkenness that occur soon after drinking, and those that occur as a result of heavy drinking over a long period of time.

Both these types of problems can affect not only the individual but also other people and organisations, such as families, hospitals and police.

ACUTE HARM

It is estimated that alcohol was responsible for 3.9% of total deaths in 2000 in New Zealand, approximately 1,040 people.¹

Half of all deaths attributable to alcohol were through injuries caused by accidents such as drowning, falls, sports injuries, work related injuries, violence (domestic and social) and self inflicted injuries. Most alcohol related deaths before middle age were due to injuries.

When ethnicity is taken into account, the costs for Māori are disproportionately high, with the alcohol-related death rate for Māori 4.2 times the rate for non-Māori.¹ Although average alcohol consumption is similar between the two groups, the difference lies in the average amount consumed per occasion, with Māori

tending to drink less often, but consuming more per occasion than non-Māori. This pattern of drinking carries a much higher risk of acute harm.

PREGNANCY

Pregnant women who drink are at increased risk of giving birth to children with irreversible damage – fetal alcohol spectrum disorder (FASD). Therefore, it is safest for women not to drink any alcohol during pregnancy or while trying to get pregnant.

MOTOR VEHICLE CRASHES

In 2006 driver alcohol was a contributing factor in 93 fatal traffic crashes, 403 serious injury crashes and 1122 minor injury crashes. These crashes resulted in 103 deaths, 551 serious injuries and 1747 minor injuries. The total social cost of crashes involving driver alcohol was about \$725 million that is about a fifth of the social cost associated with all injury crashes

OTHER COSTS

Relationship problems, financial worries, crime, depression, disease – all of these can result from drunkenness or heavy drinking.

¹ Connor J, Broad J, Jackson R, Vander Hoorn S, Rehm J: *The burden of death, disease and disability due to alcohol in New Zealand*. Wellington: Alcohol Advisory Council of New Zealand, 2005.

Benefits

In New Zealand we estimate that alcohol harm costs somewhere between \$1 billion and \$4 billion a year. It costs the public health sector \$655 million. It costs in crime and related costs \$240 million. It costs in social welfare \$200 million and in other government spending \$330 million. In lost productivity, it costs about \$1.17 billion a year.²

LONG-TERM HEAVY DRINKING

This can cause major damage to the brain, the central nervous system, the digestive system, the heart and the liver. There is also an increased risk of some forms of cancer.

As a result, heavy drinkers die earlier than moderate drinkers or life-long abstainers.

Many heavy drinkers also have psychiatric problems and are more prone to depression and suicide than other people. About 10 percent of drinkers become dependent on alcohol.

Many adult New Zealanders enjoy drinking alcohol on social occasions. Alcohol is used frequently as a gesture of hospitality.

Small amounts of alcohol (one to two standard drinks a day) have been shown to benefit those middle-aged people at risk of certain heart diseases. Most of the benefits of alcohol consumption are individual and immediate, occurring as you drink.

DID YOU KNOW?

- :: The average amount spent on alcohol per household in 2006/2007 was \$19.00 per week.³ This is more than the amount spent on fruit and vegetables per household per week.
- :: Black coffee, cold showers or fresh air do not sober you up. There is no way to increase the rate at which the body gets rid of alcohol.
- :: Aspirin reduces the effect of alcohol dehydrogenase, an important enzyme for processing alcohol in the body.

² Eastern B: *Taxing Harm: Modernising Alcohol Excise Duties*. Wellington: Alcohol Advisory Council of New Zealand, 2002.

³ Statistics New Zealand, Household Expenditure Survey, 2007.

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FOR HELP, CONTACT THE ALCOHOL AND DRUG HELPLINE ON 0800 787 797