

# DANGERS OF → ALCOHOL

AKA > BOOZE, PLONK, GROG, JUICE, TURPS...



## WHAT IS ALCOHOL?

Alcohol is a depressant drug, not a stimulant as is often thought. Its effect is to slow down the central nervous system, including the brain.<sup>1</sup>

The active ingredient in alcohol is ethyl alcohol (ethanol), a clear colourless substance that can be produced synthetically or naturally by fermenting fruits, vegetables or grains.

Alcohol is absorbed into the bloodstream from the stomach, and moves to the liver, where it (one standard drink per hour) is broken down into acetaldehyde. Acetaldehyde is a poison which irritates cells and, in strong doses, causes damage to the brain.<sup>2</sup>

## WHAT IS A 'HANGOVER'?

A 'hangover' is the name given to the symptoms of acetaldehyde poisoning (a substance created when alcohol is broken down in the body). It's our body's way of warning us of the damage – or poisoning – being caused by excessive use.<sup>3</sup>



Alcohol is a depressant drug that slows down the nervous system, produced by fermentation of fruits, vegetables or grains.

A 'hangover' describes the symptoms of alcohol poisoning in our body, our body signalling the damage we're doing by drinking to excess.

Drinking too much decreases our ability to absorb important nutrients from food.

## NUTRITION

Alcohol makes us less able to break down and absorb important nutrients from our food. Many people who drink to excess are prone to poor nutrition because they tend to choose alcohol over food.<sup>4</sup> As a result, they may have used up their nutrient stores



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and be drawing on their own tissues for fuel. Loss of electrolytes and vitamin deficiency are just two of the negative effects.<sup>5</sup>

## LIVER DISEASE

The liver processes 90% of the toxic substances in the body.<sup>6</sup> Liver disease resulting from alcohol use is a major cause of illness and death. Fatty liver is the most common problem, this can be treated by abstaining from alcohol. More serious diseases include alcoholic hepatitis, which involves inflammation of the liver; and cirrhosis, which causes scarring of liver tissue. These conditions can be fatal, and there are few choices for treatment.<sup>7</sup>

US research indicates that around 10-35% of heavy drinkers (5-6 standard drinks a day) develop alcoholic hepatitis and 10-20% develop cirrhosis.<sup>8</sup> Alcoholism and alcoholic liver cirrhosis are the cause of around 1,000 deaths in Australia each year, and more than 25,000 hospitalisations.<sup>9</sup>



ABOVE, L TO R > A healthy vs alcoholic liver

Usually alcoholic cirrhosis occurs after more than ten years of heavy drinking, but this is not always the case. Some heavy drinkers develop cirrhosis much more quickly simply because their livers are more sensitive to alcohol than others.

The risk of cirrhosis increases the more alcohol is consumed. One study concluded that 54% of unspecified liver cirrhosis in males and 43% in females was related to alcohol.<sup>10</sup>

There is some evidence that even moderate drinking could cause damage to the liver. In women, as few as 2-3 drinks a day have been linked to cirrhosis, and in men, as few as 3-4 drinks per day.<sup>11</sup>

In a 1999 New York study, people who had rich diets supplemented with vitamins and minerals were given an amount of alcohol each day that was less than what is required to cause intoxication. After 18 days, subjects showed an eight-fold increase in liver fat, the precondition of cirrhosis. When you burn alcohol, you are not burning fat.<sup>12</sup>

The alcohol burning reaction causes the liver to produce 5-10 times more of a cancer causing enzyme that causes liver injury.<sup>13</sup>

**ALERT**

Liver disease resulting from alcohol use is a major cause of illness and death. Even low-risk drinking may be linked with liver disease.





## MENTAL HEALTH

Alcohol misuse is believed to contribute to a number of mental health conditions including alcoholic psychosis, alcohol dependence syndrome and alcohol-related dementia. Long-term heavy drinking is also a risk factor for depression and anxiety.<sup>14</sup>

## BRAIN DAMAGE & MEMORY LOSS

With developments in imaging technology, studies have revealed a consistent link between heavy drinking and physical brain damage. The shrinkage of the brain, which exceeded normal shrinkage with age, seemed to be most marked in the part of the brain associated with higher intellectual functions. However, it was also observed in areas associated with memory, coordination and balance.<sup>15</sup>

US studies indicate young people who binge drink could be risking serious damage to their brains and increasing memory loss later in life. Adolescents may be even more vulnerable to brain damage from excessive drinking than older drinkers.<sup>16</sup>

Women face greater memory loss than men. Two recent studies suggest that women tend to develop brain 'shrinkage' and damage to their memory capabilities much faster than men who drink.<sup>17</sup>

Some alcoholics would rather drink than eat, and over time they suffer from a Vitamin B (thiamine) deficiency. Prolonged Vitamin B

deficiency causes brain damage known as Korsakoff's syndrome. Victims suffer from apathy, confusion and profound memory impairment.<sup>18</sup>

## SEXUAL FUNCTION

When alcohol is broken down in the body, it seems to change the balance of reproductive hormones in men and women. In men, evidence suggests alcohol is toxic to the testes, causing reduced testosterone levels. It may also interfere with normal sperm structure and movement.<sup>19</sup> In a study of normal healthy men who received large amounts of alcohol daily for 4 weeks, testosterone levels declined after only 5 days and continued to fall throughout the study period.<sup>20</sup> Long-term testosterone deficiency may contribute to feminisation in males, such as breast enlargement.<sup>21</sup>



### ALCOHOL alert

**Heavy drinking is linked to brain shrinkage and memory loss. Effects to memory could be worse for young people and women.**

**Alcohol use seems to affect the normal functioning of sex hormones in both men and women.**



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## Alert

Some studies suggest women who drink are at a slightly increased risk of contracting breast cancer.

Moderate drinkers may be at greater risk of stroke than non-drinkers.

Heart disease and high blood pressure have been associated with alcohol abuse.

Chronic, heavy drinking in women may be a factor in causing menstruation to stop, irregular cycles, failure to ovulate and increased risk of spontaneous abortions.<sup>22</sup> Some of these problems were also found in women who would be considered social drinkers, who drank about three drinks a day in a 3-week study. A significant number had abnormal menstrual cycles and a delay or lack of ovulation.<sup>23</sup>

## BREAST CANCER

There is some evidence suggesting women may be at increased risk of breast cancer from even moderate amounts of alcohol. A review in 1994 found that one alcoholic drink per day was associated with an 11% increase in the risk of breast cancer compared with non-drinkers.<sup>24</sup> Numerous studies suggest a small (averaging

10%) increased risk. Risk appears to increase as amount increases, yet other studies find no evidence of a link.<sup>25</sup>

## OTHER CANCERS

Research has shown a link between alcohol consumption and certain types of cancer, with risk increasing with levels of alcohol consumed. The strongest links relate to cancer of the upper digestive tract (mouth, pharynx, larynx and oesophagus). Less consistent data links alcohol consumption and cancers of the liver and colon.<sup>26, 27</sup>

## STROKE

A study by Finnish researchers compared the drinking habits of 212 hospitalised stroke patients with 274 patients admitted for other reasons. They found that moderate or heavy drinking was a significant and independent risk factor for strokes in men. Patients who consumed 13-25 drinks in the week prior to admission were at four times higher risk of stroke, compared with non-drinkers.<sup>28</sup>

## HEART DISEASE

Alcohol misuse is associated with heart disease and may contribute to high blood pressure, haemorrhagic stroke and heart failure. It is estimated around 11% of male and 6% of female high blood pressure cases can be attributed to drinking too much alcohol.<sup>29</sup>



An Austrian study also found that regular consumption of more than 100mg of alcohol per day (eg. 10 standard drinks) was a risk factor for early development of deposits that clog the arteries.



**ABOVE, L TO R >** Healthy heart vs alcoholic heart. The heart is enlarged because the muscle has lost its elasticity and is covered with deposits of unhealthy fat.<sup>30</sup>

## KIDNEY DISEASE



**ABOVE, L TO R >** Healthy kidney vs alcoholic kidney. These photographs reveal shrinkage and scarring to the kidneys due to parts of the tissue being destroyed through the strain of eliminating alcohol.<sup>31</sup>

## BONE STRUCTURE

Alcohol can interfere with calcium and bone metabolism in several ways. Acute alcohol consumption can lead to increased loss of calcium in the urine. Studies in alcoholics have shown that alcohol is directly toxic to bone forming cells.<sup>32</sup>

## DEATH

Abuse of alcohol is one of the main causes of preventable death in Australia. During 1997, it is estimated that 3,290 Australians died from injury and disease caused by heavy drinking and that 72,302 were admitted to hospital.<sup>33</sup>

## PREGNANCY

Pregnant women who drink large amounts of alcohol may be risking a range of negative effects to the foetus. The most severe include gross abnormalities at the time of birth and foetal alcohol syndrome – including physical abnormalities, slowed growth rates

**ALCOHOL alert**

Heavy drinking during pregnancy is strongly linked with negative effects to the unborn foetus.

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and neurological dysfunction with delayed development. The effects of low risk drinking are less obvious, but may include abnormalities and subtle behavioural problems – for example, decreased motor skills and decreased academic achievement.<sup>34</sup>

## HEALTH PROBLEMS ARE NOT THE ONLY RISKS!

**Quality of life** is affected by alcohol use. Some people have sex when they have been drinking and regret it when they sober up. People who have been drinking are more likely to have **unsafe sex** that can result in pregnancy or sexually transmitted diseases.<sup>35</sup>

High blood alcohol levels are a factor in one third of all **road accident deaths**.<sup>36</sup>

The 1996 Women's Safety Australia Survey by the Australian Bureau of Statistics showed that around 40% of physical and sexual **assaults on women** in the past 12 months involved alcohol. A review of **domestic violence** incidents attended by NSW Police in 1991 also reported 40% as alcohol-related.<sup>37</sup>

It has been estimated that total **lost production** in the workplace arising from alcohol misuse was \$1.7 billion in 1992.

Research has shown that **absentee rates** for high risk drinkers were greater than that for the general population, with 14.7% of high risk drinkers absent from work compared with 8.6% of low risk drinkers.

## ALCOHOL alert

Alcohol abuse is linked to a wide range of other problems such as road accidents, domestic and other violence, child abuse, reduced productivity and absenteeism.

If you drink alcohol, it's important to keep within recommended guidelines for safe drinking.

It was estimated that the **economic cost** of alcohol misuse to the Australian community in 1992 totalled \$4.7 billion.<sup>38</sup>






## HOW MUCH IS TOO MUCH?

One standard drink = alcoholic soda 3/4 of a 330 mL bottle, one nip (30 mL) spirits, 1 small glass wine (100 mL), 1 schooner of low alcohol beer (425 mL), 1 'middie'/'pot' regular beer (285 mL).

Recommended levels for low-risk drinking are as follows:

- **For men**, no more than 4 standard drinks a day, and no more than 28 over a week. No more than 6 standard drinks during any one occasional heavy drinking day. At least two alcohol free days a week.



LIGHT BEER	ORDINARY BEER	WINE	SPIRITS	PORT/ SHERRY
				
1 schooner 425 mL 2.7% alcohol	1 middie 285 mL 4.9% alcohol	1 glass 100 mL 12% alcohol	1 nip 30 mL 40% alcohol	1 glass 60 mL 20% alcohol

**Note:** Medium strength beer contains an average of 3.5% alcohol.  
A schooner of medium strength beer is just over one standard drink.

- **Women**, an average of no more than 2 standard drinks a day, and no more than 14 standard drinks in a week. No more than 4 standard drinks in any one occasional heavy drinking day. At least two alcohol free days a week.

Harmful use of alcohol – drinking in excess of the above guidelines – may cause physical or mental damage.

An adult liver can metabolise, or break down, one standard drink an hour (see diagram for standard drink measures). Drinking at a greater rate than this accumulates ethanol in the bloodstream. Nothing can make the liver work faster than

its set rate – not coffee, cold showers, exercise, sleep or vomiting. Vomiting only gets rid of alcohol in the stomach that hasn't yet been absorbed into the bloodstream.

Children and teenagers absorb alcohol faster, and metabolise it less efficiently than adults.<sup>39</sup> There is evidence that adolescents may be more vulnerable to brain damage from excessive drinking than older drinkers.<sup>40</sup>

Women also get drunk quicker, may become addicted sooner, may develop alcohol-related problems more quickly, and may die younger than men with similar drinking problems.<sup>41</sup>

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## Alert

Alcohol is addictive, and many people find it difficult to control the amounts they drink. Many choose not to drink alcohol at all.

Around 10% of people drink at dangerous levels. Do you have a problem with alcohol?

## MODERATION MAY BE DIFFICULT

Because alcohol is an addictive substance, many people find it difficult to drink moderately.

Non-drinking is always the best option, and for some people it's the only option. Around 1 in 5 Australian adults don't drink at all.

## DO YOU HAVE A DRINKING PROBLEM?

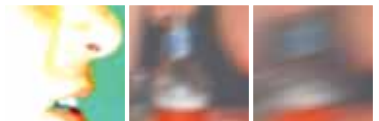
Answering 'yes' to some or all of the following points may indicate alcohol dependence:

- Drinking excessive amounts (in excess of guidelines for safe drinking)

- Drinking one type or brand of alcoholic beverage (eg. beer, wine, etc.)
- Drink-seeking behaviour (hanging out with others who drink, only going to events that include drinking, etc.)
- Increased tolerance (drinking increasing amounts to gain same effect)
- Decreased tolerance (drinking decreasing amounts to gain same effect)
- Withdrawal symptoms (getting physical symptoms after going a short time without drinking)
- Drinking to relieve or avoid withdrawal symptoms (such as drinking to 'cure' a hangover, or to stop the shakes)
- Some awareness of craving for alcohol or inability to control drinking habits (whether or not you admit it to others)
- A return to drinking after a period of abstinence (deciding to quit and not being able to follow through).

If you are alcohol-dependent, you will probably require outside help to stop drinking. This could include detoxification, medical treatment, counselling and/or attending a self-help support group.

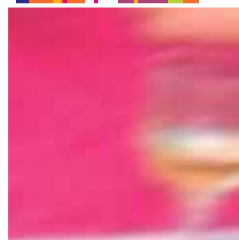
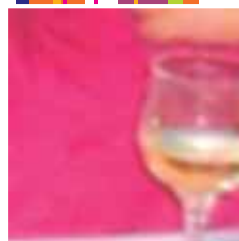
If you are concerned for yourself or someone you know, you may wish to look at a questionnaire put together by Alcoholics Anonymous, on their website: [> CLICK HERE](#)



## REDUCING HARM

If, having been made aware of the dangers to your health, you still decide to drink alcohol, following are some tips for controlling the amounts you drink in order to reduce harm:

- Quench your thirst with a non alcoholic drink
- Experiment with the wide array of non or low alcohol alternatives available
- Drink slowly. Put your drink down between sips
- Be careful about confusing large serves of alcohol with standard measures – eg. glasses of wine may be much larger than the standard 100 mL
- Try not to get involved in ‘shouts’, this tends to force you to keep up with the pace of those around you
- Eat before and during drinking
- Avoid salty foods, these make you thirsty
- Don’t let people top up your drink until it’s finished – it’s too easy to lose track of how much you are drinking
- Try alternating alcoholic drinks with non alcoholic drinks
- Drink water between alcoholic drinks
- Don’t allow yourself to get bored. Dance or have a game of pool if you’re at a pub
- Have alcohol-free days
- Don’t be pressured into drinking more than you want to.<sup>42</sup> → A ←



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## Endnotes

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- 5 About.com - 'Nutritional Effects of Alcohol',** <http://alcoholism.about.com/library/weekly/aa990908.htm> 7/31/2002
- 6 Women's Christian Temperance Union of Victoria (WCTU),** 'Seeing is Believing' brochure.
- 7 National Institute on Alcohol Abuse and Alcoholism, USA.** *Alcohol Alert No.19: Alcohol and the Liver*. PH 329. Rockville, MD: the Institute, 1993.
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- 15 'Images of Brain Damage', on About.com website,** <http://alcoholism.about.com/library/weekly/aa000425a.htm> 7/31/2002
- 16 'Binge Drinking Affects Brain, Memory' on About.com website,** <http://alcoholism.about.com/library/weekly/aa000818a.htm> 7/31/2002
- 17 'Female Drinking and Brain Damage', About.com website,** <http://alcoholism.about.com/library/weekly/aa010219a.htm> 7/31/2002
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- 19 Leo M A & Lieber C S,** 'Hepatic Vitamin A depletion in alcoholic liver injury', *New England Journal of Medicine*, 307 (10): 597-601.
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## Endnotes continued

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- 24 National Alcohol Strategy**, op.cit., p.9
- 25 <http://alcoholism.about.com/library/blnaa21.htm>**, 'Alcohol and Cancer – Alcohol Alert from NIAAA (National Institute on Alcohol Abuse and Alcoholism), USA 7/31/2002
- 26 International Agency for Research on Cancer. IARC** *Monographs on the Evaluation of Carcinogenic Risks to Humans*. Vol. 44. United Kingdom: World Health Organisation, 1988.
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- 28** Published in the November 1999 issue of *Stroke*, a journal of the American Heart Association – Join Together Online: <http://www.jointogether.org/sa/news/summaries/reader/0,1030,260904,00.html>
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- 34 National Alcohol Strategy**, op.cit., p.9
- 35 Drug Info Clearinghouse**, op.cit.
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- 38 National Alcohol Strategy**, op.cit., p.17
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- 40 Researchers at Duke University**, North Carolina, USA
- 41 National Centre on Addiction and Substance Abuse**, Columbia University, USA
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