

# How alcohol can damage your body.

## Alcohol and cancer.

### How cancer is formed

Our body is made up of lots of cells – each with its own function and role inside the body. Healthy cells grow, duplicate and die normally, without causing any harm to the body. Most cells have genes inside them which are made up of DNA. When cells multiply, sometimes there can be a change in the DNA. This change is called a mutation and it results in a cell not growing, duplicating or dying as it should. These mutations can happen by chance, through inherited genetic faults or from environmental factors such as alcohol consumption.

The body's immune system usually keeps mutated cells under control. However abnormal cells can sometimes divide uncontrollably, which can form lumps or growths. These are called tumours.

Unlike normal cells, cancer cells do not function properly.

- Cancer cells do not know when to stop growing and multiplying. This means that if untreated, cancer cells may invade and destroy surrounding tissues.
- Cancer cells can also spread beyond the area where the cancer first developed, because unlike normal cells, cancer cells do not stick together as well as normal cells do, and may also produce substances that stimulate them to move.
- Cancer cells do not repair themselves or die because they have the ability to override the signals from molecules that tell damaged cells to self-destruct.

### Types of alcohol-caused cancers

There is strong evidence that alcohol causes cancer at these sites in the body:

- Oropharynx
- Larynx
- Oesophagus
- Liver
- Bowel
- Stomach
- Female breast

Studies have found the risk of alcohol-caused cancer increases with the amount of alcohol consumed.

### How alcohol consumption damages the cells of the body and increases the risk of alcohol-caused cancer

Alcohol is classified as a Group 1 carcinogen. This is the highest level of certainty, like for tobacco smoke and asbestos. There are many mechanisms for how alcohol causes cancer.

- Alcohol is broken down and forms acetaldehyde. Acetaldehyde can damage cells because it can bond with DNA causing cells to be replicated incorrectly.
- Alcohol can also cause direct tissue damage, and this increases the absorption of other carcinogens (cancer causing agents) that those cells come into contact with.
- Alcohol can influence hormone levels, increasing cancer risk.
- Alcohol increases the risk of liver cancer by causing liver cirrhosis.

For cancers of the mouth, pharynx, larynx, oesophagus and liver there is strong evidence that the DNA damage is due to acetaldehyde. For breast cancer, the mechanism appears to be alcohol interfering with the metabolism of oestrogen, and increasing the circulating levels of sex hormones. These sex hormones encourage cell division.

### Alcohol in combination with other lifestyle factors

#### Alcohol and smoking

There is evidence that the combined effects of smoking and drinking alcohol can increase the risk of certain cancers, compared with someone who only drank or only smoked. The combined effect of alcohol and smoking has been estimated to be responsible for more than 75% of cancers of the upper aero digestive tract (including the lips, mouth, tongue, nose, throat, vocal cords, and part of the oesophagus and windpipe).

#### Alcohol and weight gain

Alcohol has no real nutritional benefit. However it is high in calories (kilojoules), with 29 kilojoules per gram of pure alcohol. This means one standard drink (10g of alcohol), such as a 100mL glass of wine, has 315 kilojoules from the alcohol alone. As alcohol is typically consumed in addition to a person's normal dietary intake, alcohol can contribute to weight gain. This can result in alcohol indirectly contributing to cancers that are associated with high body fat, including oesophagus, pancreas, bowel, breast (in post-menopausal women), endometrium and kidney.



In 2013 approx. 13 people died per month from alcohol-caused cancers in WA.



In 2014 alcohol-related cancer hospitalisation in WA cost over \$12 million.

Reducing your drinking, will reduce your risks.

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