

# Alcohol as a cause of cancer - findings from the Australian Cancer Institute, New South Wales

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The comprehensive 200 page report into the drinking patterns, habits and behaviours of consumers of alcohol in New South Wales is introduced by James F Bishop MD MMed MBBS FRACP FRCPA Chief Cancer Officer. He states 'Cancer is increasing in our society and has become the major burden of disease, outstripping cardiovascular disease. It is also now the major cause of premature deaths, and the major cause of death, in the 45 to 65 year old age group'.

Cancer could be prevented in about 35% of cases by modifying behaviour to largely avoid known cancer risk factors. Top of the list is tobacco as the major cause of preventable disease in NSW. However, a diet rich in processed or red meat, salt or salted fish, and obesity are known risk factors for cancer. Alternatively, physical activity, and a diet rich in fibre, fruit and vegetables leading to ideal body weight are known to protect against cancer.

Seventy-seven percent of NSW adults drink alcohol and are likely to associate it with celebrations, family gatherings and good times. However, it is now quite clear that alcohol is carcinogenic for some types of cancer. Alcohol is classified as a cancer causing agent by the International Agency for Research on Cancer. It already imposes a significant health burden on our population with anti-social behaviour and trauma associated with excessive risky drinking. This report concentrates on alcohol causing cancer'.

## Methodology of the study

A systematic literature search was undertaken to identify existing systematic reviews which examine the link between alcohol and specific cancer types. From this search, 634 reviews were identified of which 31 met the inclusion/exclusion criteria. Of these 31, seven were identified as key or supportive reviews, based on currency and quality. Whilst all 31 reviews were evaluated, the findings of the seven key papers were considered in detail. A second literature search was undertaken to identify original papers published subsequent to the key review for each cancer type. This search identified 1,149 citations, of which 58 were briefly reviewed to update and augment the key systematic reviews.

## Key findings

The report finds that: according to published evidence from eight studies, moderate alcohol consumption corresponding to approximately two drinks of alcohol per day does not increase the risk of cancer in general. However, the average intake of approximately four drinks per day increases the risk of cancer by 22%. High alcohol consumption averaging approximately eight drinks per day increases the risk of cancer at any site by 90%.

## Alcohol consumption and cancers of the upper aero-digestive tract

When alcohol intake is doubled to an average of around four drinks per day, the risk of cancer of the oral

cavity and pharynx, oesophagus, and larynx is more than twice that of a non-drinker. At high levels of alcohol consumption, around eight drinks per day, the risk of upper aero-digestive tract cancers is approximately 4-6 times that of a non-drinker.

## Alcohol and lung cancer

The available evidence from 23 studies suggests there does not appear to be an association between moderate alcohol consumption and lung cancer. However, it is possible that high levels of alcohol intake of around six or more drinks per day increases the risk of lung cancer and this risk appears independent of risk from tobacco smoking.

## Alcohol and prostate cancer

Evidence from 33 studies suggests there is no relationship between moderate alcohol intake and risk of prostate cancer. However, there is some evidence of an increased risk of up to 24% seen at higher levels of alcohol consumption of around four or more drinks per day

## Alcohol consumption and ovarian cancer

There is conflicting evidence in the literature for the association between alcohol consumption and risk of ovarian cancer with reports of an increased, decreased, and no change in risk. Data from 15 studies indicates that alcohol consumption does not increase the risk of ovarian cancer.

### **Alcohol consumption and breast cancer**

Intense research has been directed at understanding the relationship between breast cancer and the consumption of alcohol. In NSW, breast cancer accounts for approximately 27% of all cancers in women.

A large body of evidence estimated the risk of breast cancer between 11 and 22% higher in women who drink alcohol compared with non-drinkers. For each additional alcoholic drink per day, the excess risk of breast cancer is approximately 10 to 12%. The increased risk associated with alcohol consumption is not influenced by menopausal status or nationality, and does not appear to differ with type of alcoholic beverage consumed.

A mounting body of evidence has indicated that low folate intake is also associated with elevated risk of several cancers, including breast cancer. Evidence to date indicates that modest intakes of folate may reduce the increased risks of breast cancer associated with alcohol consumption.

### **Alcohol consumption and colorectal cancer**

Whilst there is no significant relationship between alcohol consumption and risk of cancers of the colon and rectum in women, high alcohol intake in men is associated with a 64% increased risk of colon cancer and a 79% increased risk of rectal cancer.

### **Alcohol consumption and liver cancer**

There is convincing evidence that heavy alcohol consumption increases the risk of primary liver cancer. The most probable mechanism is through the development of liver cirrhosis, although other pathways may also play a role. According to data from 20 studies, alcohol intake of approximately two drinks per day increases the risk of liver cancer by 17% compared with non-drinkers. Risk of liver cancer is increased by 36% with alcohol intake averaging four drinks per day. Heavy alcohol consumption such as eight drinks per day increased the risk of liver cancer by 86%.

### **Alcohol consumption and other cancers**

A considerable body of evidence has shown that alcohol does not appear to be a risk factor for cancers of the pancreas, endometrium, and bladder. Likewise, the evidence does not support an association between alcohol consumption and risk of melanoma and cancers of small intestine, gallbladder, cervix, and kidney. However, data were available for only one or two studies for each of these cancer sites and therefore further research is needed to confirm these findings.

Although there is some evidence that alcohol consumption may be associated with a decreased risk of thyroid cancer, it is difficult to reliably interpret these results because of the associations between thyroid cancer, iodine intake,

cigarette smoking and other factors.

There is some evidence from a pooled analysis that alcohol consumption decreases the risk of non-Hodgkin lymphoma. However, the studies included in the analysis were not identified systematically and therefore it is possible that the results may be biased.

The report concludes:

‘In conclusion, alcohol is one of the most well established causes of cancer and causes a considerable burden of disease in terms of both mortality and morbidity. While the mechanisms of action of alcohol-related risks and benefits await further clarification, the overwhelming public health message is that high daily alcohol intake can have an adverse affect on health and for those who do drink alcohol, it is important to do so in moderation. While the total elimination of alcohol consumption is not realistic, there should be increased community awareness and understanding of the extent and impacts of ‘risk drinking behaviour’.

The report can be downloaded via: [http://www.cancerinstitute.org.au/cancer\\_inst/publications/pdfs/pm-2008-03\\_alcohol-as-a-cause-of-cancer.pdf](http://www.cancerinstitute.org.au/cancer_inst/publications/pdfs/pm-2008-03_alcohol-as-a-cause-of-cancer.pdf)