

## Research into the health impacts of wine

### Introduction

There has been significant recent publicity about the positive and negative health impacts of alcohol consumption, particularly in relation to cardiovascular disease and cancer. At the same time, research into a number of relevant areas keeps changing.

The following presents an overview of current information as the Winemakers' Federation of Australia understands it. This paper was prepared in association with scientists at the Australian Wine Research Institute.

The focus here is on the impact of moderate alcohol (particularly wine) consumption. It is widely accepted that excessive drinking, particularly over an extended period, is a significant health risk.

### Cardiovascular disease

Research suggests the regular, moderate consumption of wine promotes short- and long-term cardioprotective effects and may reduce the risk of coronary artery disease, ischaemic stroke and heart failure associated with coronary artery disease. In 2000, cardiovascular disease (CVD) accounted for nearly 40% of all deaths in Australia.

It is believed about 75% of the cardioprotective effects are imparted by wine's alcohol component and the remainder by the wine-derived phenolic compounds, such as anthocyanins, catechin, quercetin, resveratrol and tannins, which give wine its colour and flavour. Red wine typically has a significantly greater concentration of phenolic compounds than white.

To date the National Heart Foundation has not formally acknowledged the possible CVD benefits of alcohol, but there have been a number of recent research advances (see below).

### Recent research and publicity

Two studies (1) published in the *British Medical Journal* this year show that people who drink in moderation are up to 25% less likely to develop heart disease than those who drink no alcohol and that moderate consumption leads to a "significant" increase in some cardiovascular markers, including serum high density lipoprotein cholesterol levels. Both papers were based on systematic reviews and a meta-analysis of studies published between 1950 and 2009, involving millions of people.

The findings were acknowledged by Prof Garry Jennings, director of the Baker IDI Heart and Diabetes Institute in Melbourne, and Prof James Tatoulis, chief medical adviser to the National Heart Foundation (2). While stressing that no-one should take up drinking on the strength of the findings and highlighting the risk of excessive consumption, Prof Tatoulis noted that "epidemiological

studies conducted over the past 50 to 60 years" reinforce the benefits of light-to-moderate drinking and that "doctors should not admonish patients for light to moderate drinking".

It has been suggested by some critics that research showing that wine has a cardioprotective effect was flawed because in comparisons it did not distinguish between former drinkers who had stopped drinking and life-long abstainers. However, this has been remedied in recent studies.

In a 2005 study (3) where ex-drinkers were separated from lifetime abstainers, total mortality was highest in the ex-drinkers and lifetime abstainers and 30–40% lower in current consumers.

In the same year, a study (4) that identified lifetime abstainers and separated occasional drinkers from regular light drinkers showed consumption of one to two drinks/day was associated with 40% less heart failure linked to coronary artery disease.

There are regular media reports about the specific value of resveratrol, but is no conclusive scientific or medical evidence that it reduces the risk of CVD, cancer or dementia in humans. Limited research suggests it has a protective role, but the biological mechanisms of these actions are still being studied by Australian and international scientists.

### Cancer

The relationship between wine and cancer is complex and not clear. While there is evidence to show alcohol consumption of 2.5 standard drinks a day or more increases the risk of some cancers, other research suggests moderate wine consumption (up to two standard drinks per day) may reduce the risk.

Increased risk is primarily associated with the body tissues that come into direct contact with the alcohol component of wine (mouth, throat, oesophagus, liver and bowel) and with breast cancer in women.

The risks are higher at higher levels of consumption and do not affect everyone equally. It also is known that other lifestyle choices, such as smoking with alcohol consumption, contribute to this figure.

Early research results from animal and human studies show that the phenolic compounds in wine may protect the DNA of cells of body tissues from damage that can lead to cancer, or may stop the growth of cells with damaged DNA. In particular, population studies suggest that moderate wine consumption may protect against the initiation and progression of cancers of the mouth, throat, oesophagus, lung and bowel as well as Non-Hodgkin's Lymphoma.

## Recent research and publicity

The link between alcohol consumption and a possible increase in the risk of some cancers has been known and acknowledged for many years. Cancer Council Australia (CCA) previously estimated that alcohol accounted for 3.1% of the cancer burden in Australia (that is, 3.1% of the years of life lost due to premature death from cancer and years of healthy life lost due to disability from cancer). In May 2011 it increased this figure to 5% by including cancers of the bowel (colon and rectum) (5). There are, however, alcohol thresholds for colorectal and liver cancers; eg, an increased risk for colorectal cancer is only apparent above a threshold of 3 standard drinks a day.

In its position statement on *Alcohol and cancer risk* (6) CCA states that any level of alcohol consumption increases the risk of developing an alcohol-related cancer, but also notes that the 5,070 cases of cancer (5% of all cancers) linked to alcohol each year "are attributable to long-term, chronic use of alcohol".

## Dementia

Consistent results from recent research suggest that regular moderate alcohol consumption is associated with a reduced risk of cognitive impairment and dementias such as Alzheimer's disease for both men and women, even among individuals aged 75 years and older. (7) Regular heavy consumption (five or more standard drinks a day) is, however, associated with an increased risk of developing dementias, probably directly due to the toxic effects of the alcohol on brain cells or indirectly due to associated poor nutrition or trauma to the brain.

## Drinking during pregnancy and while breast feeding

There is no definitive evidence on what is a "no-effect" level of consumption. For that reason the National Health & Medical Research Council (NHMRC) now recommends it is safest not to drink while pregnant or breast feeding (8). Pregnant women certainly should not get intoxicated as alcohol passes quickly into an unborn child's body. Alcohol also passes quickly into breast milk.

The NHMRC previously had recommended that women should avoid alcohol during pregnancy but "if they do choose to drink, to minimise the risk to the baby they should not drink more than 1 or 2 units of alcohol once or twice a week and should not get drunk."

Figures suggest that in Australia, as in the UK, about two-thirds of women consume alcohol while pregnant but the majority of pregnant women reduce their consumption and only consume light to moderate amounts of alcohol. This is despite receiving advice to abstain.

Alcohol also affects the reproductive system and may make it more difficult to become pregnant. However, any adverse effects quickly abate when consumption stops or reduces.

## Recent research and publicity

There is no evidence to support a recent claim by the National Organisation on Fetal Alcohol Syndrome (NOFAS) in the UK that "60% of women who drink in pregnancy will have a child who is affected by fetal alcohol spectrum disorder. In response, Patrick O'Brien, a consultant obstetrician at University College London Hospital's foundation trust, discounted the NOFAS suggestion that drinking even a small amount was "disastrous" and said there was no evidence to suggest drinking in line with the recommendations of the Royal College of Obstetricians and Gynaecologists (RCOG) was harmful (9). The RCOG suggests avoiding alcohol completely within the first 12 weeks and drink within the safe limits of 1 or 2 units once or twice a week.

## Drinking when older

It is safe to continue moderate alcohol consumption as long as you are in good health. However, the ability to tolerate alcohol decreases as you age (you have less water in your body to dilute it) and your liver is less efficient at breaking it down.

In addition, with increasing age comes increasing use of medications that may interact with alcohol and hence influence blood alcohol concentration and ensuing adverse effects. Any alcohol consumption can exacerbate certain cardiovascular diseases such as high blood pressure and cardiac arrhythmias. (10)

Moderate alcohol consumption has been shown to decrease the risk of other ageing conditions such as cognitive impairment and osteoporosis, although heavier consumption was observed to increase their risk. (11)

## Recent research and publicity

In June 2011 the Royal College of Psychiatrists advised that those over 65 years should drink less than the current responsible drinking guidelines in the UK (2-3 units for women and 3-4 for men). (12)

The International Scientific Forum on Alcohol Research (ISFAR) responded that there was no evidence to show that a reduction from moderate to low levels of drinking would improve the health of already moderate drinking, healthy older populations. (13) It questioned the evidence base and statements regarding those who drink within current guidelines. ISFAR comprises 40 doctors, professors and scientists who specialise in alcohol research. Its response drew on research from population studies of more than 25,000 people aged over 65 years.

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