
Technical notes

Drinking wine and the risk of type 2 diabetes

The link between moderate wine consumption and lower risk of cardiovascular disease has received considerable media coverage over recent years. What is less well known is that there is also a relationship between moderate wine consumption and a reduced risk of type 2 diabetes mellitus. This article summarises the information recently published in a review of the literature in this area (AWRI publication #1800).

Type 2 diabetes is a condition in which the body becomes resistant to the normal effects of insulin and/or gradually loses the capacity to produce enough insulin in the pancreas. Insulin is important because it is the hormone that allows glucose from food to be converted into energy. When someone becomes resistant to the effects of insulin, their body is not able to maintain healthy levels of glucose or insulin in blood. Over time this can damage body organs and tissues, increasing the risk of high blood pressure, heart attacks and strokes, which account for up to 80% of all deaths in type 2 diabetics. Type 2 diabetics are also at increased risk of developing complications such as peripheral nerve and vascular damage that may lead to leg, foot and toe ulcers and resultant lower limb amputations, as well as kidney damage and retinal damage. Diabetic retinopathy is the leading cause of blindness in Australians aged under 60 years. Type 2 diabetes accounts for more than 85% of all incidences of diabetes. An estimated 275 Australians develop type 2 diabetes per day, especially those aged over 45 years, and its incidence is projected to approximately double in the next 15 years at least in part due to our increasingly unhealthy diet and sedentary lifestyle. Type 2 diabetes also has strong family and genetic related risk factors. Simple dietary supplements to a healthy diet and lifestyle to reduce the risk of developing type 2 diabetes are becoming increasingly important.

Recent research suggests that moderate wine consumption reduces the risk of developing type 2 diabetes in both men and women, irrespective of age, and in those with both a low and a high body mass index. The relationship is considered to be j-shaped. The protective effect appears greatest with consumption of approximately two standard drinks of wine per day, where a standard drink in Australia is considered to be 10 g of alcohol. Higher amounts of consumption (above approximately five drinks per day) appear to be no longer protective and the risk of developing type 2 diabetes is increased. In particular, a reduced risk of developing diabetes is consistently observed when wine is consumed with food, as is traditional in Mediterranean countries.

A potential mechanism for wine's protective effect is that it causes an increase in the sensitivity of cells to insulin, helping to maintain blood glucose at a healthy level before and after a meal. Blood lipid levels are also affected by wine in ways that contribute to a reduced risk of cardiovascular disease. Another potential protective mechanism for moderate wine consumption relates to glycaemic load (GL). The GL of food estimates how much the food will increase an individual's blood glucose level after it is consumed, and represents the interaction between the quantity and quality of carbohydrate. One GL unit approximates the effect of consuming one gram of glucose. There is a positive dose-response relationship between GL and the incidence of type 2 diabetes. As alcohol metabolises differently from carbohydrates, it has been proposed that the consumption of wine with food might lessen the adverse effects of high GL foods on the risk of type 2 diabetes by delaying the insulin glucose response. Wine consumption of approximately 15 g/day (1.5 standard drinks) has been observed to decrease the causal relationship between GL and the incidence of type 2 diabetes in healthy women.

These research results have led the World Health Organization's *Global Status Report on Alcohol and Health – 2014 edition* to state that for type 2 diabetes “a dual relationship exists, whereby a low-risk pattern of drinking may be beneficial while heavy drinking is detrimental”. It also states that “for diabetes mellitus ... alcohol consumption exerts a beneficial effect on this disease”.

Further information on the relationship between wine consumption and type 2 diabetes can be found in the full text of Stockley (2015), available on request from the AWRI library (infoservices@awri.com.au). Questions about wine and health can also be directed to the AWRI helpdesk on 08 8313 6600 or helpdesk@awri.com.au.

References

- AWRI publication #1800. Stockley, C.S. (2015) A review of the relationship between wine consumption and type 2 diabetes mellitus. *J. Nutr. Therapeut.* 4(4): 1–11.
- World Health Organization (2014) *Global status report on alcohol and health–2014 edition*. Geneva: WHO. (Available for download from http://www.who.int/substance_abuse/publications/global_alcohol_report/en/).

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