



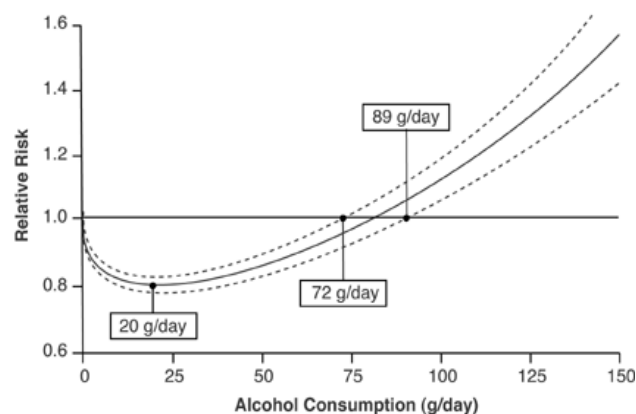
Wine's effects on the heart



Introduction

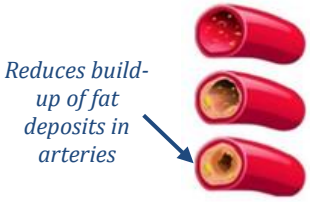
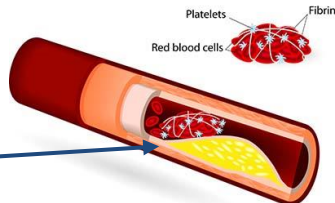
The effect of wine on the heart is dependent on the amount of wine that is consumed and the pattern of drinking.

Most scientific studies show this as a j-shaped dose-response relationship, where light to moderate wine drinkers have a reduced risk of heart diseases and disorders compared to people who don't drink any alcoholic beverages. People who drink heavy and excessive amounts of wine, however, have an increased risk of heart diseases and disorders (Figure 1). Light to moderate wine drinking is considered as 10 to 20 g alcohol per day or one to two standard drinks per day. One standard drink of wine is approximately 100 mL.





The grouping of diseases and disorders that involve the heart and the blood vessels (arteries and veins) is referred to as cardiovascular disease. The grouping includes atherosclerosis (hardening and rigidity of the artery wall), high blood pressure, heart attacks, heart failure and strokes, either from blockages or ruptures of brain blood vessels.

Effects of light to moderate wine drinking	Effects of heavy and excessive wine drinking
<p>Reduction of fat deposits in arteries (atherosclerosis), which protects against heart attacks and ischaemic strokes (physical blockage of blood flow to an area of the brain, causing brain cells in the area to die)</p> <p><i>Reduces build-up of fat deposits in arteries</i></p> 	<p>Increased risk of heart muscle disease (cardiomyopathy). This disease enlarges the heart muscle or makes it thicker and more rigid than normal and scar tissue may replace the muscle tissue. The disease can make the heart less able to pump blood through the body. It can also cause disturbed heart rhythms or heart failure where the heart can't pump enough blood throughout the body, and sudden cardiac death.</p>
<p>Protection against forming blood clots, which protects against heart attacks and ischaemic strokes (blocked brain artery)</p> <p><i>A blood clot is a gel-like mass formed by platelets and fibrin in the blood to stop bleeding. When formed inappropriately inside an artery, blood flow past the clot is decreased and may become blocked.</i></p> 	<p>Increased risk of a changed or disturbed sequence of electrical impulses causing changed or disturbed heart rate or rhythm (arrhythmia), where the heart beats either too slowly or too fast and/or irregularly, which can cause the heart to pump less effectively and can cause sudden cardiac death.</p>
<p>Promotion of breaking down of blood clots, which protects against heart attacks and ischaemic strokes (blocked brain artery)</p>	<p>Increased risk of haemorrhagic stroke (ruptured and bleeding brain artery)</p>
<p>Decreased risk of high blood pressure</p>	<p>Increased risk of high blood pressure which can cause heart failure where the heart can't pump enough blood throughout the body</p>



Did you know?

- The risk of harm to the heart occurs at a lower amount of wine drinking in women compared to in men, for example, after more than two standard drinks per day for women compared to more than three or four standard drinks per day for men.
 - There is a j-shaped relationship between wine drinking and blood pressure until after approximately two standard drinks per day for women and three standard drinks per day for men, when the relationship becomes a straight line (linear). The increase in blood pressure is approximately 1 mm Hg for each standard drink consumed.
 - Blood pressure decreases, however, within two to four weeks after stopping drinking wine or decreasing the amount of wine consumed.
 - The relationship between drinking heavy amounts of wine and high blood pressure is independent of other risk factors for high blood pressure such as being overweight or smoking cigarettes. A person's genes, however, influence how much their blood pressure will increase on drinking wine.
 - Arrhythmias or atrial fibrillation are also referred to as 'holiday heart syndrome' as they often occur with drinking heavy or excessive amounts on a long weekend or during holidays. The effect stops, however, when drinking wine ceases or decreases. It can cause symptoms such as dizziness, palpitations, shortness of breath, and chest discomfort or pain.
 - 80% of strokes are diagnosed as ischaemic (blockage) and 20% are diagnosed as haemorrhagic (bleed).
- Drinking heavy or excessive amounts of wine can increase the risk of both forms of stroke. Heavy drinking can actually increase the formation of blood clots via the alcohol component of wine's effects on heart muscle and on heart beats and which can block an artery in the brain. Conversely, the increased blood pressure from heavy drinking can cause an artery in the brain to rupture where the bleeding into the brain is greater due to the decreased formation of blood clots and the increased breakdown of blood clots.
 - Women appear to be more susceptible to 'alcohol-induced' haemorrhagic stroke.

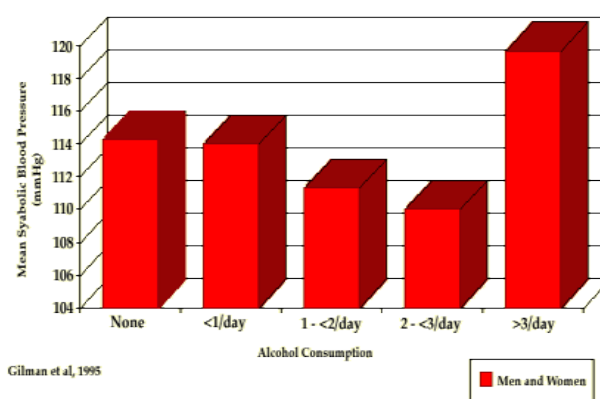


Figure 2. Mean systolic blood pressures, adjusted for age, sex, and body mass index, by category of usual alcohol intake. Data are from 316 young adults. Source: Gillman, et al. (1995).



References and further reading

Bell, S., Daskalopoulou, M., Rapsomaniki, E., George, J., Britton, A., Bobak, M., Casas, J.P., Dale, C.E., Denaxas, S., Shah, A.D., Hemingway, H. 2017. Association between clinically recorded alcohol consumption and initial presentation of 12 cardiovascular diseases: population based cohort study using linked health records. 2017. *BMJ*. 356: j909.

Estruch, R., Coca, A., Rodicio, J.L. 2005. High blood pressure, alcohol and cardiovascular risk. *J. Hypertens*. 23(1):226-229.

Corrao G., Rubbiati L., Bagnardi V., Zambon A., Poikolainen K. 2000. Alcohol and coronary heart disease: a meta-analysis. *Addiction*. 95(10): 1505-1523.

Costanzo, S., Di Castelnuovo, A., Donati, M.B., Iacoviello, L., de Gaetano, G. 2011. Wine, beer or spirit drinking in relation to fatal and non-fatal cardiovascular events: a meta-analysis *Eur. J. Epidemiol*. 26(11): 833-850.

Costanzo, S., Di Castelnuovo, A., Donati, M.B., Iacoviello, L., de Gaetano, G. 2010. Cardiovascular and overall mortality risk in relation to alcohol consumption in patients with cardiovascular disease. *Circulation*. 121(17): 1951-1959.

Gillman M.W., Cook N.R., Evans D.A., Rosner B., Hennekens C.H. Relationship of alcohol intake with blood pressure in young adults. *Hypertension*. 1995. 25: 1106-1110.

Klatsky, A.L. 1996. Blood pressure and alcohol intake: clinical aspects. Zakhari S, Wassef M (eds): *Alcohol and the cardiovascular system*. Washington, DC: National Institute of Health Publication, pp. 173-193.

Klatsky, A.L. 1997. The epidemiology of alcohol and cardiovascular diseases. Watkins, T.R. (ed). *Wine—nutritional and therapeutic benefits*. Washington, DC, USA ARCS Symposium Series, American Chemical Society, pp. 132-149.

Elliot, M.G., Shipley, P., Dyer, M.J., Ueshima, A.R., Beevers, H., Stamler R., Kesteloot H., Rose G., Stamler J. 1994. Alcohol and blood pressure: the INTERSALT study. *BMJ* 308: 1263-1267.

Mukamal, K.J., Chen, C.M., Rao, S.R., Breslow, R.A. 2010. Alcohol consumption and cardiovascular mortality among U.S. adults, 1987 to 2002. *J. Am. Coll. Cardiol*. 55(13): 1328-1335.

Puddey, I.B., Beilin, L.J. 2006. Alcohol is bad for blood pressure. *Clin. Exp. Pharmacol. Physiol*. 33(9): 847-852.

Ronksley P.E., Brien S.E., Turner B.J., Mukamal K.J., Ghali W.A. 2011. Association of alcohol consumption with selected cardiovascular disease outcomes: a systematic review and meta-analysis. *BMJ*. 34(3): 363-370.

Witteaman, J.C., Willett, W.C., Stampfer, M.J., Colditz, G.A., Kok, F.J., Sacks, F.M., Speizer F.E., Rosner, B., Hennekens C.H. 1990. Relation of moderate alcohol consumption and risk of systemic hypertension in women. *Am. J. Cardiol*. 65:633-637.

Zakhari, S. 1997. Alcohol and the cardiovascular system: molecular mechanisms for beneficial and harmful action. *Alcohol Health Res. World*. 21(1): 21-29.

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