**Resveratrol and red wine, healthy heart and longevity.**

Resveratrol, a polyphenol phytoalexin, present in red wine and grapes possesses diverse biochemical and physiological properties, including estrogenic, antiplatelet, and anti-inflammatory properties as well as a wide range of health benefits ranging from chemoprevention to cardioprotection. Recently, several studies described resveratrol as an anti-aging compound. This review focuses on the anti-aging aspects of resveratrol, the possible mechanisms of action, and emerging controversy on its life-prolonging ability. It appears that resveratrol can induce the expression of several longevity genes including Sirt1, Sirt3, Sirt4, FoxO1, Foxo3a and PBEF and prevent aging-related decline in cardiovascular function including cholesterol level and inflammatory response, but it is unable to affect actual survival or life span of mice.

**Potential health benefits from the flavonoids in grape products on vascular disease.**

In the dog, monkey, a nd human we have shown that 5 ml/kg of red wine or 5-10 ml/kg of purple grape juice but not orange or grapefruit juice inhibits platelet activity, and protects against epinephrine activation of platelets. Red wine and purple grape juice enhances platelet and endothelial production of nitric oxide (Fitzpatrick et al., 1993, Parker et al., 2000). This is thought to be one of the mechanisms whereby purple grape juice significantly improved endothelial function in 15 patients with coronary artery disease. The consumption of purple grape juice by the patients also offered increased protection against LDL cholesterol oxidation, even though all the patients were also taking another antioxidant vitamin E, 400 IU/day. The number of people and animals in these studies was small; however, each one acted as their own control as measurements were made in each before, and then after consumption of red wine or purple grape juice. Thus these studies are thought to be significant. We feel that the results of these studies are encouraging and justify further research on larger numbers of subjects. This suggests that the flavonoids in purple grape juice and red wine may inhibit the initiation of atherosclerosis by one or more of the mechanisms described above. It will take years to fully characterize the potential benefits of daily consumption of red wine or purple grape juice for maintaining a healthy heart. Based on the existing evidence of antiplatelet and antioxidant benefits and improved endothelial function from red wine and purple grape juice, it seems reasonable to suggest that moderate amounts of red wine or purple grape juice be included among the 5-7 daily servings of fruits and vegetables per day as recommended by the American Heart Association to help reduce the risk of developing cardiovascular disease.

flavonoids inhibit UGT2B17 in vitro…. The aim of this study is to investigate if red wine, a common dietary substance, has an inhibitory effect on UGT2B17.

effects of the ethanol on UGT2B17.

Results

Over the concentration range of 2 to 8%, the red wine sample inhibited the glucuronidation of testosterone by up to 70% over 2 hours. The ethanol content had no significant effect. Three red wine phenolics, identified by HPLC analyses, also inhibited the enzyme by varying amounts in the order of quercetin (72%), caffeic acid (22%) and gallic acid (9%); using a ratio of phenolic:testosterone of 1:2.5. In contrast p-coumaric acid and chlorogenic acid had no effect on the UGT2B17. The most active phenolic was selected for a detailed study at physiologically relevant concentrations, and quercetin maintained inhibitory activity of 20% at 2 μM despite a ten-fold excess of testosterone.

Conclusion

This study reports that in an in vitro supersome-based assay, the key steroid-metabolizing enzyme UGT2B17 is inhibited by a number of phenolic dietary substances and therefore may reduce the rate of testosterone glucuronidation in vivo. These results highlight the potential interactions of a number of common dietary compounds on testosterone metabolism. Considering the variety of foodstuffs that contain flavonoids, it is feasible that diet can elevate levels of circulating testosterone through reduction in urinary excretion. These results warrant further investigation and extension to a human trial to delineate the health implications.

Keywords: Red wine, Flavonoids, Testosterone, UGT2B17, Glucuronidation

**Prevention of cancer.**

Researchers have found that men who drink an average of four to seven glasses of red wine per week are only 52% as likely to be diagnosed with prostate cancer as those who do not drink red wine, reports the June 2007 issue of Harvard Men’s Health Watch. In addition, red wine appears particularly protective against advanced or aggressive cancers.

[www.health.harvard.edu](http://www.health.harvard.edu)

The risk of infection from the bacterium Helicobacter pylori, strongly associated with causing gastritis and peptic ulcers as well as being closely linked to stomach cancer, appears to lessen with moderate alcohol consumption.[5] A German study conducted in the late 1990s showed that non-drinkers had slightly higher infection rates of Helicobacter pylori than moderate wine and beer drinkers.[28]

Key Points

• Research on the antioxidants found in red wine has shown that they may help inhibit the development of certain cancers (see Question 1).

• Resveratrol has been shown to reduce tumor incidence in animals by affecting one or more stages of cancer development. It has been shown to inhibit growth of many types of cancer cells in culture (see Question 2).

• Recent evidence from animal studies suggests this anti-inflammatory compound may be an effective chemo preventive agent in three stages of the cancer process: Initiation, promotion, and progression (see Question 3).

Red wine is a rich source of biologically active phytochemicals, chemicals found in plants. Particular compounds called polyphenols found in red wine―such as catechins and resveratrol―are thought to have antioxidant or anticancer properties

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Red Wine and Cancer Prevention: Fact Sheet

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**1. What are polyphenols and how do they prevent cancer?**

Polyphenols are antioxidant compounds found in the skin and seeds of grapes. When wine is made from these grapes, the alcohol produced by the fermentation process dissolves the polyphenols contained in the skin and seeds. Red wine contains more polyphenols than white wine because the making of white wine requires the removal of the skins after the grapes are crushed. The phenols in red wine include catechin, gallic acid, and epicatechin.

Polyphenols have been found to have antioxidant properties. Antioxidants are substances that protect cells from oxidative damage caused by molecules called free radicals. These chemicals can damage important parts of cells, including proteins, membranes, and DNA. Cellular damage caused by free radicals has been implicated in the development of cancer. Research on the antioxidants found in red wine has shown that they may help inhibit the development of certain cancers.

**2. What is resveratrol and how does it prevent cancer?**

Resveratrol is a type of polyphenol called a phytoalexin, a class of compounds produced as part of a plant’s defense system against disease. It is produced in the plant in response to an invading fungus, stress, injury, infection, or ultraviolet irradiation. Red wine contains high levels of resveratrol, as do grapes, raspberries, peanuts, and other plants.

Resveratrol has been shown to reduce tumor incidence in animals by affecting one or more stages of cancer development. It has been shown to inhibit growth of many types of cancer cells in culture. Evidence also exists that it can reduce inflammation. It also reduces activation of NF kappa B, a protein produced by the body’s immune system when it is under attack. This protein affects cancer cell growth and metastasis. Resveratrol is also an antioxidant.

**3. What have red wine studies found?**

The cell and animal studies of red wine have examined effects in several cancers, including leukemia, skin, breast, and prostate cancers. Scientists are studying resveratrol to learn more about its cancer preventive activities. Recent evidence from animal studies suggests this anti-inflammatory compound

**Wine and heart**

Studies have shown that adults who drink light to moderate amounts of alcohol may be less likely to develop heart disease than those who do not drink at all or are heavy drinkers. Persons who do not drink alcohol should not start just because they want to avoid developing heart disease.

There is a fine line between healthy drinking and risky drinking. It is not recommended that you begin drinking or drink more often just to lower your risk of heart disease.

Health care providers recommend that if you drink alcohol, drink only light to moderate amounts:

•For men, limit alcohol to 1 to 2 drinks a day.

•For women, limit alcohol to 1 drink a day.

One drink is defined as:

•4 ounces of wine

•12 ounces of beer

•1½ ounces of 80-proof spirits

•1 ounce of 100-proof spirits

Heavier drinking can harm the heart and liver. Heart disease is the leading cause of death in people who abuse alcohol.

Alcohol may help the heart when used in light to moderate amounts:

•Increases the amount of HDL ("good") cholesterol; scavenging and removing LDL, or “bad,” cholesterol). Wine's positive effects on the metabolism of cholesterol has been suggested as a link to lower occurrences of gallstones among moderate drinkers since cholesterol is a major component of gallstones.

•Decreases the chance of forming clots in blood vessels

•Decreases inflammation

•Increases antioxidant activity (red wine contains antioxidants called flavonoids): Vision[edit]The anti-oxidant and anticoagulant properties of wine may have a positive benefit in slowing the effects of macular degeneration that causes vision to decline as people age

**Weight management**

“ Alcohol can stimulate the appetite so it is better to drink it with food. When alcohol is mixed with food, it can slow the stomach's emptying time and potentially decrease the amount of food consumed at the meal.[24] ” which means the satiation happens earlier.

(a glass of red wine a day that may keep the doctor)

The French paradox: Why it matters

The French may be on to something: Despite a diet heavy in saturated fats (think: rich cheeses and buttery croissants), French rates of obesity and heart disease are relatively low, causing researches to ponder the connection between the French fondness for red wine and the French Paradox.

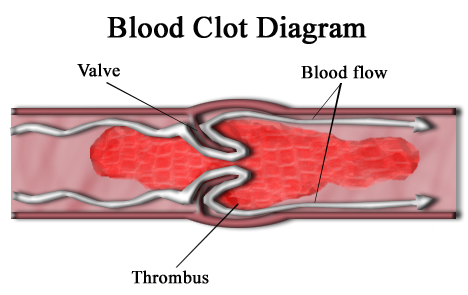


But cholesterol levels are only half of the equation. Red wine’s antioxidants (resveratrol, to be exact) may also provide protection against problems with blood flow to the brain, possibly preventing stroke (though the research is currently based on rats, so results may vary for humans).

Dark red wines made from grapes with thick skin have the most resveratrol.

**Cardiovascular diseases:**

The alcohol in wine has anticoagulant properties that limit blood clotting by making the platelets in the blood less prone to stick together and reducing the levels of fibrin protein that binds them together.



several epidemiological studies have suggested that moderate consumption of alcohol reduces overall mortality, mainly from coronary diseases like cardiovascular diseases and cancer.

**Diabetes**

Research has shown that moderate levels of alcohol consumed with meals does not have a substantial impact on blood sugar levels. A 2005 study presented to the American Diabetes Association suggest that moderate consumption may lower the risk of developing Type 2 diabetes.[5][27]

Wine has a long history of use in the world of medicine and health

 Grapes like Pinot noir grown in cool climates such as Oregon and Burgundy tend to have higher concentrations of resveratrol than grapes grown in warmer regions like California and Australia.