



# Resveratrol



Resveratrol belongs to a class of polyphenolic compounds called stilbenes. Some types of plants produce resveratrol and other types of stilbenes in response to stress, injury, fungal infection, and ultraviolet (UV) radiation.



**Food Sources:** Resveratrol is found in grapes, wine, grape juice, and berries of *Vaccinium* species including blueberries, bilberries, and cranberries. In grapes, resveratrol is only found in the skin. This amount found in grape skins also varies with the grape cultivar, its geographic origin, and exposure to fungal infection.

The amount of fermentation time a wine spends in contact with grape skins is an important determinant of its resveratrol content. White and rose wines generally contain less resveratrol than red wines, which is because the skins are removed earlier during their production, lessening the amount that is extracted.



## Total Resveratrol Content of Wines and Grape Juice



Beverage	Total resveratrol (mg/L)	Total resveratrol in a 5 ounce glass (mg)
White Wines (Spanish)	0.05-1.80	0.01-0.27
Rose Wines (Spanish)	0.43-3.52	0.06-.53
Red Wines (Spanish)	1.92-12.59	.29-1.89
Red Wines (Global)	1.98-7.13	0.30-1.07
Red grape juice (Spanish)	1.14-8.69	0.17-1.30



## Total Resveratrol Content of Selected Foods



Food	Serving	Total resveratrol (mg)
Peanuts (raw)	1 c (146 g)	.01-0.26
Peanuts (boiled)	1 c (180 g)	.32-1.28
Peanut butter	1 c (258 g)	.04-.013
Red grapes	1 c (160 g)	.24-1.25

## Disease Prevention



**Cardiovascular Disease**: Significant reductions in cardiovascular disease risk have been associated with moderate consumptions of alcoholic beverages.

**The French Paradox**: The French Paradox was the observation that mortality from coronary heart disease is relatively low in France despite high levels of dietary saturated fat and cigarette smoking. This led to the idea that the regular consumption of red wine might provide additional protection from cardiovascular disease.



Red wine contains resveratrol and even higher levels of flavonoids. These polyphenolic compounds have antioxidant, anti-inflammatory, and other potentially anti-atherogenic effects in the test tube and in some animal models of atherosclerosis.

**More on Resveratrol:** Resveratrol has been found to exert a number of potentially cardioprotective effects in vitro including:



- Inhibition of platelet aggregation
- Promotion of vasodilation by enhancing the production of nitric oxide
- Inhibition of inflammatory enzymes

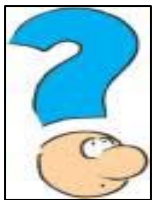
But, concentrations of resveratrol necessary to produce these effects are often higher than those that have been measured in human plasma after oral consumption of resveratrol.



Although its presence in red wine has stimulated much interest in the area of cardiovascular disease prevention, currently there is no convincing evidence that resveratrol has cardioprotective effects in humans, especially from the amounts present in 1-2 glasses of red wine.

**Cancer:** Resveratrol has been found to inhibit the proliferation of a variety of human cancer cell lines, including those from breast, prostate, stomach, colon, pancreatic, and thyroid cancers when added to cells cultured outside the body.

In animal models, there has been marked inhibition in the development of esophageal, intestinal, and breast cancer with oral administration of resveratrol. In mice genetically predisposed to cancer, effects from oral resveratrol administration have been mixed.



It is currently unknown whether or not high intakes of resveratrol can help prevent cancer in humans. Studies suggest that even very high dietary intakes of resveratrol may not result in tissue levels that are high enough to demonstrate the protective effects that resveratrol has shown in cell cultures.

**Longevity:** Caloric restriction has been proven to extend the lifespan of a number of species, including mammals. In yeast, a caloric restriction stimulates the activity of an enzyme referred to as Sir2. Administering resveratrol to yeast increased Sir2 activity in the absence of caloric restriction and extended the replicative lifespan of yeast by 70%.

**Reasons why recommending  
a population-wide increase  
would be premature:**

Little is known about the absorption and clearance of resveratrol, the identities of its metabolic products, or its effects on the liver. The research on resveratrol has focused on its short-term effects and has been mainly done on non-human models.

Its main dietary source is red wine, which is not only extremely variable, but possibly harmful to be recommending increased intakes of red wine to the population at this point.

Pennington Nutrition Series, Number 7, 2005

**Authors:**

Heli Roy PhD, RD  
Shanna Lundy, BS

**Division of Education**

Phillip Brantley PhD, Director  
Pennington Biomedical Research Center  
Claude Bouchard PhD, Executive Director

4/05

**Sites:**

[http://www/  
quackwatch.org/01QuackeryRelatedTopics/  
DSH/resveratrol.html](http://www/quackwatch.org/01QuackeryRelatedTopics/DSH/resveratrol.html)

[http://lpi.oregonstate.edu/infocenter/  
phytochemicals/resveratrol/](http://lpi.oregonstate.edu/infocenter/phytochemicals/resveratrol/)

The Pennington Biomedical Research Center is a world-renowned nutrition research center.

**Mission:**

To promote healthier lives through research and education in nutrition and preventative medicine.

The Pennington Center has six priorities in research:

1. Clinical Obesity Research
2. Experimental Obesity
3. Functional Foods
4. Health and Performance Enhancement
5. Nutrition and Chronic Diseases
6. Nutrition and the Brain

The research fostered by these divisions can have a profound impact on healthy living and on the prevention of common chronic diseases, such as heart disease, cancer, diabetes, hypertension and osteoporosis.

The Division of Education provides education and information to the scientific community and the public about research findings, training programs and research areas, and coordinates educational events for the public on various health issues.

We invite people of all ages and backgrounds to participate in the exciting research studies being conducted at the Pennington Center in Baton Rouge, Louisiana. If you would like to take part, visit the clinical trials web page at [www.pbrc.edu](http://www.pbrc.edu) or call (225) 763-2597.

**Visit our Web Site: [www.pbrc.edu](http://www.pbrc.edu)**