



## Resveratrol – The Wonder Nutrient



(Photo Credit: iStockphoto/Gabor Izso)

It's a wonderful time to be alive. Every day we see new discoveries in the field of diet and nutrition which can help our bodies fight disease, enhance the quality of our lives and even improve survival in catastrophic diseases.

One of the most important nutritional discoveries of modern time is a substance called Resveratrol (rez-'vir-ə-,trōl). Research found that resveratrol was the most powerful antioxidant ever found<sup>1</sup>. It was also found that the highest levels of Resveratrol could be extracted from the muscadine grape, the skin and the seeds. And it was proven perfectly safe to take as a nutritional supplement.

Antioxidants are needed at very high levels for optimum health and disease prevention in human beings. Antioxidants prevent and repair cell damage caused by free radicals in the body. Free radicals - atoms with unpaired electrons - wreak havoc in the human body by damaging cells and causing disease and aging. Natural foods in the diet are the best source of antioxidants.

### Resveratrol and the Fountain of Youth

The search for the fountain of youth has been an elusive goal for humanity. But Resveratrol may be the first-discovered substance - available to everyone - that can arrest and reverse the aging process, extend human lifespan and eliminate much human suffering from disease. With its ability to arrest aging and help our bodies combat all of the associated diseases – Resveratrol may truly be a wonder nutrient. Here's how:

### Resveratrol Mimics Calorie Restriction to Prevent Aging and Disease

Restricting caloric intake is a proven method to extend lifespan in all living organisms in which it has been tested. It appears that resveratrol mimics all of the beneficial effects of calorie restriction. Researchers Jamie Barger and Tsuyoshi Kayo at the University of



Wisconsin found similarities between the genetic effects in the heart, skeletal muscle and brain of calorie restriction and the effects of resveratrol. While the expression of 1,029 heart genes changed with age in the control animals, calorie restriction was found to reduce these age-related alterations in expression by 90 percent, and resveratrol reduced the age-related alterations in expression by 92 percent. These remarkable results prompted the researchers to write, “Resveratrol at doses that can be readily achieved through dietary supplementation in humans is as effective as calorie restriction in opposing the majority of age-related transcriptional alterations in the aging heart.”<sup>2</sup>

### **Resveratrol and Cancer**

Cancer kills by spreading. The process is called metastases. If cancer is contained and does not metastasize - it does not kill. More than 90% of the cancer deaths are from cancer which has spread locally, regionally or throughout the body.

Resveratrol may prevent, for example, breast cancer because resveratrol suppresses abnormal cell formation that leads to most types of breast cancer. According to Eleanor G. Rogan, a professor in the Eppley Institute for Research in Cancer and Allied Diseases at the University of Nebraska Medical Center, "Resveratrol has the ability to prevent the first step that occurs when estrogen starts the process that leads to cancer by blocking the formation of the estrogen DNA adducts. We believe that this could stop the whole progression that leads to breast cancer down the road."<sup>3</sup> Resveratrol from a nutritional supplement, at the equivalent of an 800mg dose, proved better at binding to estrogen, which promotes and causes breast cancer, and prompted researchers to write that Resveratrol is potentially superior to standard anti-estrogen drugs which have potentially dangerous and deadly side effects.<sup>4</sup>

A study led by Dr. Randall Holcombe, director of clinical research at the Chao Family Comprehensive Cancer Center at UC Irvine, found that a diet containing low doses of freeze-dried grape powder may block the genes linked to the development of sporadic colorectal cancer. Sporadic colorectal cancer, the third most common cancer, kills over half a million people each year. Seventy-five percent of colon cancer is sporadic and occurs in those with little or no family history of the disease. Holcombe said that researchers have known about the link between diet and cancer for some time.<sup>5</sup>

After curing her own stomach cancer with a therapy based on grapes, Johanna Brandt, a South African woman, wrote a book called “The Grape Cure” in which she described that a diet high in whole grapes, eaten with the seeds, cured cancer. Brandt found that two days of fasting followed by consuming grapes at amounts increasing from 1 to 4 lbs per day for up to 2 months, would reduce and eliminate tumors.<sup>6</sup> According to Dr Solomon Cohen, around the turn of the 20<sup>th</sup> Century, there were over a dozen clinics and spas in northern Europe that were administering the grape cure.<sup>7</sup>

### **Resveratrol - a Safe and Effective Natural Gene Therapy**

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Since the mapping of the human genome, scientists have been engaged in an unprecedented search for drugs which will manipulate genes by switching genes on and off in a process called gene expression or silencing. But the initial results with cancer drugs like Iressa and Tarceva which targeted single genes have been disappointing. This is because most diseases like cancer involve many genes. Dr Guy Faguet wrote in his landmark book, The War on Cancer – Anatomy of Failure – A Blueprint for the Future, “... We must repudiate the cell-killing paradigm that has dominated the War on Cancer, and anchor future strategies on targeting the molecular and genetic defects...”<sup>8</sup>

The Resveratrol molecule targets a wide range of genes and has been shown to be capable of silencing entire bundles of genes (chromatin). In fact, resveratrol can shut off hundreds of genes which are required for tumor growth. This amazing ability caused one researcher to call resveratrol a “biologically specific tsunami.”<sup>9</sup>

### Resveratrol Works Its Magic in Many Ways

Other researchers are even more excited about resveratrol. Paolo Signorelli and Riccardo Ghidoni, in Milan, Italy wrote in the Journal [of] Nutritional Biochemistry that, “Natural compounds (like resveratrol)... offer a less specific, but perhaps more effective strategy for cancer therapy by inducing combinations of effects that may counteract the metabolic alterations related to cancer promotion.”<sup>10</sup>

Further, researchers at the University of Illinois wrote “resveratrol holds great promise for future development as a chemopreventive agent that may be useful for several disorders.”<sup>11</sup>

“The search for the drug-based magic bullet for cancer has been an exercise in futility. We have spent 3 trillion dollars in the war on cancer, and have not found a single magic bullet - and it is unlikely that we will ever find one,” says Frank Wiewel, former chairman of the pharmacological and biological treatments committee at the Office of Alternative Medicine (OAM) in the National Institutes of Health (NIH). “What we have found is a host of toxic agents that kill human cells. Chemotherapy is dangerous, ineffective - *and highly profitable*. The entire focus [of the war on cancer] should be shifted to a program of cancer prevention with diet, nutrition, exercise and research into natural agents like resveratrol which show tremendous promise in the prevention and treatment of cancer.” In 1985 Wiewel founded the international non-profit public interest group People Against Cancer, and launched the hotline 1-800-No-Cancer to transform the war on cancer through prevention and innovation, and to help people to find the best cancer treatments.

Conventional cancer drugs are focused on killing cells. Chemotherapy has failed to improve survival and quality of life in 80% of human cancers because it kills healthy cells as well as cancer cells, doing major collateral damage<sup>12</sup>. According to Dr. Ulrich Abel, a German biostatistician, who published a landmark work titled “The Chemotherapy of Advanced Epithelial Cancer”, “There is no scientific evidence for its [chemotherapy’s] ability to extend



in any appreciable way the lives of patients suffering from the most common organic cancer...Chemotherapy for malignancies too advanced for surgery, which accounts for 80% of all cancers, is a scientific wasteland."

It turns out that resveratrol may safely block all three stages of cancer – initiation, promotion and progression without any side effects or collateral damage to healthy cells. <sup>13</sup>

Resveratrol kills cancer cells **naturally** by inducing apoptosis (also called programmed cell death) while leaving healthy cells unharmed. It does this by converting lipids (or fats) in tumor cells into molecules called ceramides. For example, researchers found that resveratrol causes breast cancer cells to die off in this manner. <sup>14</sup>

In clinical research, Resveratrol showed itself active against the following types of cancer: Colon <sup>15</sup>, Leukemia<sup>16</sup>, Lung <sup>17</sup>, Liver <sup>18</sup>, Oral cancer <sup>19</sup>, Uterine <sup>20</sup>, Esophageal <sup>21</sup>, Thyroid <sup>22</sup>, Breast <sup>23</sup>, Cervical <sup>24</sup>, Pancreatic <sup>25</sup>, Prostate <sup>26</sup>, Neuroblastoma <sup>27</sup>, and Melanoma <sup>28</sup>.

### Resveratrol in Obesity

Obesity is a major risk factor for cancer. In 2008, over 66% of Americans are either overweight or obese. It has now been demonstrated that resveratrol can prevent and treat the major health issues found in obesity by mimicking calorie restriction.

In a study published in the journal Nature, Harvard Biologist Dr. David Sinclair and his colleagues, took this work a step farther, showing that in higher animals, resveratrol prevents many of the diseases like cancer and heart disease that are associated with old age and hastened by obesity.

"We are reporting that just with a simple molecule sprinkled in the food of mice, you can reduce most of the negative impact of obesity, even if you do not lose weight," Sinclair explained. These negative impacts include diseases such as cancer, diabetes and heart disease that can eventually kill people who are overweight." <sup>29</sup>

So powerful were his findings that Dr Sinclair told the New York Times in November of 2006 that he has been taking resveratrol along with his wife and parents and "half of my lab" of two dozen members. The dose Sinclair was reported to be taking was about 320mg.

There are thousands of scientific reports on resveratrol listed by the National Library of Medicine. These studies suggest benefits in cancer, heart disease, and age-related brain disorders. Resveratrol inhibits fungal infection, raises HDL "good" cholesterol, lowers PSA (the prostate cancer marker) levels in males, raises immunity, controls blood pressure, preserves red blood cells, prevents blood clots and inhibits inflammation.

### Dr. Denham Harmon – The First Free Radical



In 1954, Dr. Denham Harmon introduced The Free Radical Theory of Aging which launched a revolution in the understanding of aging and chronic degenerative diseases like cancer. The theory represented a breathtaking leap in understanding free radical chemistry in biological systems.

Harmon proposed that free radicals, which are atoms with unpaired electrons, are the first step in aging and degenerative disease like cancer and heart disease. Free radicals are produced through the body's use of oxygen.

As with all revolutionary ideas his theory was originally ridiculed by the medical community. However, by the 1980s his theory became the focus of research in cancer, cardiovascular disease and stroke – the major killers. Harmon recommends not smoking, limits on alcohol consumption, regular exercise and increased consumption of dietary antioxidants.

In 1995, Harmon was nominated for the Nobel Prize in medicine. At 92, Harmon continues his work on dietary sources of antioxidants and free radical scavengers from natural sources like fruits, vegetables and natural source nutritional supplements and their role in human health and disease prevention.

### **Resveratrol – From Wine or From a Nutritional Supplement**

While resveratrol was originally found in wine, the best way to get the benefits of resveratrol is not from wine, as alcohol consumption causes myriad health risks. Even two ounces of alcohol per day increases the risk of breast cancer, colorectal cancer, ovarian cancer, liver cancer and cancers of the head and neck.<sup>30</sup>

The best way to consume resveratrol appears to be from the extract of the skins and seeds of the grape itself and the best source appears to be the variety of grapes called muscadine which yield the highest levels of resveratrol. While resveratrol appears to be the most important substance found in the muscadine grape, many health benefits have been found in other plant based substances also found in the muscadine grape. They include: Ellagic acid, Quercetin, Anthocyanidins, Cyanidin, OPCs (oligomeric procyanidins), Tartaric acid, Caffeic acid, Chlorogenic acid, Peonidin, Cinnamic acid, Delphinidin, Epicatechin, Petunidin, Gallic acid, Geraniol, Vitamin C, Myricetin, Kaempferol, Coumaric acid and Malvidin.<sup>31</sup>

Of the substances in Muscadine grapes:

- **Ellagic acid** promotes normal cell function and is unique to the muscadine grape;
- **Quercetin** is a powerful antioxidant and anticancer agent now undergoing extensive clinical trials worldwide;
- Another group of substances called **Anthocyanins** (flavonoids) support vision, nerve function and blood vessels;



- **Oligomeric procyanidins (OPCs)** (also called proanthocyanidins) are bioflavonoids and potent antioxidants which support immune function and promote proper inflammatory processes in the body. Proanthocyanadins are one of the most potent free radical scavengers known, possessing an antioxidant effect up to 50 times more potent than vitamin E and up to 20 times more powerful than vitamin C.

Study after study points to grapes, their seeds and skins and red wine as the best source of resveratrol. Additional powerful active ingredients in red wine may be the tiny compounds called procyanidins found in the skin and seeds of the grapes.

A research team at Queen Mary's School of Medicine in London recently set out to determine the compound in red wine that has the greatest effect on blood vessel dilation. Procyanidins went to the root and actually *suppressed* the constriction of blood vessels. So they may help to keep your blood moving freely and your passages wide open.

According to Roger Corder, head of the research team at Queen Mary's, "with resveratrol you'd need to drink 1,000 liters of red wine to have any chance of affecting longevity," he goes on, "but procyanidins are so potent that drinking just one glass a day would have an effect."

So it may be best to get Resveratrol from the extract of the muscadine grape in a natural nutritional supplement containing a high extract of resveratrol and procyanidins from the seeds and skins of the grape.

### Resveratrol and Longevity

A new study shows resveratrol, which has previously shown to prolong the life of yeast, worms and fruit flies, may extend the lifespan of vertebrate animals like fish and possibly humans. Researchers adding resveratrol to the daily diet of the fish prolonged their expected life span and slowed the progression of age-related memory and muscular problems. Researchers found fish fed the lower dose of resveratrol lived an average of 33% longer than fish fed their normal diets, while those fed the higher dose of the red wine ingredient lived more than 50% longer.

They say the findings suggest that resveratrol is the first compound to consistently prolong the life of several very different animal groups and could become the stepping stone for creating drugs to prevent age-related diseases in humans<sup>32</sup>.

### Resveratrol and Diabetes

About 1.5 million new cases of diabetes were diagnosed in people aged 20 years or older in 2005. Research carried out by scientists at the Peninsula Medical School in the Southwest of England showed that Resveratrol can protect against the cellular damage to blood vessels caused by high production of glucose in diabetes. The elevated levels of glucose that



circulate in the blood of patients with diabetes causes micro- and macrovascular complications by damaging mitochondria, the tiny power plants within cells responsible for generating energy. When they are damaged they can leak electrons and make highly damaging 'free radicals'. Resveratrol effectively scavenges these free radicals.<sup>33</sup>

Chinese scientists at the Chinese Academy of Sciences in Shanghai found Resveratrol may counter type 2 diabetes and insulin resistance. The insulin hormone controls blood sugar. Insulin resistance occurs when the body becomes less sensitive to insulin. This condition can lead to type 2 diabetes.

### **Resveratrol and Heart Disease and Stroke**

Albert Sun, a professor of pharmacology at Missouri University, discovered that resveratrol can absorb free radicals during a stroke and stop them from doing any further damage to the brain or individual cells. The researchers found a remarkable difference between brain cells that had been treated with resveratrol and those that had not. Researchers found the compound was helpful if taken both before and after a stroke.<sup>34</sup>

According to researchers at the University of Toronto, resveratrol may be the compound responsible for wine's proven ability to protect against atherosclerosis and coronary heart disease.<sup>34</sup>

### **Conclusion**

Everyone now has access to important new scientific information about human health and the prevention of disease. With this information - we can do more for ourselves than any doctor.

The best thing we can do for prevention is to lower our intake of red meat, eat a diet based on large amounts of organic vegetables, with small amounts of fruits and grains and nuts, and take natural nutritional supplements. We should go into the sun daily. Get exercise every day. Importantly, we should eliminate the poisons in our food, air, water and environment.

We now have access to resveratrol as a nutritional supplement - a safe and natural substance which is more powerful in preventing and treating cancer and other deadly diseases than expensive, dangerous drugs. It's a wonderful time to be alive.

### **Resources**

**The Advanced Longevity Formula** is a specially formulated nutritional supplement which contains a high extract of resveratrol from the muscadine grape, with Quercetin in a base of grape seed and skin extract. Available from Innovative Therapeutics at: 888-688-9922.



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**Additional Resources:**

*The Grape Cure* by Johanna Brandt is available at Barnes and Noble bookstores and online:  
<http://search.barnesandnoble.com/booksearch/isbnInquiry.asp?r=1&ISBN=9780879040024&ourl=Grape%2DCure%2FJohanna%2DBrandt> Accessed July 23, 2008

*You Don't Have to be Afraid of Cancer Any More* by Bill Sardi - ISBN 0-9774272-1-8

*Options: Revolutionary Ideas in the War on Cancer*, The Newsletter of People Against Cancer, 604 East St, Otho IA 50569, 515-972-4444, [Info@PeopleAgainstCancer.com](mailto:Info@PeopleAgainstCancer.com), [www.PeopleAgainstCancer.com](http://www.PeopleAgainstCancer.com)

**Wikipedia:** <http://en.wikipedia.org/wiki/Resveratrol>