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Red Wine and Cancer Prevention: Fact Sheet

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 chemopreventive 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 anti oxidant or anti cancer properties.

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 may be an effective chemopreventive agent in three stages of the cancer process: initiation, promotion and progression.

Research studies published in the International Journal of Cancer show that drinking a glass of red wine a day may cut a man's risk of prostate cancer in half and that the protective effect appears to be strongest against the most aggressive forms of the disease. It was also seen that men who consumed four or more 4-ounce glasses of red wine per week have a 60 percent lower incidence of the more aggressive types of prostate cancer.