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Chemical in red wine, fruits and vegetables stops cancer, heart disease, depending on the dose

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The next cancer drug might come straight from the grocery store, according to new research published in the November 2007 issue of The FASEB Journal. In the study, French scientists describe how high and low doses of polyphenols have different effects. Most notably, they found that very high doses of antioxidant polyphenols shut down and prevent cancerous tumors by cutting off the formation of new blood vessels needed for tumor growth. Polyphenols are commonly found in red wine, fruits, vegetables, and green tea.

At relatively low doses, the French researchers found that the same polyphenols play a beneficial role for those with diseased hearts and circulatory systems by facilitating blood vessel growth. The amount of polyphenols necessary for this effect was found to be the equivalent of only one glass of red wine per day or simply sticking to a healthy diet of fruits and vegetables containing polyphenols. This diet is known as the “Mediterranean Diet.”

This study also adds to a growing body of research showing dose-dependent relationships for many types of commonly used compounds. For instance, research published in the October 2006 issue of The FASEB Journal shows that aspirin, through different mechanisms, also has a dose-dependent relationship for heart disease and cancer.

"When it comes to finding treatments for complex diseases, the answers

are sometimes right there waiting to be discovered in unexpected places like the produce aisles and wine racks of the nearest store," said Gerald Weissmann, M.D., Editor-in-Chief of The FASEB Journal. "But it takes modern science to isolate the pure compound, test it in the lab, and to go on from there to find new agents to fight disease."

According to the authors, the amount of polyphenols necessary to obtain an anti-cancer effect is the equivalent of drinking about a bottle of red wine each day. This amount of daily alcohol consumption obviously is unhealthy, but the research suggests that polyphenols extracted from plants or red wine could be converted into a pill that is highly likely to be safe. Such a pill also would be relatively easy and inexpensive to create and deliver.

"The use of plant polyphenols as therapeutic tools presents important advantages," said Daniel Henrion, senior author of the study, "because they have a good safety profile, a low cost and they can be obtained everywhere on the planet."

Source: Federation of American Societies for Experimental Biology

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