

Green Tea and Polyphenols

What are Polyphenols?

Polyphenols are compounds found in nature. More specifically they are found in plants and provide coloring for some. Their purpose appears to be a potent, natural antioxidant. There are many plants that we consume that contain polyphenols. Concentrations are high in Olive oil and Green Tea and have been the subject of many health articles and promoted to enhance your health.

How do Polyphenols work?

These antioxidants eliminate free radicals, unstable molecules that are the major cause of both aging and disease, in both plants and humans. Free radicals continually attack the body. Free radicals are a normal product of metabolism and result in a process called oxidation. Polyphenols and other antioxidants, including beta carotene (a vitamin A precursor), vitamin C, vitamin E, and selenium, scavenge these free radicals and help to prevent formation of unstable oxygen molecules, known as oxidation. Oxidation can damage healthy cells in the body and have been linked to many diseases including cancer, heart disease and stroke. Polyphenols not only work to prevent diseases but may also help to reduce abnormal cells and inflammation; get rid of cancer causing agents and restore cells back to normal health.

What foods contain Polyphenols?

There are many but there are only a few, which contain particularly high levels. They include red wine, olive oil, black and green tea. Green Tea is the #1 source of polyphenols. These extremely high levels of polyphenols deliver green tea's unique results in several ways. Just one example is a subgroup of polyphenols, exclusive to green tea, called catechins. EGCG, the most abundant and powerful of green tea's 5 main catechins, is dubbed the 'super antioxidant' because it is 200 times more powerful than the popular antioxidant vitamin E. Unfortunately, polyphenols have a quick life span (short half life) of about 3 hours, thus the scientific reason behind researchers' recommendation to drink green tea a minimum of 8 times a day.

Not only may green tea protect and heal the body from disease but also clinical trials, conducted by the University of Geneva, in Switzerland, indicate that green tea raises metabolic rates and speed up fat oxidation. In addition to caffeine, green tea's catechin polyphenols raise thermogenesis (the rate at which calories are burned) and hence increases energy expenditure. And, research at the University of Chicago has shown green tea extract injections in rats to cause appetite suppression. They consumed 60 percent less food and lost 21 percent of their body weight. However, as explained by the scientists, a person would have to drink green tea almost constantly to obtain these results. Green tea patches have been developed as a solution. They contain up to 300mg of polyphenols (30 times the potency of regular green tea) and provide a constant supply over 48 hours.

Research is still continuing with green tea and more health benefits continue to be discovered. For instance, EGCG's may one day play a role in treatment of mad cow disease (Nature Structural and Molecular Biology, DOI:10.1038/nsmb743). And the formation of unstable oxygen molecules in the body is unavoidable. Aging, smoke, and environmental pollutants are all sources of the damaging free radicals. Japan and China have benefited from drinking green tea vs. black tea, like the rest of us, for centuries. The west is just now catching on to the benefits of green tea. With green tea being no more harmful than a cup of coffee (and actually containing less caffeine) there's no reason why you shouldn't begin today to benefit from green tea too.

Chemical name:

Various

Also known as:

Green Tea Polyphenols, Green Tea Water Extract, Black Tea Polyphenols, Black Tea Water Extract, Epigallocatechin Gallate (EGCG), Polyphenon E (Mitsui-Norin, Ltd.), Topical Polyphenon E (Epitome Pharmaceuticals Ltd.)