

July 9th, 2008

Plentiful intakes of antioxidants have been associated with reduced risk of some chronic diseases, in the same way that generous intakes of fruits, vegetables and grains have been associated with similar health benefits.

ANTIOXIDANTS TUTORIAL, PART 2: HEALTH BENEFITS OF ANTIOXIDANTS

There are many known health benefits of antioxidant intake. Some scientific examples include the following:

Cancer

- People with high beta-carotene intakes have about one-third the cancer risk as people with low beta-carotene intakes. (*Peto R. Cancer Surveys 1983;2:327-340.*)
- People with higher intakes of vitamin C have about half the risk for many types of cancer when compared to people with low vitamin C intakes. (*Block G. Am J Clin Nutr 1991;53:270S-282S.*)
- People with low intakes of several antioxidants have more DNA damage than people with generous intakes. (*Ames BN. Metab Res 2001;475:7-20.*)
- People with the highest intakes of vitamin C, E, and beta-carotene have a significantly lower risk of lung cancer. (*Yong LC et al. Am J Epidemiol 1997;146:231-43.*)
- Men who took vitamin E supplements for 10 years or more had a 30% lower risk of bladder cancer. (*Michaud DS et al. Am J Epidemiol 2000;152:1145-53.*)
- There are over 66 studies showing cancer-prevention activity of green tea, black tea, and their constituents. These include cancer reduction in the skin, lung, oral cavity, esophagus, stomach, liver, pancreas, bladder, small intestine, colon and prostate. (*Lambert JD et al. Am J Clin Nutr 2005;81:284S-291S.*)

Heart Disease

- Elderly people who took both vitamin C and vitamin E supplements had a decreased risk of death from heart disease as well as overall mortality. (*Losonczy KG, Harris TB, Havlik RJ. Am J Clin Nutr 1996;64:190-196.*)
- Men who took vitamin supplements had a 70% lower risk of dying from heart disease and a 50% lower risk of heart attack. (*Meyer F, Bairati I, Dagenasis GR. Can J Cardiol 1996;12:930-934.*)

- In the Nurses' Health Study involving over 87,000 women, there was a 41% reduction in risk of heart disease for those who took vitamin E for more than two years. (*Stampfer MJ, Hennekens CH, Manson JE, et al. New Engl J Med 1993;328:1444-1449.*)
- In the Nurses' Health Study, vitamin C supplements were also related to a lower risk of heart disease. (*Osganian SK et al. J Am Coll Cardiol 2003;42:246-52.*)
- In the Health Professionals Follow-Up Study involving almost 40,000 men, there was a 37% reduction in risk of heart disease in men who took vitamin E for more than two years. The average intake in the lowest risk group was 400 IU per day. (*Rimm EB, Stampfer MJ, Ascherio A, et al. New Engl J Med 1993;328:1450-1456.*)
- To date, 17 human group studies have been published on flavonoid intake and the risk of coronary artery disease and stroke. Positive studies have shown reduction in mortality risk of up to 65%. (*Arts ICW and Hollman PCH. Am J Clin Nutr 2005;81:317S-325S.*)
- The largest and longest study to date, done as part of the Harvard-based Nurses' Health Study and Health Professionals Follow-up Study, included almost 110,000 men and women whose health and dietary habits were followed for 14 years. The higher the average daily intake of fruits and vegetables, the lower the chances of developing cardiovascular disease. Compared with those in the lowest category of fruit and vegetable intake (less than 1.5 servings a day), those who averaged 8 or more servings a day were 30% less likely to have had a heart attack or stroke. (*Joshiyura KJ, et al. Ann Intern Med 2001 Jun 19;134(12):1106-14.*)

Other Chronic diseases

- Several long-term studies have shown a reduced risk of cataracts in those who have taken vitamin C and/or vitamin E supplements for more than 10 years. (*Jacques PF et al. Arch Ophthalmol 2001;119:1009-19.*)
- The Age-Related Eye Disease Study (AREDS) at NIH found that daily supplementation with antioxidants, zinc, and copper delayed progression of age-related macular degeneration. (*AREDS report no. 8. Arch Ophthalmol 2001;119:1417-36.*)
- Research has shown a significant relationship between flavonoid intakes and the occurrence of asthma. (*Knekt P et al. Am J Clin Nutr 2002;76:560-8.*)
- Other research suggests antioxidants may help support lung function and protect the lungs from oxidative damage. (*Schunemann HJ et al. Am J Respir Crit Care Med 2001;163:1246-55.*)
- In a study on Alzheimer's disease, high levels of vitamin E delayed progression of the disease. (*Sano M et al. N Engl J Med 1997;336:1216-22.*)

[< Next week - Part 3: Dietary sources and intakes >](#)