

Antioxidants; what are they and why do we need them?

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We have all heard rumors of these marvelous anti-cancer substances called antioxidants, but what exactly are they and how do we incorporate them into our lives?

Antioxidants are substances that help to prevent damage to cells caused by free radicals. Free radicals are unhinged or unstable molecules which are thought to be responsible for cellular damage or cell deathⁱ. Factors that cause free radicals to form include cigarette smoke, radiation, digestion, environmental pollutants and even breathingⁱⁱ.

In their article “Free radicals and antioxidants in health and disease”, Bagchi and Puri use the analogy of a free radical as a bachelor being let loose into a dance party that is all couples. As the bachelor starts cutting in, he leaves one man without a dance partner, breaking up couples as he moves through the dance floor. These now unstable couples (molecules) can be highly destructive; it is these damaged cells that are thought to play a role in disease processes.

The main purpose of an antioxidant is to help stabilize free radicals and counteract or prevent any damage they might have or will cause. They are hugely abundant and take many different forms. They range from vitamins like A, C, E to bioflavonoids (plant chemicals found in foods like grapes, cherries, bright vegetables and buckwheat). Antioxidants also exist as minerals like selenium (found in foods like rice and sunflower seeds), and enzymes which are substances that speed up biological reactions. Carotenoids are another common example; these antioxidants represent a class of pigments found in foods such as tomatoes, carrots and sweet potatoes.

Although research on antioxidants has not yet been absolute, many studies have suggested that “consuming large quantities of fruits and vegetables reduces the risk for several types of human cancers”ⁱⁱⁱ.

In 2009, The Canadian Cancer Society published their annual report in which it states that 40% of women and 45% of Canadian men will develop cancer in their lifetime; 1 out of every 4 Canadians will die. With statistics like these, maybe we should wake up and focus more on consuming whole, natural foods, high in beneficial properties, like antioxidants instead of processed foods that contain little or no nutritional value.

Example menu based on high antioxidant foods

Breakfast- whole grain oatmeal with fresh blueberries and raspberries. Cinnamon and ground cloves sprinkled overtop

Morning Snack – small handful of walnuts, 1 plum

Lunch – Chicken breast, marinated in olive oil, paprika, chili powder and fresh ground pepper. This served over a fresh spinach and red cabbage salad.

Afternoon Snack – Quality protein shake blended with blackberries and ground flax seeds

Dinner – Fresh white fish baked with lemon and fresh dill served over a medley of sweet potatoes, red bell peppers and broccoli.

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ⁱ Santosh k, Mukhtar H. Tea antioxidants in cancer chemoprevention. *Journal of Cellular Biochemistry* 1998; 67: 59-67.

ⁱⁱ Bonnefoy M, Drai J and Kostka T. Antioxidants to slow aging, facts and perspectives. *Presse Med* 2002; 31(25):1174-84

ⁱⁱⁱ Khachik F, Beecher G and Smith C. Letein, Lycopene, and their oxidative metabolites in chemoprevention of cancer. *Journal of Cellular Biochemistry* 2004; 59 (S22): 236-246.

^{iv} Bagchi k and Puri S. Free radicles and antioxidants in heath and disease. *Eastern Mediterranean Health Journal* 1998; 4 (2): 350-360.