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The Mystique of Anti-oxidants

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By Carol T. Culhane, P.H.Ec., MBA

☼ 'Wasn't Long Ago...

The November 1994 Editorial of JAMA (Journal of the American Medical Association) entitled *"All that Glitters is not Beta Carotene"* drew readers' attention to a number of newly discovered carotenoid anti-oxidants such as lutein (source: spinach; physiological association: macular degeneration) and lycopene (source: tomatoes; physiological association: prostate tumors), extolling their role in the maintenance of specific physiological functions.

Back in the mid-'90's these now-familiar anti-oxidants were overshadowed by β-carotene, the then best known carotenoid anti-oxidant due to its potential vitamin A activity. Further, the anti-oxidant spotlight shone mostly on Vitamin A, Vitamin C and the mineral selenium, all major components of the human body's "anti-oxidant system". Advice put forth in the Editorial seems elementary and ludicrous in light of the advanced clinical trials and subsequent anti-oxidant knowledge of the 21st century, such as:

> "[…] Therefore, a null finding for one antioxidant on disease risk does not mean that other antioxidants could not be effective."
>
> "Since dietary sources of carotenoids tend to overlap, levels and intake of other carotenoids should be controlled for when assessing specific carotenoids either in plasma or in the diet."
>
> "Investigators should evaluate specific foods, nutrients, and vitamin supplements."

☼ Has progress occurred?

Soon thereafter began a 5-year clinical study, the findings of which were published in this month's issue of The Lancet. 20,000+ UK adults suffering from coronary disease or diabetes were treated a daily regime of anti-oxidants Vitamin E, Vitamin C and β-carotene, or, matching placebos. The end result: no significant difference in outcomes such as all-cause mortality, coronary death, cancer incidence, and hospitalization - despite substantially increased plasma vitamin concentrations in the treatment group. Predictably, the conclusion has generated less than favourable press coverage with headlines such as "MANY VITAMINS USELESS, STUDY SAYS: C, E AND BETA-CAROTENE: 'I'M GOING TO HAVE TO CHANGE MY STORY,' SAYS VITAMIN ADVOCATE" in Canada's National Post™.

☼ The Complexity of Anti-oxidants

Anti-oxidants are a mixed category of substances that protect the body from free radical activity, the damaging effect of cell oxidation. It is believed that the body's anti-oxidant system, which regulates the levels of anti-oxidants and free radicals, begins to de-generate with aging and exposure to contaminants such as cigarette smoke. Anti-oxidants are present in substantial concentrations in human plasma; most identified to date come from the plant kingdom. Examples include the phenol catechin found in tea, the mineral selenium, vitamins C and E, the pigment anthocyanin found in blueberries, the carotenoids lutein and lycopene. Each has a unique structure and specific biological property, which likely influences each one's ability to prevent a specific disease. Due to the natural inclination and professional curiosity of medical researchers, clinical trials will probably continue until each anti-oxidant is correctly associated with the protection and treatment of a particular physiological function. And not likely to be completed in our lifetime. **FF**

☼ Some web-sites

http://www.nutritionbusiness.com/

T: 416-924-3266 F: 416-924-2726
E: focus@foodfocus.on.ca
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