

Cookbook science: a half-baked approach to natural health

By Steve Hickey PhD and Robert Verkerk PhD

We feel slightly embarrassed by the need, yet again, to provide an explanation for the biased nature of anti-vitamin studies. Certain researchers have hit on a cookbook recipe for performing studies, purporting to show that antioxidant vitamins are ineffective. In the most recent case, Jennifer Lin (Harvard Medical School) and colleagues make the erroneous claim that antioxidant vitamins do not prevent cancer.¹

This type of so-called evidence-based medicine can be regarded as little more than cookbook science.² Exponents follow the recipes for clinical trials and meta-analyses blindly, with the guarantee of publication. The recent paper by Lin and colleagues follows the cookbook approach perfectly, drawing its conclusions from an eccentric extrapolation of half-baked results.

Typically, such “cookbook” nutrition studies use a low dose of vitamin C, often 500 mg or less, given once a day. This will not act as an antioxidant for the majority of the time, since this dose will increase average blood plasma levels only slightly. In Lin *et al.*'s study, the subjects' average intake of vitamin C before supplementation was over 200 mg, so they were well nourished compared to the general population. As is generally the case with such studies, the dose of vitamin C used was lower than the intakes claimed to be effective for prevention or treatment of disease.

Such studies use low to moderate intakes of a single isomer (often synthetic, but in this case natural) vitamin E. In this study, Lin *et al.* used 600 IU alpha-tocopherol every other day. This intake of this form of vitamin E would not be expected to act as an effective antioxidant in the human body. In addition, the baseline intake of natural vitamin E and beta-carotene/vitamin A was consistent with a well-nourished population.

The form of beta-carotene used in this study was “Lurotin”, from BASF, a large pharmaceutical company. In addition to not sourcing beta-carotene from a standard supplement supplier, a Google search on “Lurotin” resulted in only 334 pages (compared to about 2,690,000 for beta-carotene). Lurotin's use seems limited largely to clinical studies of vitamins. It appears to be a synthetic form of beta-carotene, manufactured from benzene, a known carcinogen. The

use of an unnatural chemical such as Lurotin, would probably not be chosen to prevent cancer by supplement users.³ Lurotin is not a health food supplement.

We have critiqued some basic elements of the design and statistics. However, an exhaustive rebuttal would be pointless and would merely repeat criticisms we have already made of similar studies.⁴ This was not a study of antioxidant supplements *per se*, so the results bear little or no relation to the supplements health-conscious consumers actually take. The results are therefore irrelevant to the people interested in healthy food and supplements. They are also irrelevant to men (the study only included women) or healthy people (all study subjects had heart disease or a high risk of the disease).

What this paper illustrates is that a group of medical researchers seems unable to appreciate the basic paradigms of natural health. Antioxidants need to be administered in adequate quantity and to be of sufficient quality to be relevant to supplement users. People in the natural health world are aware of these facts, leaving us to wonder why it is apparently so difficult to educate the medical researchers.

¹ Lin J. Cook N.R. Albert C. Zaharris E. Gaziano J.M. Van Denburgh M. Buring J.E. Manson J.E. (2009) Vitamins C and E and Beta Carotene Supplementation and Cancer Risk: A Randomized Controlled Trial, *J Natl Cancer Inst*, 101, 14–23.

² Yuichiro K. (2000) Evidence-Based Medicine. EBM. Evidence Based Medicine and Professional Judgement, *Japanese Journal of Primary Care*, 33–38.

³ Richards B. (2007) Natural Vitamin E Dramatically Reduces Heart Disease, *Natural News.com*, Thursday, August 16.

⁴ Hickey S. Downing D. Verkerk R. (2008) Designed to fail: a trial without meaning, ANH release. http://www.anhcampaign.org/files/081117_Sesso_PHSII_ANHrebuttal.pdf.