



COCHRANE REVIEW OF ANTIOXIDANT SUPPLEMENTS IN PREVENTION OF MORTALITY

Nutrients with antioxidant activity include vitamin A, vitamin C, vitamin E and selenium. All are essential nutrients, not only on account of their antioxidant activity in the cells and tissues, but also for a whole host of other effects on immune function, the blood, the nervous system and the musculoskeletal system. The totality of evidence from epidemiological studies, animal trials and various studies in humans for these essential nutrients suggests that they have many health benefits and that inadequate intake can increase the risk of poor health. Moreover, a significant number of British people have diets lacking in these essential nutrients. A supplement containing the recommended daily amount of these, and all essential vitamins and minerals, will ensure that a person's intake does not fall below recommended levels

Pamela Mason (nutritionist and spokesperson for HSIS) comments: "Nutrients with antioxidant activity, including vitamin A, C, E and selenium are essential for human health. Vitamin A is essential for the health of the eyes and mucus membranes, such as the respiratory tract. Vitamin C is essential for the health of all connective tissue, such as the bones, joints, blood vessels and gums. Vitamin E is essential for the health of the nervous system and selenium participates in many biochemical reactions throughout the body as a result of its involvement in key enzymes."

Pamela continues: "Each one of these nutrients has proven antioxidant activity in the tissues, which means that they reduce the adverse effects of reactive oxygen and reactive nitrogen species on biochemical functions in the body's tissues. In this antioxidant role, these nutrients have a wide variety of protective roles in the body all of which help to maintain health. Vitamin E protects the lipid (fat) component of cell membranes from damage. Vitamin C protects the DNA in human sperm from oxidative damage, and the eye tissue from damage caused by ultraviolet light."

The Cochrane systematic review

Pamela goes on to discuss the Cochrane review published this week which concluded that there was no evidence that antioxidant supplements extend life.¹ “This meta-analysis, which included 67 randomised controlled trials, combining data from 232,550 participants was large, **but it is important to note that it included only trials which looked at mortality.** A total of 405 trials considered by the review group were excluded from the meta-analysis because these trials did not report on mortality in their papers. When the authors of the Cochrane review contacted the authors of the trials not reporting on mortality, in one fifth of these trials, ie more than 80 trials, mortality was zero – ie no one participating in the trials had died. **In short, the Cochrane review only included trials in which someone had died. Had these other trials been included, the conclusions would have been very different.**

The Cochrane review also excluded studies that used supplements for replacement of nutrient deficits. In addition, this meta-analysis did not look at particular population groups whose antioxidant status and intakes of antioxidants are low and who may well have derived key benefits.

Given that nutrient supplements, including those with antioxidant activity, are intended primarily to replace shortfalls of nutrients in the diet and contribute to health maintenance, this is a serious problem with the meta-analysis, which may also have skewed the results.

Another thing to note is that this review demonstrates nothing new whatsoever. Indeed, this review was published last year in the Journal of the American Medical Association.² The trials it includes have been in the public domain for at least 3 years.

What is also important is that the National Diet and Nutrition Survey (NDNS) showed that substantial numbers of the adult population have inadequate intakes of vitamins and minerals. This is particularly so in younger adults aged 19-24 years, but poor intakes occur throughout the population. Vitamin and mineral supplements including antioxidants, taken in recommended amounts can make good these dietary gaps and ensure that everyone achieves adequate intakes.

Pamela concludes: “Antioxidant vitamins, including these included in this Cochrane review are essential for health and UK national dietary surveys have

shown that some people have poor intakes. Antioxidant vitamins, like any other vitamins were never intended for the prevention of chronic disease and mortality. They are not magic bullets. They are intended for health maintenance on the basis of their various physiological roles in the body and in the case of the antioxidant vitamins, this does, in appropriate amounts, include a protective antioxidant effect in the body's tissues.

What we need now, I'm afraid, is yet further research, looking at the role of antioxidant vitamins in different groups of people at different stages of life and throughout life, and possibly also in different mixtures and amounts. Further consideration is also required around the methods used to conduct meta-analyses, which trials to include and so on.

What we do know is that these vitamins are essential for health and that many people in the UK do not have an adequate intake according to recommended daily amounts. A vitamin supplement taken in recommended amounts can be beneficial for health, especially for those people whose intakes are poor.

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1. Bjelakovic G, Nikolova D, Gluud LL, Simonetti RG, Gluud C. Antioxidant supplements for prevention of mortality in healthy participants and patients with various diseases. *Cochrane Database of Systematic Reviews* 2008, Issue 2. Art. No.: CD007176. DOI: 10.1002/14651858.CD007176.
2. [Bjelakovic G](#), [Nikolova D](#), [Gluud LL](#), [Simonetti RG](#), [Gluud C](#). Mortality in randomized trials of antioxidant supplements for primary and secondary prevention: systematic review and meta-analysis. [JAMA](#). 2007 Feb 28;297(8):842-57.

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