

## Women's Multivitamin Study: 'A little, too late' study, designed to fail

By the Alliance for Natural Health

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Critique of: Neuhouser ML, Wassertheil-Smoller S, Thomson C, Aragaki A, Anderson GL, Manson JE, Patterson RE, Rohan TE, van Horn L, Shikany JM, Thomas A, Lacroix A, Prentice RL. Multivitamin Use and Risk of Cancer and Cardiovascular Disease in the Women's Health Initiative Cohorts. *Arch Intern Med.* 2009 Feb 9;169(3):294-304.

Abstract can be found at:

[http://www.ncbi.nlm.nih.gov/pubmed/19204221?ordinalpos=1&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed\\_ResultsPanel.Pubmed\\_DefaultReportPanel.Pubmed\\_RVDocSum](http://www.ncbi.nlm.nih.gov/pubmed/19204221?ordinalpos=1&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_DefaultReportPanel.Pubmed_RVDocSum).

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A study just published in the *Archives of Internal Medicine* (Vol 169, No. 3, Feb 9, 2009) has provided further fodder for the anti-supplement brigade to classify food (dietary) supplements as useless.

Here are some of the negative headlines generated:

- [CNN \(USA\): Study: Multivitamins don't lower older women's cancer risk](#)
- [Australia: Experts say multivitamins have no impact on older women's risk of cancer or heart disease](#)
- [China: Study: multivitamins does not lower cancer risks](#)
- [Guardian UK: Multivitamins don't help women live longer, or protect against major diseases](#)
- [Reuters India: Multivitamins may not thwart cancer, heart disease](#)
- [Canada: Multivitamins don't cut women's disease risk](#)
- [USA Today: Study doubts multivitamin benefit vs. cancer, heart disease](#)
- [Independent UK: Multivitamin supplements a 'waste of time'](#)
- [Daily Mail UK: Vitamin pills 'won't make you live longer', study reveals](#)

The desk-based study utilises data collected in the [Women's Health Initiative](#), a 15-year research programme which aims to investigate the causes of death, chronic disease and poor quality of life in post-menopausal American women.

The authors of the study introduce their paper by claiming that the 50% of

Americans who routinely use dietary supplements do so because of the common *“belief that these preparations will prevent chronic diseases, such as cancer and cardiovascular disease....and [t]hese views are often fueled by product health claims, consumer testimonials, and an industry that is largely unregulated owing to the 1994 Dietary Supplement and Health Education Act.”*

The observational study, led by Dr Marian Neuhouser of the [Fred Hutchinson Cancer Research Center](#) in Seattle monitored a group of 161,808 postmenopausal women over an eight-year period. It found that 42% of these women, aged between 50 and 79, reported regular use of multivitamins.

When the rate of cancer, heart disease and death were evaluated, it was found that there were no significant differences between multivitamin users and non-users.

We feel (once again) compelled to ask the authors of the study:

- Were you surprised by the results of your study?
- What results were you expecting from your study?
- How else could you have used your research funds (from the National Heart, Lung, and Blood Institute, National Institutes of Health and the US Department of Health and Human Services) to better understand how nutrition and supplementation may be able to be used to reduce the risk of chronic diseases like cancer and heart disease?

Let us explain below what we see as the limitations of the study:

1. **Applicability to the general population.** let's start with the no brainer. A study on overweight, partially sick older women cannot have applicability to the general population. We need say no more on this, surely.
2. **The doses of supplements.** The multivitamin (MV) and multivitamin and multimineral (MVM) supplements evaluated were all low dose, by comparison with what integrative medicine practitioners know would be required to reduce risk of chronic diseases like cancer and heart disease. In fact, the MVM supplements, the very supplements that might have the greatest potential to work because of the synergistic interactions between the nutrients and the food matrix (with which they are normally consumed) were very low dose. As the methods of the study reveal, the MVM supplements *“were preparations with 20 or 30 vitamins and minerals and nutrient levels of 100% or less of US RDA”*. Even the third group of multis that was included, so-called 'stress multisupplements' were "preparations with higher doses (often \_200% of US RDA) of several B vitamins and often including large doses of vitamin C or selected minerals, such as selenium or zinc." Given the RDA's of B vitamins are less than 2 mg, this would still mean the dosages were relatively trivial. And what about this? The authors of the

paper continue: "*Supplement mixtures* with fewer than 10 components, such as B complex or antioxidant mixtures, were not considered multivitamins". Eh? In actual fact, these smaller combinations are often the higher dosage products (you see, it's expensive to have high doses of 20 or 30 ingredients!)—so it appears there's another selection criterion that could impacted the outcome! For more on the importance of dosage, see the Orthomolecular Medicine News Service article, dated 2 February 2009, entitled "[Vitamins:It's Dose that Does It](#)". It is astonishing that the very supplements that were most likely to yield positive results were excluded from the study. Possible reasons for this could be that an insufficient number of women were consuming higher dose products or, more cynically, that there was a deliberate effort to exclude supplements that were likely to be more efficacious.

3. **Frequency of use.** The trial relied on patient reports of use and made no attempt to compare plasma or urine levels of nutrients between supplement users and non-users. This prevented any comparison being made of the overall intake from the diet as against supplements in addition to the diet. In other words, there was no independent means of verifying compliance. Moreover, there was no requirement that the supplements be taken daily with the study being based only on those supplements which were reportedly taken "at least once a week." MVM supplements used less than daily or even every day—would, in the case of many vitamins, not produce a significant increase in many circulating nutrients. This has been demonstrated in the UK [National Diet and Nutrition Survey Programme](#).
4. **The forms of supplements.** No indication is given in the study as to the nutrient forms of the supplements used. However, given that the multivitamin and mineral supplements were low dose, it is most likely that the forms were cheap pharmaceutical forms that are known to be of lesser efficacy than natural complexes derived from natural sources. This is known to be particularly the case with vitamins such as beta-carotene and vitamin E. Also, a key nutrient that women in northern latitudes are very deficient in and appears to be strongly correlated to nutrient intake is vitamin D. There was no separate record made of vitamin D intakes and it is likely that intakes as part of the MV or MVM supplements were around or below the US RDA of 200 IU. However, studies show that at least 20 times this dosage of supplementary vitamin D3 is considered (assuming no summer sun exposure) an optimal dose for preventative health (Vieth et al, *Am J Clin Nutr.* 2001; 73(2): 288-94).
5. **Duration and periods of supplement use.** There was no requirement for women to have been taking one or more supplements prior to the start of the study—the duration of supplement use prior to the study not appearing to have been recorded by the study authors, or, in any

event, not being reported by them in this paper. Given that this was a study looking specifically at the ability of supplements to prevent chronic diseases, long-term usage, or possibly even more importantly, use during earlier, vulnerable lifestages (e.g., during critical stages of development such as during breast formation; Knight et al. *Cancer Epidemiol Biomarkers Prev.* 2007;16(3): 422-9) would be required to have a preventative effect, given the long and variable preclinical phases of chronic diseases like cancer and heart disease.

6. **Disease progression.** The study looked at postmenopausal women between the ages of 50 and 79 who weren't particularly healthy. Many or indeed most of the women were overweight or obese and were likely to have progressed a long way down the pathway of one or more chronic diseases. More recent research, now endorsed even by the [World Health Organization](#), shows that chronic diseases generally have their origins at young ages. In this sense, the study was looking at what can only be described as "a little, too late."

Are you going to stop taking your vitamins and minerals now? Do you believe, like the newspapers will have us believe, that supplements don't work? We certainly don't, and—what's more—because we know nutrients are really good for us, we'll continue taking them in addition to a really healthy, balanced and varied diet!

Let us hope that public funds will soon be used more productively in the quest for cost effective, self-administered, effective and safe preventative health care strategies.

See ANH's [Sustainable Healthcare](#) and [Food4Health](#) campaigns for more information.

See also, [ANH critique published on 12 January 2009](#) on the last vitamin study (in relation to cancer) that we assessed and believe was 'designed to fail'.