

## **Are Supplements Safe and Effective?**

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Due to many factors, including the events of the last almost four years, people are looking for alternatives to traditional healthcare. This is justified, as the conventional healthcare system is highly flawed, care is expensive and sometimes difficult to access, and a growing body of evidence shows that some of the most common treatments for some of the more common conditions aren't very effective. For example, evidence shows that patients who receive stents are not better off than patients who are instructed to take medication and change their lifestyles;<sup>1</sup> and that surgically repairing meniscal tears is no better than physical therapy for reducing pain.<sup>2</sup> There are many more examples. In fact, a 2019 meta-analysis identified 396 common medical practices that researchers stated should be reduced or eliminated.<sup>3</sup> However, this has not resulted in significant change.

As more of this type of information circulates, we can expect more people to look for better options. There are some better options available, but alternative medicine practices are not necessarily better. Many protocols are useless, and some are harmful. The decision to take more responsibility for one's health and look for better options is a good one, but only if one commits to investigating thoroughly before committing to a practice or practitioner – and this is also true for alternative medicine.

A good example is supplements, which can be useful for some purposes. But many people think that supplements are better and safer than drugs, and that the choice to take them involves no risk. This is not true. The supplements to be most concerned about are the ones that "work" since if there is an effect, there must be a side effect. You cannot manipulate one pathway in the body without impacting others. In the case of drugs, we usually know what those "others" are. Sometimes we do, sometimes we don't with supplements. I do understand the limitations of testing products that cannot be patented, but this does not change the fact that a lot is not known. But even in cases in which there are known risks, people often don't know about them because they don't think to look.

One common purpose for taking supplements is prevention – preventing cardiovascular disease and cancer, for example. The US Preventive Services Task Force evaluated vitamin and mineral supplements for prevention of both conditions, and all-cause mortality in healthy adults, and posted the results in 2021.

Here is what the Task Force reported:

- Multivitamin use may be associated with a reduced risk of cancer. But there were significant limitations for making this claim which included that there were only three adequately powered trials, one of which had a median follow-up time of 3.6 years.

- Vitamin D with or without calcium showed no benefit for all-cause mortality, CVD events, cancer incidence, or cancer outcomes.
- Beta-carotene, with or without vitamin A - was associated with increased risk of cardiovascular mortality.
- There was some evidence that folic acid increased the risk of cancer.
- There was no benefit for vitamin E with or without vitamin C for all-cause mortality, cancer, or CVD events.
- There was no impact from taking multivitamins, vitamin A (with or without beta-carotene), vitamin C, calcium (with or without vitamin D), and selenium on all-cause mortality, or risk of cancer or CVD.
- Some weak evidence showed that supplements can increase the risk of some serious harms. These included an association with vitamin A and hip fracture, vitamin E and hemorrhagic stroke, and vitamin C and calcium and kidney stones.

The task force concluded that vitamin and mineral supplements provide little to no benefit for preventing cancer, CVD, and death. The exception was a possible small benefit for multivitamins and cancer, particularly lung cancer. Beta-carotene was associated with increased risk of lung cancer, particularly for people at higher risk for it. There were not sufficient data to draw conclusions for B vitamins, iron, zinc, or magnesium.<sup>4</sup>

Over \$38 billion dollars was spent on multivitamins in 2022, and vitamin D sales are expected to hit almost \$2 billion annually by 2027.<sup>5</sup> Assuming that people are purchasing these products because they think they are helpful, there is a big gap between their beliefs and what the current body of evidence shows.

One of my pet peeves concerning the use of supplements for the prevention of disease is that doing so can distract people from paying attention to things that do make a difference – such as diet, exercise, hydration, stress reduction, and weight loss.

The bottom line: The good news is that consumers are starting to take more responsibility for their health. But they need to become much more discerning when evaluating alternatives for both prevention and care.

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<sup>1</sup> Boden WE, O'Rourke RA, Teo KK et al. "Optimal Medical therapy with or without PCI for Stable Coronary Disease." *NEJM* 2007 Apr;356:1503-1516

<sup>2</sup> Herrea-Perez D, Haslam A, Crain T et al. "A comprehensive review of randomized clinical trials in three medical journals reveals 396 medical reversals." *eLife* 2019 Jun;8:e45183

<sup>3</sup> IBID

<sup>4</sup> O'Connor E, Evans C, Ivlev I, Thomas R, Martin A, Lin J. "Vitamin, Mineral and Multivitamin Supplementation for the Primary Prevention of Cardiovascular Disease and Cancer: A Systematic Evidence Review for the U.S. Preventive Service Task Force." *Evidence Synthesis No 209* Agency for Healthcare Research and Quality (US); 2021 Jun. Report No:21-05278-EF-1

<sup>5</sup> <https://www.marketsandmarkets.com/Market-Reports/vitamin-d-market-22034298.html>