

Supplements in the cross-hairs again: What the latest study gets wrong



We've been here before. In December 2013, an editorial in *Annals of Internal Medicine* proclaimed: "Enough is Enough: Stop Wasting Money on Vitamin and Mineral Supplements." Unequivocal in its condemnation, the article stated "we believe the case is closed—supplementing the diet of well-nourished adults with (most) mineral or vitamin supplements has no clear benefit and might even be harmful. These vitamins should not be used for chronic disease prevention. Enough is enough."

Over the years, I've been called upon to do damage control on repeated efforts by mainstream medicine and their media enablers to discredit supplements. In 2016, I responded to a *Frontline* exposé, and in 2013, I penned "10 Responses to Supplement Naysayers".

The latest onslaught comes in the wake of a *Journal of the American College of Cardiology's* (JACC) meta-analysis entitled "Supplemental Vitamins and Minerals for CVD Prevention and Treatment" (CVD stands for cardiovascular disease comprising heart attacks, strokes, and, presumably, the need for stents and bypass surgery).

This was widely and gleefully misreported with lurid headlines like:

"Yet Another Study Says Vitamin Supplements Are Worthless"—*Discover Magazine*

"Older Americans Are Hooked on Vitamins Despite Scant Evidence"—*Chicago Sun-Times*

"Study finds most vitamins ineffective"—*KRQE TV*

The JACC meta-analysis crunched data from 139 studies to arrive at the conclusion that most vitamins and minerals weren't much good at preventing heart or brain circulatory problems. Most of the studies involved inexpensive over-the-counter multivitamins like Centrum; a few looked at B-complex supplements and antioxidant combinations.

Of note, the JACC researchers didn't include studies that looked at high-dose, quality multivitamins. They didn't look at the effects of significant amounts of bio-available magnesium, low-levels of which are known to be a cardiovascular risk factor; None of the studies they considered included vitamin K2, now thought to play a significant role in arterial protection. And most of the supplements contained cheap, generic forms of beta carotene instead of full-spectrum carotenoids, synthetic vitamin E instead of mixed tocopherols, and folic acid and cyanocobalamin (B12) instead of preferred forms like 5-methylfolate and methylcobalamin.

Vitamin D doses probably didn't exceed the paltry RDA of 400 IUs/day. Nor were promising nutrients like fish oil, Coenzyme Q10, Aged Garlic Extract, resveratrol,

curcumin, olive leaf extract or a host of others considered.

Also, the scope of the JACC study was confined to cardiovascular endpoints. No conclusions could be drawn from it about the many other ancillary benefits of supplements on bone, brain, joints, muscles, etc.

So, it's journalistic malpractice to draw the conclusion that this study proves that all supplements are worthless. It's like saying that, based on the number of drugs recently recalled due to unacceptable side effects, we ought to conclude that medications as a whole are a dangerous waste of money and should be avoided altogether.

But if you read between the lines of the actual study (which, apparently most scientifically-illiterate "health journalists" did not), you could come up with an alternate headline:

"Certain supplements show cardiovascular benefits!"

That's because, in spite of meager dosages and low-quality ingredients, the B vitamins folic acid and B12 showed a protective effect against stroke.

Why might that be? Apparently, lowering homocysteine with methyl-donors like folate, B12, and B6 translates to meaningful cerebrovascular defense.

Of interest is that the JACC study showed adverse effects of niacin supplementation, long thought to be beneficial to the heart because of its cholesterol-lowering effects. While this seems paradoxical, I've backed off prescribing high-dose niacin in light of recent research that shows that the cholesterol improvement niacin delivers does not translate to reduced incidence of heart disease.

I'll leave it to statisticians to critique the numbers-crunching in the latest study, but suffice it to say that meta-analyses are notorious for selection bias and arbitrary rules of "weighting" studies for inclusion or validity.

What troubles me about the JACC study is that it excludes the most recent research paper that documents the *benefits* of supplements for cardiovascular prevention. That's the TACT study—of which I was a designer and co-author. It was found that in patients not already taking statins, those who took high-potency vitamins and minerals after a first heart attack were less likely (38%!) to have subsequent cardiovascular events.

Worth considering is that there's brisk controversy, even in mainstream medicine, about the value of "RCTs." That stands for randomized controlled trials, which the JACC meta-analysis is based on. RCTs are usually of a short duration, due to the difficulty and expense of studying a trial intervention—be it a drug, a supplement, a diet, a certain exercise regimen—over a period of time involving a sufficient number of individuals to reach statistical significance.

Heart disease is a complex problem that develops over decades, and the effects of nutritional supplementation might be so subtle as to not be appreciated in the small, short-term RCTs which make up this study. Additionally, there may be benefits in a significant minority of individuals who are nutritionally-depleted or genetically-predisposed to higher vitamin requirements that get lost when we look at aggregate populations.

What's ironic is that there's a Catch-22 when it comes to supplements. By law—the Dietary Supplement Health and Education Act (DSHEA)—supplement manufacturers are

enjoined from making health claims. They are required to post this disclaimer: "These products are not intended to cure, treat or prevent any disease." Instead, they're relegated to using "weasel words" to make more modest claims like "supports heart health."

So, in an exercise in twisted logic, a paper that purports to demolish the rationale for taking supplements for preventing cardiovascular disease is only reinforcing the premise that prohibitions on disease claims for vitamins and minerals are already in place! Or, in other words, if they're demonstrated to really have an impact on cardiovascular conditions, supplements would earn drug status, and hence be threatened with violation of DSHEA!

Is there bias at work here? Dr. Thomas Guilliams makes the case for systemic bias against supplements [here](#). He states ". . . even though the \$300 billion pharmaceutical industry is 10 times larger than the supplement industry . . . we are advised . . . to 'stop wasting our money' only on the latter. Does this sound like unbiased, scientific advice? You be the judge."