

Can a Placebo Beat a Multivitamin?

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STORY AT-A-GLANCE

- › A team of researchers from Oregon State University found a significant positive effect when older men used multivitamins
- › The study involved 35 healthy men aged 68 years or older; half took a multivitamin/multimineral supplement while the other half took a placebo, daily for six months
- › The multivitamin group had improved biomarkers of nutrition while the placebo group did not
- › The placebo group had a reduction in cellular oxygen consumption, which is a marker of cell function; the multivitamin group did not
- › By improving vitamin status, or preventing declines, as well as limiting reductions in cellular oxygen consumption, multivitamin/multimineral use “may have important implications for metabolism and immune health in healthy older men”

Multivitamin and mineral supplements are the most commonly consumed supplement in the U.S. It’s estimated that one-third of U.S. adults — and one-quarter of children and adolescents — use them.¹ But despite their popularity, multivitamins are controversial, with studies showing mixed results on their benefits.

A team of researchers from Oregon State University (OSU), however, found a significant positive effect when older men used multivitamins,² to the extent that they concluded, “Our evidence indicates that many older men could benefit from a daily multivitamin.”³

Multivitamins Improve Key Biomarkers of Nutrition

The study involved 35 healthy men aged 68 years or older. Half took a multivitamin/multimineral (MV/MM) supplement while the other half took a placebo, daily for six months. The men used no other supplements during the study period, with the exception of doctor-prescribed vitamin D.

"Our tests when the study started showed that many of these older men were not obtaining the optimal levels of several vitamins," said Tory Hagen, principal investigator and Helen P. Rumbel Professor for Healthy Aging Research at the Linus Pauling Institute. "So there certainly was room for improvement."⁴

Significant differences were noted between the two groups at the end of the study period, however. The multivitamin group had improved biomarkers of nutrition while the placebo group did not. In fact, nutrition biomarkers fell in some of the placebo participants, which "suggests that food alone was not enough to keep their vitamin and carotenoid levels up," Hagen explained.⁵

However, the placebo group also had a reduction in cellular oxygen consumption, which is a marker of cell function. "This was not observed in men who took the multivitamin, suggesting a connection between vitamin status and white blood cell function that we are eager to explore further," Hagen said in an OSU news release.⁶

By improving vitamin status, or preventing declines, as well as limiting reductions in cellular oxygen consumption, the team stated that multivitamin/multimineral use "may have important implications for metabolism and immune health in healthy older men."⁷ While vitamin and mineral deficiencies weren't widespread in the healthy subjects that took part in the study, the researchers still found multivitamins to be worthwhile, explaining:

"[T]he use of MV/MM supplements can improve or prevent declines in the status of several vitamins and may prevent declines in cellular bioenergetic status. Although MV/MM supplementation is a "one-size-fits-all" strategy and does not target specific micronutrient needs, it is a cost-effective approach to

improve micronutrient status in older men and may have an as yet unappreciated impact on maintaining metabolic function in cells."

Multivitamins Are Good for Memory

Other research, by scientists from Harvard Medical School and Columbia University, demonstrated that older adults taking a multivitamin supplementation may experience memory improvements.⁸

Data was gathered from the COcoa Supplement and Multivitamin Outcomes Study Web (COSMOS-Web), which was an ancillary study of COSMOS. In this group of 3,562 older adults, participants received either a multivitamin supplement or a placebo.

The participants were evaluated at baseline and each year using a battery of neuropsychological tests over a period of three years. Results showed that participants taking the multivitamin supplement had better immediate recall at the first year point, which was maintained during follow-up.

The researchers estimated that taking a multivitamin improved performance by "the equivalent of 3.1 years of age-related memory change" compared to placebo.⁹ The team concluded:

"Daily multivitamin supplementation, compared with placebo, improves memory in older adults. Multivitamin supplementation holds promise as a safe and accessible approach to maintaining cognitive health in older age."

Do Multivitamins Lower Chronic Disease Risk?

The goal of the COSMOS study was to evaluate cocoa extract supplementation with and without a standard multivitamin against the risk of developing cardiovascular disease and cancer. The larger study enrolled 21,442 participants and found cocoa flavanol supplementation did not show a significant impact in reducing the total number of cardiovascular events.

However, when the data were evaluated further, they also found daily multivitamins potentially reduced lung cancer by 38% and "did appear to improve levels of several nutritional biomarkers."¹⁰ Previous research also found that daily multivitamin supplementation led to a statistically significant reduction in the incidence of total cancer among men aged 50 years or older.¹¹

Other research found multivitamin use was associated with a 70% decrease in risk of non-cardia gastric cancer among Black participants in the Southern Community Cohort Study who were below the healthy eating index median, meaning they had a lower-quality diet.¹²

Why Older Adults May Be at Risk of Nutrient Deficiencies

It's important to note that getting older doesn't guarantee nutrient deficiencies. In fact, given the lack of nutrient deficiencies the OSU team found among their older subjects, they said, "This is evidence to suggest that micronutrient deficiencies observed in prior reports may not be a function of age per se but a consequence of underlying health conditions or poor dietary habits."¹³

There are, however, a number of factors that could predispose older adults to deficiencies and inadequacies in micronutrients – and if you are deficient, it's possible that a multivitamin may be especially useful. Changes in eating habits along with physiological changes may contribute to micronutrient inadequacies. According to the OSU team:¹⁴

"For example, both food choices and changes in nutrient absorption may decline as a result of poor oral health, gastrointestinal pH changes, chronic low-grade inflammation of the gut (i.e., atrophic gastritis), co-morbid diseases, polypharmacy, or loss of taste and smell, and any combination of these factors.

There is also the possibility that advancing age may lead to heightened micronutrient utilization, making it more difficult for older adults to maintain blood nutrient levels. Acute or chronic inflammatory events, which often plague

older individuals, may reduce the circulating concentrations of several vitamins and minerals."

Most Common Nutrient Deficiencies

The best way to ward off nutrient deficiencies is to intentionally fortify your meals with whole, nutrient-dense foods. Targeted supplements can also be beneficial to make up for any nutritional gaps, as can multivitamins when needed.

In the U.S., 31% of the U.S. population was found to be at risk of at least one vitamin deficiency or anemia,¹⁵ increasing the risk of health problems over a lifetime. It's also estimated that 1 in 3 Americans are deficient in at least 10 minerals, putting them at risk of chronic diseases such as heart disease and diabetes.¹⁶ Even at a subclinical level, being deficient in vitamins and minerals can cause a range of symptoms, including:¹⁷

- Fatigue
- Irritability
- Aches and pains
- Decreased immune function
- Heart palpitations

Some of the most common nutrient deficiencies include:

- 1. Vitamin D** – An estimated 40% of Europeans are deficient in vitamin D, while 13% are severely deficient.¹⁸ Among older Americans, however, it's estimated that up to 100% may be deficient, in large part due to less time spent outdoors.¹⁹

The only way to gauge whether you might need to supplement, and how much to take, is to get your level tested, ideally twice a year, in the early spring, after the winter, and early fall when your level is at its peak and low point. Vitamin D is best obtained via sensible sun exposure, but supplementation may be necessary for some people.

2. Magnesium – It's estimated that more than half the U.S. population may not be consuming enough magnesium.²⁰ You only need about 150 milligrams (mg) to 180 mg a day to prevent deficiency, but optimal levels are closer to the 600 mg/day level. For comparison, the RDA for magnesium is around 310 mg to 420 mg per day depending on your age and sex.²¹

Dark green leafy vegetables are a good source of magnesium, and juicing your greens is an excellent way to boost your intake, although supplementation is likely necessary for most people.

3. Vitamin K2 – Known for its role in bone and heart health, vitamin K2 is found in grass fed animal products such as meat, eggs, liver and dairy, as well as in fermented foods, including sauerkraut, certain cheeses and the fermented soy food natto – items that many Americans do not consume enough of.

4. Vitamin B12 – A water-soluble vitamin also known as cobalamin, vitamin B12 plays a role in numerous biochemical reactions and neurological functions in your body, including DNA synthesis.²² Your body can't make vitamin B12 on its own, so it must be obtained via your diet or supplementation.

It's been suggested that nearly two-fifths of Americans may have lower than ideal B12 levels, with 9% deficient and 16% below 185 pmol/L, which is considered marginally deficient.²³ While vegetarians and vegans are susceptible since B12 is derived from animal products, even meat eaters may be deficient, as problems with absorption are common.

5. Vitamin A – An estimated 51% of adults are not consuming enough vitamin A,²⁴ increasing their risk of degenerative diseases like macular degeneration, a leading cause of blindness in the U.S.²⁵

Vitamin A is a group of nutrients that falls into two different categories: retinoids found in animal foods and carotenoids found in plant foods. The two are chemically different and provide different health benefits, but both are necessary for optimal health. Plant foods high in beta-carotene include sweet potatoes, carrots,

cantaloupe and mangoes.²⁶ Animal foods rich in vitamin A include liver, egg yolks and grass fed butter.

The Best Way to Get Your Nutrients Is From Food

As I've long stated, eating fresh, whole foods is the best way to stay healthy and obtain the vitamins and minerals your body needs. Avoiding ultraprocessed foods, which are devoid of nutrients, is essential, but adding to the challenge, researchers have documented declining nutrient value in the whole foods people are eating.

In one of the largest studies, researchers found a reliable decline in six nutrients across 43 foods.²⁷ With levels of protein, calcium, phosphorus, vitamin C and other nutrients lower in many fruits and vegetables compared to past decades,²⁸ it's now more important than ever to choose locally grown, organic foods to support optimal health.

If you feel you're not getting enough nutrition from your diet, however, a multivitamin may help fill in some gaps. When choosing any multivitamin or mineral supplements, be sure to look for a manufacturer that has checks and balances in place to ensure the quality of the product.

Sources and References

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