

Divine Medicine

BLENDING OF SCIENCE & NATURE

Overfed and Undernourished Do You Need a Multivitamin? *Read This and Find Out*

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I often get asked the question of whether a multivitamin is necessary and, if so, what is the best type of multivitamin to take. This is a particularly important question because as a Westernized nation, we're overfed and undernourished. We're eating heavily processed foods that have been put into "suspended animation," and are consequently devoid of enzymes, making them harder to digest. These foods are often enriched to "try to make up" for the travesty of destroying our foods for longer shelf life and convenience. There's a saying I routinely use with my patients: "Dead food for dying people, live food for living people."

According to a 2009 report by the Centers for Disease Control and Prevention, only 33% of adults are eating the recommended two or more servings of fruit per day and 27 percent eat the recommended three or more servings of vegetables per day.¹ That means 73% are

falling short of eating enough vegetables and 67% are falling short of eating enough fruit per day.

And if Americans weren't meeting the old five-a-day guidelines, they're certainly not meeting the latest dietary guidelines that recommend five to thirteen servings of fruits and vegetables per day based upon how many calories a person eats.² For example, someone who needs 2,000 calories per day for a healthy weight would need to eat nine servings of fruits and vegetables per day. That's a lot of fruits and vegetables to eat in three meals a day. Even if you eat a healthy snack, getting in nine servings would be a challenge.

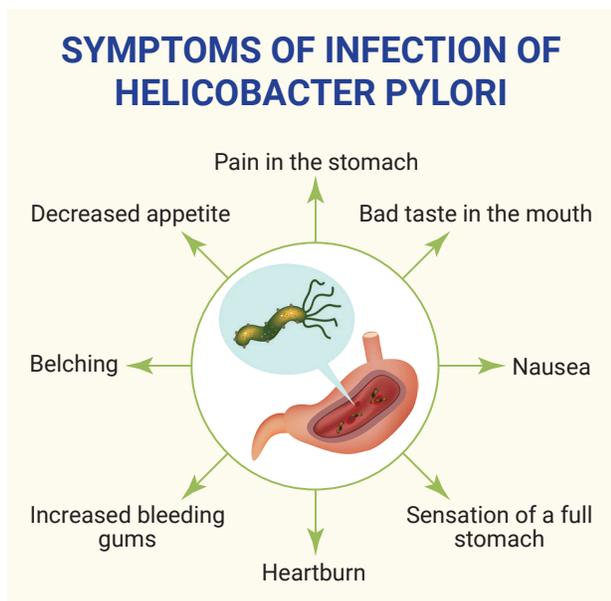
These statistics make it clear that we're not getting enough nutrients from our diet. And we're paying the price. One study in England published in 2014 found that eating seven or more servings of fruit and vegetables per day

lowered the risk of death from all causes by 42%.³ Fruit and vegetable consumption also was linked to reduced death from cancer and cardiovascular causes.³ Vegetables

were more protective than fruit. Conversely, eating frozen or canned fruit was linked to increased mortality.³

NUTRIENT DEFICIENCIES DUE TO LOW STOMACH ACID	
Deficient Nutrient	Function In The Body
Vitamin B12	<ul style="list-style-type: none"> • Reduces the risk of depression. • Important for heart health and lowering levels of homocysteine, an amino acid linked to heart disease and other diseases of aging. • Important for healthy red blood cells.
Vitamin C	<ul style="list-style-type: none"> • Involved in immunity. • Essential cofactor in enzymatic reactions. • Important in production of collagen and is therefore crucial to the health of skin, tendons, cartilage, and bone. • Reduces the risk of cardiovascular disease. • High blood levels linked to lower risk of death from all causes.
Calcium	<ul style="list-style-type: none"> • Essential for strong bones. • Deficiency causes rickets. • Helps maintain healthy blood pressure. • May reduce PMS symptoms. • Involved in weight management. • Can result in weight loss in overweight people when combined with vitamin D in supplement form or when dairy products are eaten.
Iron	<ul style="list-style-type: none"> • Deficiency causes anemia. • Deficiency linked to restless leg syndrome.
Magnesium	<ul style="list-style-type: none"> • Activator of more than 300 enzymes in the body. • Deficiency results in fatigue, irritability, and anxiety. • Important for strong red blood cells. • Helps calcium cross cell membranes. • Deficiency linked to high blood pressure. • Low magnesium level associated with cardiovascular-related deaths and hospitalizations.

Not only are we starving ourselves of nutrients due to the overly processed food we often consume and the low level of fruit and vegetable consumption—the nutrients we are consuming are often depleted by medications or other factors. One of the biggest offenders in this area is the stomach acid-blocking medications known as proton pump inhibitors. By lowering stomach acid, proton pump inhibitors have been reported to cause deficiencies in vitamin B12 and some researchers have expressed concern that these drugs may lower iron, calcium, and magnesium as well.⁴



Stomach acid levels also decline at a greater rate as we get older, with as many as 30% of all elderly people suffering from atrophic gastritis, which is characterized by low stomach acid.⁵ Studies in Japan have shown that more than 60% of 50 year olds have low stomach acid.⁶ In North America, a small study of 79 healthy, elderly men

and women indicated the prevalence of low stomach acid in the elderly is 11%.⁷

An infection with *Helicobacter pylori*, a common bacterium linked to stomach cancer, is another factor that's known to lower stomach acid. *H. pylori* infections are quite common, due to its presence in many grocery store foods and the fact it's transmitted among people. One study of 1,200 U.S. veterans found that 28.9% of the subjects were infected with *H. pylori*.⁸ Globally, half of the world's population is thought to be infected with *H. pylori*.⁹

Oral contraceptives are also guilty of lowering certain nutrients. Studies show that oral contraceptives cause deficiencies in folic acid, vitamins B2, B6, and B12, vitamins C and E, and magnesium, selenium, and zinc.¹⁰

Multivitamins: The Grout Between the Tiles

You can think of a good multivitamin as the "grout between kitchen tiles." In other words, a good multi fills in the gaps, yet is NOT a substitute. It is a SUPPLEMENT to a good diet filled with live, non-processed foods.

What makes a good multivitamin? The answer to that question is a multivitamin that contains the forms of vitamins and minerals that your body can use most effectively. A good multivitamin should use the 5-MTHF form of folate rather than folic acid. The reason why 5-MTHF is superior to folic acid is because some people have a genetic defect in the MTHFR gene that prevents them from transforming folic acid into the biologically active form of folate.¹¹



Unmetabolized folic acid is then released into the bloodstream. In adults, this release of unmetabolized folic acid can occur with amounts as low as 200 mcg per day of folic acid.¹²

Why is unmetabolized folic acid bad? The concern is that it may explain why in some studies, folic acid supplementation and food fortified with folic acid has been linked to the development of some forms of cancer, including colon cancer.^{13,14} This folic acid-cancer link has not been found in other studies,^{15,16} however, so researchers need to conduct more research in this area.

Supplementing with 5-MTHF eliminates some of the other disadvantages of folic acid supplementation. 5-MTHF can skip the step that converts folic acid to 5-MTHF, making it more desirable for people who have a MTHFR gene defect.¹⁷ Folic acid also can make it difficult to diagnose megaloblastic

anemia because it obscures the symptoms of this condition whereas 5-MTHF does not have this same effect.¹⁸ Another advantage: 5-MTHF is less likely to reduce the effect of antifolate drugs, a problem that also occurs with folic acid.¹⁸

Before your body can use vitamins, they must be converted into the active, coenzyme forms. That's why I also recommend that my patients use multivitamins that contain either the methylcobalamin or adensylcobalamin form of vitamin B12. These are the coenzymated, activated forms of vitamin B12. Other forms of vitamin B12 are inactive and therefore can't be used by the body as effectively.

It's thought that methylcobalamin is used more effectively by subcellular organelles of neurons. Consequently, this form of vitamin B12 may be more likely to nourish the nervous system by way of enhanced systemic or local delivery.¹⁹ Studies have shown that methylcobalamin can enhance nerve conduction in patients with diabetic neuropathy and has also been beneficial in rheumatoid arthritis, Bell's palsy, and sleep-wake rhythm disorder.¹⁹ It also has pain-relieving effects.¹⁹

When looking at the type of vitamin E in multivitamins, I always warn patients to avoid the synthetic version of vitamin E which appears on the label as d,l alpha-tocopherol. Instead, I recommend they look for multivitamins that contain the natural form of vitamin E, which is labeled as d-alpha tocopherol, d-alpha tocopheryl

acetate, or d-alpha tocopheryl succinate, along with mixed tocopherols.

Natural vitamin E is better absorbed compared with synthetic vitamin E. In one study in Japan, scientists alternated between giving natural and synthetic vitamin E to seven healthy female subjects. The subjects had to take 300 mg synthetic vitamin E to achieve the blood levels attained with a 100-mg dose of natural vitamin E.²⁰ What's more, synthetic vitamin E is removed from the body three times faster than natural vitamin E.²¹

Vitamin E is actually composed of a family of eight isomers: four tocopherols (alpha, beta, delta and gamma) and four tocotrienols (alpha, beta, delta and gamma). The gamma-tocopherol form of vitamin E is more effective than alpha-tocopherol in suppressing cancer, including colon and prostate cancer.²²

In addition, gamma-tocopherol is more effective than alpha-tocopherol in increasing the expression of PPAR-gamma, which is involved in not only colon cancer prevention,²³ but also prevention of diabetes, inflammation, and cardiovascular disease.²³ In addition, in one study, gamma-tocopherol was more effective than alpha-tocopherol in lowering oxidative stress in the brain.²⁴

When you take supplements that contain only alpha-tocopherol without also taking other forms of vitamin E, it can block your body's ability to use gamma-tocopherol. This means alpha-tocopherol may increase the risk of cancer. That's why you want to look

for a multivitamin that contains ideally all eight forms of vitamin E.

One Other Critical Addition to Your Supplement Regimen

In addition to taking a multivitamin with the most biologically available nutrients, supplementing with pyridoxal-5-phosphate (P5P) is a beneficial addition to your supplement regimen. P5P, the biologically active form of vitamin B6, is a cofactor in more than 160 enzyme activities that play an important role in many metabolic pathways, including the production of neurotransmitters and their degradation.

For vitamin B6 to work effectively, the liver must convert it into pyridoxal 5-phosphate. However, some people are not able to convert vitamin B6 to P5P.²⁵ In these people, supplementing with P5P ensures that they are able to use of the active form of vitamin B6 without having to undergo the conversion.

Dietary Supplements Fill in the Nutritional Gaps

The modern, Westernized diet is severely lacking in nutrients. In addition, many people are taking drugs that interfere with the absorption of critical nutrients. Other people have low stomach acid, which prevents the absorption of many vitamins and minerals. The only way to fill in the gaps and prevent nutritional deficiencies is to take a multivitamin containing active coenzyme forms of key nutrients and to consume other dietary supplements such as pyridoxal 5-phosphate.

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