Check out our very own Doc Saira from A-Plus Medical Scrubs giving expert advice in the Feb edition of Bottomline Health's column "Ask the expert"

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you B_{12} injections.) The two other forms of B_{12} have to be converted through a multi-step process before the body can use them. Hydroxocobalamin (H-B_{12}) is manufactured by bacteria and cyanocobalamin (C-B_{12}) is made in a lab.

If you take a B_{12} supplement, you most likely take C-B_{12}: It's found in 99 percent of all supplements in the United States. C-B_{12} requires a multistage conversion process to become usable—a process that can be disrupted by aging, infection, medications, toxins, or drinking alcohol. Because the vitamin is absorbed by passive diffusion, you use only about 1 percent of what the bottle advertises.

Folate

Folate (B_9) is B_{12}'s partner vitamer. They rely on each other to complete a wide variety of cellular tasks. There are several causes of folate deficiency, including medications, alcohol consumption, celiac disease, and obesity. You may consume inadequate amounts via your diet, or your body might absorb the vitamin poorly. If you are fortunate, your body absorbs about 50 percent of the folate you eat, depending on the food (dark leafy greens, peanuts, and liver are good sources), its freshness, and how it is processed, stored, and prepared.

Supplementation: Buyer beware

Supplementation can improve levels of both folate and B_{12}—if you take the right product. Unfortunately, the labels on many supplement bottles do not accurately reflect what's inside the pills.

•Folate. While many supplements claim they contain folate, they actually contain folic acid, which is the synthetic form of folate used in food fortification and dietary supplements. As with C-B_{12}, the body must convert the artificial folic acid into folate. The conversion process is genetically impaired in more than 50 percent of the population; therefore, many people don't use sufficient amounts of folate even though they're consuming large amounts of folic acid via fortified foods and vitamin pills.

The U.S. Food and Drug Administration notes that 1 milligram (mg) is the maximum recommended dose of over-the-counter folate, but it turns out that number is probably the minimal optimal daily dose of L-methylfolate for most people. The recommended dose of L-methylfolate is at least 1,000 mg per day, but the hard part is finding a good source. The best bet (for any supplement) is to buy a brand from a reputable manufacturer that you have researched. ConsumerLab (www.ConsumerLab.com) is a reliable, independent source that tests supplements taken off the shelf in stores, rather than bottles provided by the manufacturer.

•B_{12}. When it comes to B_{12}, choose a supplement in the vitamer form, either as A-B_{12} and/or M-B_{12} in a total dose of at least 2 mg per day. Avoid C-B_{12}. You often have to read labels and ingredient lists carefully to tease out what form of B_{12} the supplement contains.

Taking your vitamer supplements

Always make sure your physicians know about all supplementation used, to avoid any contraindications with other medications. Once you get the go-ahead, take B_{12} and folate together on an empty stomach, with 4 ounces of water. The 4 ounces are necessary to fully dissolve the tablet and dilute the ingredients for efficient absorption. Vitamers are sensitive to the presence of other vitamins and minerals (iron), so take them without other supplements or food.

The first thing you may notice is thicker nails and hair as well as skin injuries that heal more quickly. You may have subtle positive changes in your mood, speech, and memory. If you don't notice any benefits after three months, stop taking the supplements for three to four weeks. Sometimes you don't realize how much a supplement has helped until you stop.

Bottom Line Health interviewed **Sheldon B. Zablow, MD,** assistant professor, department of psychiatry, UC San Diego School of Medicine, and author of *Your Vitamins Are Obsolete: The Vitamer Revolution.* https://sheldonzablowmd.com/author

Ask the expert!

My husband kicks his feet in his sleep. If he's dreaming, shouldn't he be unable to move his legs?

Many types of limb movements can occur in sleep, but the most common is caused by periodic limb movement disorder (PLMD). PLMD is characterized by a jerking movement in the legs or arms every 20 to 40 seconds and can last a few minutes or a few hours while asleep. PLMD can occur in any stage of sleep, but it is less common in rapid-eye-movement (REM) sleep, which is when we dream.

PLMD can be caused by iron deficiency, certain psychiatric medications, metabolic disorders such as diabetes or kidney disease, caffeine consumption, or spinal cord injuries. About 80 percent of patients who have restless legs syndrome (an irresistible urge to move the legs while awake) also have PLMD.

Movements that occur in REM sleep can be related to PLMD or they may be REM behavior disorder (RBD). In RBD, people physically act out dreams, causing arm and leg movements. The cause is unclear. Some researchers have associated it with post-traumatic stress disorder and some antidepressants, including fluoxetine (Prozac), venlafaxine (Effexor), monoamine oxidase inhibitors, and tricyclic antidepressants.

Both PLMD and RBD can be diagnosed with an overnight sleep study, where many bodily functions can be monitored. It is important to perform this type of study so that different stages of sleep can be differentiated and more common sleep disorders, such as obstructive sleep apnea, can be ruled out. Treatment for both PLMD and RBD depends on the cause.

Answered by **Saira N. Ahmed, MD,** CEO and founder of Mediversity Health Center for Restful Sleep, Turnersville, N.J.

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