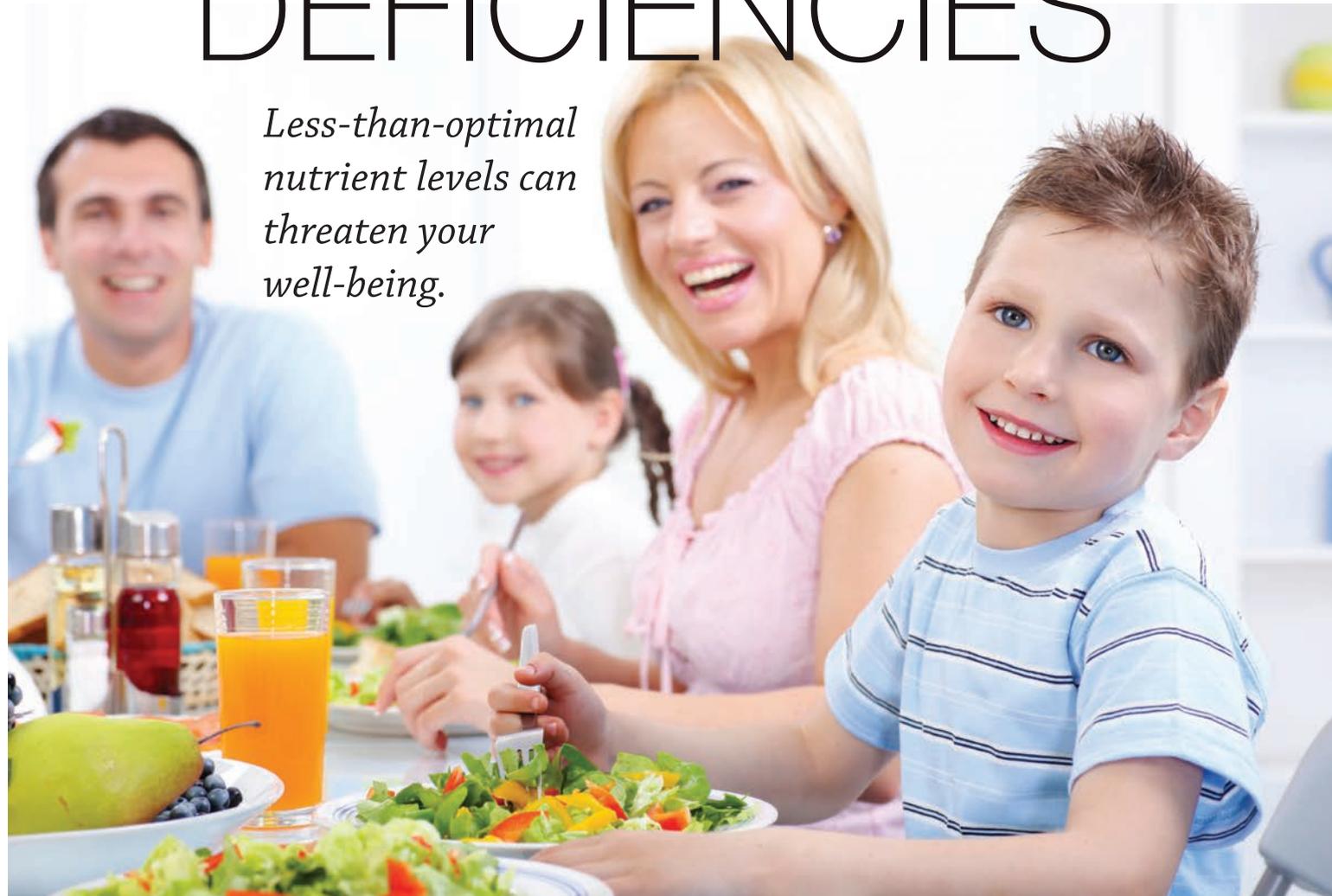


# NUTRITIONAL DEFICIENCIES

*Less-than-optimal nutrient levels can threaten your well-being.*

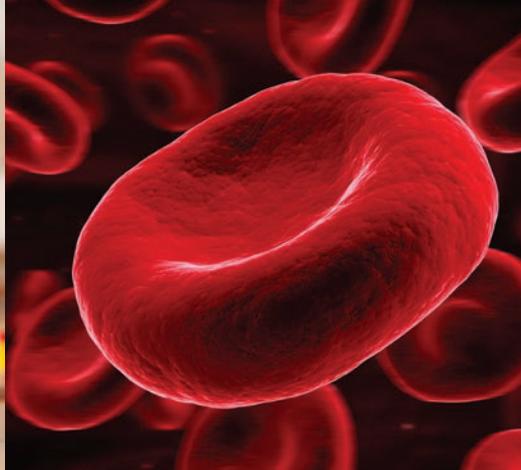


When was the last time you heard of anyone suffering from beri-beri, pellagra or scurvy? If these sound like historical terms, that's because the severe, potentially fatal vitamin deficiencies they represent—of vitamins B1, B3 and C, respectively—have fortunately become rare in the US.

However, that doesn't mean everyone gets enough of all the nutrients our bodies need for peak health. In fact, the National Health and Nutrition Examination Survey (NHANES), taken at regular intervals by the Centers for Disease Control, has found considerable percentages of the population to be deficient in some nutrients. What's more, there are health experts who argue that current recommendations for some nutrients aren't high enough to overcome what are known as *subclinical* deficiencies, which don't cause readily apparent symptoms but have been associated with increased risks of cancer and other health hazards.

Such subtle deficits can easily fly under the radar. With the exceptions of vitamin D, manufactured in skin exposed to sunlight, and vitamin K, which is made in the digestive tract, our bodies cannot create most of the vitamins (and all of the minerals) they need. That means we have to get these crucial substances from dietary sources; in a busy world, even people with the best of intentions don't always eat as well as they should.

In some cases, deficiency risks based on age, ethnicity, gender and other factors have been established. But just because you're a member of a high-risk group does not automatically mean you don't have adequate amounts of specific nutrients, just as not being in such a group doesn't offer automatic protection. That's why it's important to speak to your healthcare practitioner about being tested for nutrients you may be lacking and whether targeted supplementation may be necessary to bring you up to optimal levels.



NUTRIENT	HIGHER RISK GROUPS
<b>Calcium</b>	Women who are past menopause; people who can't tolerate dairy; vegans; NHANES found 46% of Americans don't get enough calcium
<b>Folic Acid</b>	Women who are pregnant or breastfeeding; people who are undergoing kidney dialysis, have liver disease or are taking certain medications
<b>Iron</b>	Women of childbearing age (through menstruation) and those who are pregnant; infants, especially premature ones; underweight adolescents
<b>Magnesium</b>	People with diabetes, kidney disease and certain gastrointestinal disorders, such as irritable bowel syndrome; heavy fluid loss and prolonged stress are factors
<b>Omega-3</b>	Possibly vegans (scientists debate whether plant-based omega-3 can be properly utilized); average diet contains too little omega-3 versus omega-6
<b>Selenium</b>	People who eat foods grown in selenium-deficient soils; those with inflammatory bowel diseases or who are undergoing dialysis
<b>Vitamin A</b>	Low-income groups, especially children; people who suffer from chronic illness; NHANES found that 41% of Americans don't get enough vitamin A
<b>Vitamin B12</b>	Older people, whose bodies often can't properly absorb this nutrient; people who take prescription drugs that lower stomach acid levels; vegans
<b>Vitamin C</b>	Smokers and those exposed to secondhand smoke; one study found nearly 30% of children and adolescents in the US to have suboptimal blood levels
<b>Vitamin D</b>	Those who avoid the sun, especially at northern latitudes; dark-skinned people; seniors; NHANES found that 94% of Americans don't get enough vitamin D
<b>Vitamin K2</b>	People who take long-term antibiotics; people who have liver or bile-tract disorders, or those with an impaired ability to absorb fats
<b>Zinc</b>	Vegetarians; pregnant and breastfeeding women; people with gastrointestinal, liver or kidney disease, among other zinc-depleting disorders



## NEEDED FOR

Strong bones; proper nerve function; muscle relaxation (supplementation should always include magnesium plus vitamins D and K2)

Preventing birth defects, especially those involving the nervous system; amino acid metabolism—too little folic acid can result in a buildup of homocysteine, which has been linked to cardiovascular disease and other disorders

Red blood cells that can carry adequate amounts of oxygen; cellular energy production; proper immune function; healthy healing mechanisms; growth and development in children

Hundreds of bodily processes, including energy production, proper cell membrane function and creation of proteins and other molecules (to learn more, see page 48)

Healthy cell membranes; well-regulated inflammatory response (not over- or under-reactive); proper nervous system function; healthy vision; regulation of how genes are expressed (which genes are switched “on” or “off”)

Creation of the body’s own antioxidants; healthy sperm development; proper thyroid function; anti-cancer protection

Retinal health, which is crucial for good vision; regulation of gene expression; proper immune function and red blood cell development; healthy fetal development

Amino acid metabolism (deficiencies can result in the buildup of homocysteine); proper nerve function and red blood cell development; may be needed to reduce the risk of birth defects

Fighting free radicals as the body’s primary water-based antioxidant; recharging other antioxidants, such as vitamin E; increasing absorption of non-heme (plant-based) iron

Calcium level and blood pressure regulation; proper immune response; insulin secretion; cell differentiation, a key anti-malignancy process; deficiency has been linked to osteoporosis, cancer, hypertension and other diseases

Creation of proteins that help deposit calcium into bones; may possess anti-cancer properties (another type, vitamin K1, helps blood clot properly)

Testosterone production and male sexual health; proper immune function; proper growth and development in children; plays a role in more than 300 enzymatic reactions within the body

**NOTE:** Always consult with your healthcare practitioner for help in designing a supplementation program, especially if you have a pre-existing condition.