

Eating better to help manage chronic stress

Building a nutrient-rich lifestyle can help you ward off the effects of stress.

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Like many clinicians, you may experience stress frequently, both on and off the job. Chronic stress can alter your equilibrium (homeostasis), activating physiologic reactive pathways that cause your body to shift its priorities. Physiologic effects of stress may include:

- slowed digestion
- delay in reproductive and repair processes
- priming of survival mechanisms (respiratory, cardiovascular, and muscular) for immediate use
- depletion of the body's nutrients.

If you're under extreme stress, such as an immediate threat to survival (think of a close encounter with a bear), physiologic effects of stress help you survive. But when the threat is less imminent (for instance, when a recertification exam is looming), these reactive pathways can become dysregulated, leading to chronic disease, disability, and pathology.

To activate and resolve threats to homeostasis, your body needs fuel in the form of vital nutrients. If you ignore the demand for high-quality nutrients, you may find yourself engaging in stress-related



eating behaviors, which compromise your long-term health and quality of life. Understanding the role of key nutrients and building a nutrient-rich lifestyle are stress-management techniques you can incorporate into your daily self-care routine.

Why is a proper diet so important?

Your body can function at an optimal level only when you consume required nutrients on a consistent basis. Current guidelines for healthy eating, which are based on the latest research, emphasize the need to eat a variety of foods from each food group. Choose foods low in saturated fats and cholesterol; consume only moderate amounts of sugar, salt, and alcohol; and handle food safely.

Why are whole foods better than supplements?

Whole, unprocessed foods provide readily available nutrients the body can absorb and metabolize easily. They also reduce exposure to potentially allergenic or toxic



food additives. Nutritional supplements are appropriate for people who have, or expect to have, dietary deficiencies (such as during pregnancy or breastfeeding). But supplement use can cause side effects and interactions. Whole, unprocessed foods are a healthier option.

Stress reduces digestive effectiveness by shunting blood to more vital organs, which promotes poor digestion and reduces nutrient absorption. So eating a nutrient-dense diet of high-quality whole foods is even more vital during stressful periods. An easy way to obtain key nutrients is to eat a whole-foods “rainbow” that incorporates fresh fruits and vegetables of every color.

Key vitamins, phytonutrients, and minerals

The nutrients described below help the body restore homeostasis and replenish nutrient stores during times of stress.

Vitamin A

Also called retinol, vitamin A is a key antioxidant. Stress leads to formation of free radicals, which can cause oxidative stress. In this condition, the body can't neutralize cellular metabolism byproducts, leading to an immunologic and inflammatory response. Vitamin A helps neutralize free radicals by adhering to the empty molecule in oxidizing agents, preventing free radicals from attaching to and attacking DNA and body tissue. Good vitamin A sources include liver, egg yolks, dairy products, orange pro-

duce (such as carrots and sweet potatoes), and green leafy vegetables.

B-complex vitamins

As a group, the B vitamins help metabolize carbohydrates, fats, and proteins and help maintain cellular health and brain function. These water-soluble vitamins are readily eliminated by the body and need to be replenished regularly.

Thiamine (also called vitamin B1) boosts immunity by supporting immune cells. It can become depleted quickly during stress. Crucial to nervous-system functioning and carbohydrate metabolism, thiamine is found in fortified whole grains, enriched breads and cereals, pork, beef, duck, peas, and legumes (including dried beans, green beans, and seeds).

Riboflavin (vitamin B2) aids metabolism and antibody formation. Dietary sources include dairy products, meat, mushrooms, tomatoes, green leafy vegetables (such as beet greens and spinach), and whole and enriched grains. Make sure you store these foods properly because light breaks down riboflavin.

Pyridoxine (vitamin B6) synthesizes neurotransmitters, promotes antibody formation, and breaks down homocysteine. It's found in fish, poultry, lean meats, whole grains, chickpeas, garbanzo beans, bananas, and prunes.

Biotin (vitamin B7) helps the body use B-complex vitamins and aids metabolism of fats, proteins, and carbohydrates. It's readily available in egg yolks, organ meats, and dark green vegetables.



Folate (folic acid or vitamin B9) breaks down homocysteine (an amino acid linked to cardiovascular disease), repairs oxidative damage, and aids red blood cell (RBC) formation and cellular growth and division. Dietary sources include green leafy vegetables, legumes, asparagus, and fortified grains and cereals.

Cobalamin (vitamin B12) reduces high levels of homocysteine. It also promotes RBC formation and protein metabolism and restores homeostasis after periods of stress. Cobalamin is found in eggs, seafood, dairy products, and fortified cereals and grains.

Vitamin C

Vitamin C (ascorbic acid or ascorbate) is another key antioxidant. During stress, the body increases the rate and amount of vitamin C it uses. This water-soluble vitamin tends to become depleted quickly unless replenished. Dietary sources include citrus fruits, berries, melons, sweet peppers, broccoli, kohlrabi, peas, Brussels sprouts, kiwi, kale, cauliflower, and many other foods.

Vitamin E

Also called tocopherol, vitamin E is a powerful antioxidant that helps maintain cellular health and protects against vitamin A oxidation. It's found in fortified cereals, nuts, seed oils, spinach, and other leafy greens.

Phytonutrients

Chemical compounds derived from whole foods, phytonutrients have recognized

health-supporting properties. Although thousands of phytonutrients have been identified, their interactions in the body are poorly understood except in a few cases. They include carotenoids, flavonoids, and fiber.

Carotenoids

Carotenoids are pigments that lend red, orange, and yellow hues to fruits and vegetables. They're thought to have an antioxidant effect. *Beta-carotene*, a dietary retinol precursor, is found in orange fruits and vegetables, including sweet potatoes, carrots, cantaloupe, squash, pumpkins, apricots, and mangoes. Be aware that beta-carotene supplements have been linked to a greater lung cancer risk in smokers—but this risk hasn't been seen with whole-food sources.

Lycopene, also an antioxidant, may protect against some cancers and heart disease. Dietary sources include raw and canned tomatoes (including tomato paste, tomato sauce, diced or stewed tomatoes, and ketchup), watermelon, and papaya.

Lutein may help reduce the aging effects of oxidative stress on the eye and thus help guard against cataracts and age-related macular degeneration. It's found in leafy greens, peas, squash, corn, and Brussels sprouts.

Flavonoids

Flavonoids are phytochemicals that regulate gene expression and may inhibit tumor growth by modulating cell-signaling pathways. Different flavonoid classes can be

found in red, blue, and purple berries, as well as in grapes, teas, chocolate, apples, citrus fruits, onions, parsley, thyme, celery, hot peppers, soy products, and legumes.

Fiber

Digestion-resistant compounds, fibers may be classified in several ways. Dietary fiber is naturally occurring, plant-based fiber, whereas functional fiber is isolated or synthetic fiber found in supplements.

The Food and Drug Administration differentiates soluble fiber from insoluble fiber based on viscosity, fermentability, and physiologic effects.

- *Soluble fiber* helps in lowering cholesterol, reducing the risk for some cancers, preventing cardiovascular disease and diabetes, and promoting weight control. Good food sources include legumes and oat products, such as oat bran.
- *Insoluble fiber* helps support bowel health. Good sources include wheat bran and whole grains.

A good mix of fruits and vegetables can help ensure adequate fiber intake because these foods contain both soluble and insoluble fiber.

Minerals

Several minerals are essential for cell-signaling pathways and energy production in stress regulation.

- *Magnesium* is important in cellular and immune functioning. Dietary sources include dark-green leafy vegetables, whole grains, nuts, seeds, legumes, and bananas.
- *Calcium*, needed for vascular health, is found in dairy products, legumes, and green leafy vegetables.

Fighting stress the holistic way

Chronic stress has systemic effects, and the approach to fighting them should be holistic. Adequate intake of key nutrients through a diet rich in whole foods gives you valuable resources to fight the effects of chronic stress. ■

Selected references

- Aggarwal BB, Krishnan S, Guha S, eds. *Inflammation, Lifestyle, and Chronic Disease: The Silent Link*. Boca Raton, FL: CRC Press; 2012.
- Fink G., ed. *Stress Science: Neuroendocrinology*. San Diego, CA: Academic Press; 2010.
- Higdon J, Drake VJ. *An Evidence-Based Approach to Phytochemicals and Other Dietary Factors*. 2nd ed. New York, NY: Thieme; 2013.
- Higdon J, Drake VJ. *An Evidence-Based Approach to Vitamins and Minerals: Health Benefits and Intake Recommendations*. 2nd ed. New York, NY: Thieme; 2012.
- Linus Pauling Institute. Micronutrient information center. <http://lpi.oregonstate.edu/infocenter/>. Accessed June 20, 2013.
- Salter A, Wiseman H, Tucker G, eds. *Phytonutrients*. West Sussex, England: Wiley-Blackwell; 2012.
- U.S. Department of Agriculture. Agricultural Research Service. Phytochemical database. Last updated February 7, 2006. www.ars.usda.gov/Services/docs.htm?docid=8875. Accessed July 10, 2013.
- U.S. Department of Agriculture. Agricultural Research Service. SR25: Reports by single nutrients. Last modified September 9, 2012. www.ars.usda.gov/Services/docs.htm?docid=22769. Accessed June 30, 2013.
- U.S. Department of Agriculture; U.S. Department of Health and Human Services. *Dietary guidelines for Americans, 2010*. Washington, DC: U.S. Government Printing Office. www.health.gov/dietaryguidelines/2010.asp Accessed June 30, 2013.
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