

# Antioxidant UPDATE

What you need to know to get  
the most out of these phytonutrients

By Lisa Marshall

**V**itamins C and E, green tea, red wine, blueberries, pomegranates ... just mention antioxidants and aging baby boomers perk up, intrigued by the notion that a simple nutrient could help fend off disease and slow aging. But recent headlines about the inefficacy of single-antioxidant supplements, such as vitamin E, have fueled doubts about these miracle compounds. With consumers spending \$3.3 billion annually on antioxidant supplements, according to *Nutrition Business Journal*, the question looms: Do they work, or not?

Absolutely, say researchers—just not the way we thought they did. “The evidence is very strong that dietary antioxidants can promote health and reduce risk for chronic disease,” says Jeffrey Blumberg, PhD, director of the Antioxidants Research Laboratory at Tufts University. “But we now recognize they do more than quench free radicals.”

In fact, scientists say, certain “indirect” antioxidants—like sulforaphane from broccoli sprouts, curcumin from turmeric, or anthocyanins from berries—can actually prompt the body to produce more of its own antioxidants, mounting a powerful defense against oxidative stress for several days after consumption. Meanwhile, new research is showing that all antioxidants, whether “direct” or “indirect,” seem to work better together. “Loading up on one antioxidant would be like sending in one fireman to put out a fire,” says Canadian nutritionist and holistic physician Bryce Wylde, author of *The Antioxidant Prescription* (Random House, 2008). “Antioxidants work like a team.” ►

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### Antioxidants discovered

As far back as the 1950s, scientists began to notice that Mother Nature plays a cruel joke: We need food and air to live, but as our cells metabolize nutrients and oxygen they create free radicals that flood our bodies and eat away at cell membranes. That oxidative stress is linked to everything from wrinkles to dementia to clogged arteries. In essence, experts say, oxidative stress is why we age.

When you're young and healthy, your body churns out antioxidants to mop up free radicals. "Like a new car, you have this remarkable array of catalytic converters to clean up the byproducts of burning fuel," says Joe McCord, PhD, a pioneer in antioxidant research from the University of Colorado, Denver. The bad news, he says: The older you get, the weaker your catalytic converters become.

At first, test-tube studies indicated that food-derived antioxidants could significantly bolster the body's defenses, gobbling up those circulating cell-destroyers. "For about 20 years that was the buzz: You take

vitamin E or C and it annihilates free radicals," says McCord. But it turns out the equation is not so simple.

### Indirect vs. direct antioxidants

Scientists now believe there are two kinds of antioxidants: "Direct," like vitamins E and C, which zap free radicals on their own, and "indirect"—prevalent in cruciferous vegetables, brightly colored berries, certain spices and herbs—that jump-start the body to make its own antioxidants.

While direct antioxidants are valuable, researchers say, they are inferior in that each one is deactivated after it takes out one free radical—much like the bee that sacrifices its life with a single sting. Consider the fact that you produce millions upon millions of free radicals per day, and direct antioxidants are a bit like firemen armed with tiny buckets at a house fire, says McCord. By some estimates, you'd have to consume 375 oranges or 120 vitamin-C tablets daily to break even.

On the other hand, consuming indirect antioxidants (thus far, about 50 have been identified in foods and herbs) is like ►

## 5 easy ways to harness antioxidant power

- 1| Load up on "indirect" antioxidants, which fuel your body's own antioxidant production. These include sulforaphane, found in broccoli and broccoli sprouts, brussels sprouts, and other cruciferous vegetables; curcumin, found in the curry spice turmeric and in supplements; and the antioxidants in licorice, shallots, tonka beans, and the herbs milk thistle and ashwaghandha.
- 2| Steer clear of megadoses of single "direct" antioxidants, like vitamins C or E. In excess, they can backfire and promote *more* free radical production.
- 3| Take antioxidants in combination. They have a synergistic effect.
- 4| Get your produce fresh and close to home. Studies show antioxidant potency fades within a few days.
- 5| Steam your vegetables: It enhances their antioxidant power.



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turning on the hose, creating an endless stream. "Indirect antioxidants are going to make a big splash in how we treat diseases," says McCord.

### Synergy unveiled

Another important recent revelation: Antioxidants work better together. For instance, says Blumberg, vitamin C "recycles" vitamin E, "returning it back to its active form so it can quench another free radical." And sulforaphane is believed to work better with curcumin (curried broccoli, anyone?), because the two use different routes to ignite antioxidant defense.

According to one study, a proprietary blend of the indirect antioxidants ashwagandha, turmeric, milk thistle, green tea, and *Bacopa monniera* worked up to nine times better at fueling antioxidant production than any one antioxidant alone. Blumberg says that his own research has shown that when E and C are combined in the lab, their antioxidant activity more than triples.

This notion of synergy may help account for the two studies, published in the *Journal*

of the American Medical Association in December 2008 and January 2009, which found no benefit from taking C or E supplements. "They were single antioxidants, not combinations," says Blumberg, who believes the studies were flawed in other ways, too. "The dosage might have been off, and the cohorts were particularly healthy"

Meanwhile, several new studies suggest that taking too much of a single antioxidant can backfire. One study of 22 patients undergoing surgery for aortic aneurysm found that those who took vitamin C tablets before the surgery had *more* oxidative stress afterward than those who didn't. And a 2005 meta-analysis of 19 clinical trials found that high-dose vitamin E (400 IUs or more) was associated with *greater* all-cause mortality.

### A new generation of antioxidant supplements

A few companies have begun to churn out proprietary blends of indirect antioxidants (Life Vantage's Protandim and Isocell's GliSodin are now being widely researched in clinical trials nationwide). Although

research is preliminary, it looks promising, with one trial showing that when 29 healthy men and women were given Protandim, biochemical markers of oxidative stress (called TBARS) declined by an average of 40 percent after 30 days. After 120 days, the subjects' production of antioxidant enzymes had increased by 30 percent to 54 percent.

Other studies have shown sulforaphane and curcumin, in combination with other indirect antioxidants, to reduce skin cancer incidence in mice. Blumberg, who has been studying antioxidants for 30 years, says the science is too young for him to endorse such products, but the concept has potential. Meanwhile, he and Wylde advise everyone to stay healthy the old-fashioned way: Eat at least nine servings of fresh fruits and vegetables per day, striving for variety and emphasizing cruciferous vegetables and deeply colored foods. ■



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