

## DISEASE-FIGHTING ZINC

### WHO ISN'T GETTING ENOUGH

Extravagant claims have been made for nutritional supplements in recent years, and zinc is no exception. This trace mineral has been hyped as the cure-all for everything from hair loss to impotence. Now there's news from a top zinc researcher that suggests that large numbers of us may be suffering from a shortage of zinc, which is crucial for a strong immune system. Since the deficiency tends to worsen as we age, experts now think a deficit of the trace element could help explain why, after mid-life, we become



A good way to stop the typical zinc shortfall—load up on seafood.

progressively more vulnerable to cancer and infections—from flu to pneumonia. If they're right, a daily supplement could keep your immune defenses against such diseases strong.

While the new word on zinc is likely to arouse skepticism, the latest reports are backed up by a growing body of research. Proponents of zinc include noted scientists Nicola Fabris, Ph.D., director of the Gerontology Research Department of the Italian National Research Center on Aging in Ancona,

Italy, and Novera Spector, Ph.D., director of the Neuroimmunomodulation Program at the National Institutes of Health (NIH). Now 71, Spector practices what he preaches, taking the recommended dietary allowance of 15 milligrams of zinc daily because, he says, "it can't do any harm in small doses, and there's a lot of evidence that it could be very good for us."

### THE ZINC-IMMUNE SYSTEM LINK

The level of zinc in our bloodstream usually falls by 3 percent per decade, starting around the fourth decade of life. That, in itself, might be nothing to worry about. But zinc is essential for the normal functioning of the thymus gland, which plays a critical role in the body's defense system. The thymus secretes the hormone thymulin. That, in turn, stimulates the development of immune-system T cells, which attack tumors and foreign invaders. As we age, the thymus starts to shrivel and its output of thymulin falls. By age 65, the gland has shrunk so much that its production of the chemical plummets by almost 90 percent and the number of active T cells begins to drop. As a consequence, older people often have fewer of these cells available to ward off illness.

Could more zinc in the diet reverse this slide? Until a recent experiment by Fabris, most scientists would have said no. The Italian researcher gave a small daily zinc supplement to mice 20 to 24 months old (the human equivalent of 60 to 80 years of age). The results surpassed his wildest hopes: The thymus of the old animals grew back to 80 percent of its peak size, their thymulin output matched the levels found in young animals and the number of active T cells in their bloodstream increased significantly—a clear sign that their immune function had been rejuvenated.

Hoping to demonstrate the same response in humans, Fabris began testing zinc on children with Down's syndrome, who are highly susceptible to infections. In an effort to boost their resistance, he gave zinc to these kids for two consecutive months a year over three years. Despite the long

gaps between treatments, the levels of thymulin and active T cells climbed dramatically—and their incidence of infection was cut by more than half. "We expect to get even better results in a new trial that will provide zinc to these children over the entire year," says Fabris.

Encouraged by these early findings, Fabris is heading a team that is now studying the effects of zinc supplementation on a normal population of the elderly. About nine months ago, the researchers began giving 15 mg of zinc to 15 people age 65 and older. The amounts of thymulin and active T cells in their bloodstream soon began to increase and have now been re-

### SHOULD YOU SUPPLEMENT?

Here is the advice of three experts:

- *Jeffrey Blumberg, Ph.D., associate director of the USDA Human Nutrition Research Center on Aging at Tufts University:* "The RDA of 15 mg for men, 12 mg for women, is sufficient. The problem is that most people get only half that. It's not a bad idea to take a multivitamin or supplement containing the RDA."

- *Sheldon Saul Hendler, M.D., Ph.D., author of The Doctors' Vitamin and Mineral Encyclopedia:*

"Most of us become increasingly prone to zinc deficiency as we age, so a supplement is a prudent form of health insurance. I recommend 15 to 30 mg daily for adults, and since zinc competes with copper for absorption, 1.5 to 3 mg of copper. Of the supplements on the market, avoid zinc sulfate, which can cause stomach upset."

- *Gail A. Levey, R.D., spokesperson for the American Dietetic Association:* "A USDA survey found that almost 80 percent of women get less than 70 percent of the RDA. That may be due to severe dieting or not eating meat—though dried beans, peas and lentils are good zinc sources. As for supplements, stick to the RDA unless you've consulted with a registered dietitian or a doctor versed in nutrition."

stored to levels usually found in young people. "We assume these elderly individuals will prove more resistant to disease like our Down's patients," says Fabris, "but until we have more data, we can't be certain."

Whatever doubts remain, the evidence now available has convinced the Italian researchers that people over 60 should supplement their diets with the RDA for zinc. In Fabris's opinion, many people in their forties and fifties could also benefit from supplements, although the evidence for that is less clear. While levels of the metal are known to be depleted in those age groups, it takes an acute deficiency—which usually doesn't occur until after 60—before the activity of tumor-fighting cells is adversely affected. Still, the potential advantages of supplemental zinc in middle age probably outweigh the risks, according to Fabris. He notes that toxic effects have been reported only in people who have consumed more than ten times the RDA.

The NIH's Spector agrees that zinc is "overall safe," but he is quick to stress that "just because a little bit might be good for some of us, it would be a mistake to think a whole lot would be even better." One reason for caution: Zinc works in tandem with other minerals, so too much may lead to imbalances with other nutrients.

Whatever our age, one early warning sign that we may be suffering from a shortage of the metal is that food starts to taste bland. In fact, taste tests are now being developed to help diagnose zinc shortages. The long-term goal is to spot those who might benefit from supplements to help prevent or correct immune deficiencies.

So, in addition to zapping infections, a little extra zinc may help put the zest back in our food. We may be able to look forward to less illness as we age—and even extra years of life, if some tantalizing Russian research showing increases in life span in animals on zinc can be replicated. Says Fabris: "It would be wonderful if the longevity claims are true, but I, for one, would be happy just to reap the health benefits zinc promises."



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