

Selenium Can Lift the Spirits

Ask a group of men to report on their moods throughout a study and, more often than not, their answers will not change significantly.

“Gender seems to be a factor in self-reported mood changes,” says psychologist James G. Penland, who is at ARS’ Grand Forks Human Nutrition Research Center in North Dakota. Whether women are more aware of subtle changes—or men are more resistant to disclosing how they feel—he says, “men are less likely to report differences”. . . except in recent studies of selenium.

Well-known for its antioxidant prowess, this essential trace element now appears to lift the spirits, according to findings at the Grand Forks center and the Western Human Nutrition Research Center in San Francisco. The ARS studies support a 1990 report from scientists in Wales that extra selenium improves mood, says Penland.

Each week during the 15-week study at Grand Forks, Penland had 30 male volunteers fill out the standard Profile of Mood States—Bipolar Form. It measures where the respondent falls between two extremes for six types of mood, such as clearheaded versus confused or elated versus depressed.

By the end of the study, the 15 men who consumed the selenium-rich diet reported feeling significantly more clearheaded and elated than they did at the beginning of the study. Changes among those getting the selenium-poor diet were not significant.

On average, the men on the selenium-rich diet reported slight improvements in all six mood extremes as the study progressed, while the men on the selenium-poor diet felt worse.

The selenium-rich diet contained about 240 micrograms (mcg)—that’s

millionths of a gram—which is 3.5 times the Recommended Dietary Allowance. The selenium-poor diet contained only about 28 mcg—or 40 percent of the RDA.

Mood differences also showed up among the men who consumed the selenium-poor diet, says Penland, because some started with higher body stores of the mineral than others. Every 3 weeks, the volunteers gave blood samples so researchers could analyze the red blood cells for selenium levels and check the activity

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levels of a selenium-dependent enzyme. These measurements indicate how much selenium is available in the body.

The men whose enzymes were more active scored significantly higher in all six mood states. They felt more agreeable than hostile, more clearheaded than confused, more composed than anxious, more confident than unsure, more elated than depressed, and more energetic than tired. That’s even though enzyme

activity for all men in the low-selenium diet group was within the “normal” range, says Penland.

At the Western center, researchers got similar results when 11 men reported their moods during a 4-month study. Among the group on the low-selenium diet, those with the higher selenium levels in their red blood cells felt significantly more elated and agreeable.

Dietician Lori Matthys says that the selenium content of all foods used in the Grand Forks study was so variable that each lot of meat, dairy, flour, cereal, fruit, and vegetables had to be chemically analyzed to ensure that the volunteers got their assigned intakes.

Selenium is highest in high-protein foods. Fish, shellfish, meat, poultry, eggs, breads, many cereals, sunflower seeds, and cashews are good sources—containing between 10 and 80 micrograms per 3.5 ounces. Beef and pork kidney contain more.

A few Brazil nuts can provide more selenium than the amounts used in either study. One ounce of the nuts contains between 300 and 850 micrograms. But selenium can be quite toxic, so use with caution. The World Health Organization suggests a daily limit of 400 mcg.—By **Judy McBride**, ARS.

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