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JAMA Study Finds Smarter, But Often Sicker People Use Alternative Therapies

If you listen to self-appointed quack-busters and others critical of alternative therapies, they'll say people are being duped by pseudoscience and charlatans. But if you take vitamin supplements, use herbs, or use chiropractic therapy or any number of other alternative therapies, rest assured – you're probably smarter than average.

People who use alternative therapies are better educated, have a holistic orientation toward health, and likely have had a "transformational experience" that changed their view of the world. They also tend to have more health problems and find greater relief with alternative therapies, according to a study in the May 20, 1998, *Journal of the American Medical Association*.

John A. Astin, PhD, of the Stanford University School of Medicine, Palo Alto, Calif., analyzed the health-care practices of 1,035 people randomly selected from around the United States. "Forty percent of respondents reported using some form of alternative health care during the past year," Astin wrote. "The top four treatments were chiropractic (15.7%); lifestyle [and] diet (8.0%); exercise/movement (7.2%); and relaxation (6.9%)."

People who used alternative therapies were more likely to suffer from anxiety, back problems, chronic pain, and urinary tract problems. They also tended to be creative, committed to either environmentalism or feminism, and interested in personal growth psychology. These patterns remained consistent, regardless of age, race, and sex.

Astin offered two reasons for why people in poorer health were more frequent users of alternative medicine. One, "since those who are in poor health have, by definition, had less success in treating their health problems, their continued suffering may have prompted them to seek out alternatives." Two, Astin also suggested that these people might also be "somatizers" – a euphemism for hypochondriacs.

"Although certain alternative therapies tended to be used more frequently, a broad range of alternatives were, in fact, being used for the majority of health problems," Astin wrote. "For example, although chiropractic care represented close to 50% of all alternative treatments used for headaches, individuals also reported using acupuncture, homeopathy, megavitamins, spiritual healing, lifestyle diets, relaxation, massage, folk medicine, exercise, psychotherapy, and art/music therapy to treat this health problem."

The two benefits of alternative medicine most noted by respondents were (1) "I get relief for my symptoms, the pain or discomfort is less or goes away, I feel better" and (2) "The treatment works better for my particular health problem than standard medicine's." Relief of symptoms was cited almost twice as often as other reported benefits from alternative therapies.

In general, users of alternative therapies were not inherently antagonistic toward conventional medicine. However, the 4.4 percent of respondents who relied exclusively on alternative medicine were "more likely to be dissatisfied with and distrustful of standard care as well as desirous of maintaining exclusive control over their health care decisions."

"The average person is as intelligent as the average doctor and more attuned to alternative treatment," Abram Hoffer, MD, PhD, of Victoria, Canada, and a pioneer in the clinical use of vitamins, told THE NUTRITION REPORTER. "Doctors are wedded to two things: one, the belief that they are scientific and, two, to their adherence to their customary paradigm. They want patients to recover but only in response to standard therapy. Doctors are very uncomfortable if patients respond because of what they themselves have done or because some alternate treatment was used."

Reference: Astin JA, "Why patients use alternative medicine," *JAMA*, 1998;279:1548-1558. ▯

Vitamin C May Reduce Risk of Gallbladder Disease

Sixteen to 20 million Americans suffer from gallstones and, in experimental animals, gallstones have been associated with vitamin C deficiency. Now, researchers have reported that vitamin C supplements may protect against gallbladder disease in women.

The gallbladder stores bile, which is made by the liver, and releases it to emulsify and help digest fats. Middle-age women have the highest risk of suffering from gallbladder disease, including gallstones.

Joel A. Simon, MD, of the University of California, San Francisco, analyzed the health and habits of 2,744 women enrolled in the Heart & Estrogen-Progestin

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Replacement Study, which began in 1993. At the beginning of the study, 23 percent of the women (629) had reported a history of gallbladder disease, and 19 percent (508) had reported that their gallbladders had been removed.

Looking for correlations, Simon found that women consuming large amounts of vitamin C – particularly through supplements – had a 26 percent lower risk of developing gallbladder disease (of all types) and a 23 percent lower risk of having their gallbladders removed, compared with women consuming little vitamin C.

Furthermore, Simon reported that vitamin C was especially protective among women who drank alcohol. This subgroup had one-half the risk of developing gallbladder disease and were 62 percent less likely to have their gallbladders removed.

Reference: Simon JA, Grady D, Snabes MC, et al., "Ascorbic acid supplement use and the prevalence of gallbladder disease," *Journal of Clinical Epidemiology*, 1998;51:257-265. □

Researchers Determine Why Vitamin C Protects Against Cataracts

Not long ago, researchers reported that women supplementing with 400 mg or more vitamin C daily had about one-fifth the risk of developing cataracts. (See THE NUTRITION REPORTER, January 1998.)

Now, another team of researchers has offered an explanation as to why: vitamin C in the fluid surrounding the lens protects it from ultraviolet (UV) radiation and subsequent DNA damage.

Researchers at the Eye Research Institute of Oakland University, Rochester, Mich., began with a simple observation: Diurnal animals – those active during the day and more likely to be exposed to UV radiation in sunlight – have high levels of vitamin C in their eyes. Nocturnal animals, which are active at night, have little vitamin C in their eyes.

So Venkat N. Reddy, PhD, and colleagues compared the effects of UV radiation on guinea pigs and rats. Guinea pigs are diurnal animals that tend to have high eye levels of vitamin C, but have to get their vitamin C from food. Rats are nocturnal animals that make most of their vitamin C, but they have little in their eyes.

When the researchers deprived guinea pigs of dietary vitamin C for one week, eye levels of the vitamin dropped by 80 percent. When these vitamin C-deficient guinea pigs were exposed to UV rays, they suffered 50 percent more damage to their lenses compared with normal guinea pigs.

Similarly, rats had a high rate of lens damage when exposed to UV rays, unless given extra vitamin C.

The cataracts, the researchers reported, were caused by DNA damage triggered by UV rays. Vitamin C, they said, prevented this DNA damage.

Reference: Reddy VN, Giblin FJ, Lin L-R, et al., "The effect of aqueous humor ascorbate on ultraviolet-B-induced DNA damage in lens epithelium," *Investigative Ophthalmology and Visual Science*, 1998;39:344-350. □

GLA, Lipoic Acid Yield Greater Benefits in Diabetic Complications

Diabetics have a high risk of suffering reduced blood flow and nerve damage, including slower nerve signal speed and neuropathies. Two nutrients – gamma-linolenic acid (GLA) and alpha-lipoic acid – have for years been known to alleviate these diabetic complications. An animal study, conducted by Norman E. Cameron, PhD, of the University of Aberdeen, Scotland, found that they work even better together.

Cameron gave GLA (found in evening primrose and borage seed oils) and alpha-lipoic acid (an antioxidant) either separately or together to diabetic laboratory rats. While both substances had "modest" effects on their own, there was "evidence of marked synergistic action" when combined, correcting problems with both nerve signal speed and blood flow. Although the ratio of GLA and alpha-lipoic acid were varied, they remained effective in reducing nerve and blood flow problems.

Reference: Cameron NE, Cotter MA, Horrobin DH, et al., "Effects of a-lipoic acid on neurovascular function in diabetic rats: interaction with essential fatty acids," *Diabetologia*, 1998;41:390-399. □

Squalene Shows Promise in Reducing Colon Cancer Risk

Squalene, found in olive oil, may have value in preventing colon cancer, according to a recent animal study.

Researchers at the American Health Foundation, Valhalla, N.Y., exposed rats to a chemical known to induce the formation of aberrant crypt foci, a type of precancerous lesion. The rats were given either squalene or sundilac, a chemical known to inhibit colon cancer, in addition to their regular diet.

Rats given squalene had a significant 45 percent reduction in aberrant crypt foci. Sundilac was slightly more effective, resulting in a 52 percent reduction in aberrant crypt foci. But the researchers favored squalene.

"One of the advantages of squalene is that, unlike synthetic chemopreventive agents, it is a naturally occurring compound that is both produced endogenously and present in many human foods," wrote Chinthalapally V. Rao, PhD, and his colleagues. "Also, it is interesting to note that sharks, which have high tissue levels of squalene, have been claimed to be resistant to cancer."

Olive oil, Rao explained, is recognized as being protective against many forms of cancer. Part of olive

oil's anticancer effect by be the result of its 0.2-0.7 percent squalene.

The study, Rao added, "supports at least in part, the hypothesis that some of the observed antitumor promoter activity of olive oil is due to squalene."

Rao CV, Newmark HL, Reddy BS, "Chemopreventive effect of squalene on colon cancer," Carcinogenesis, 1998;19:287-290. □

"White-Coat" Hypertensives Protected by Vitamins E and C

Oxidized low-density lipoprotein (LDL) and low blood levels of vitamins E and C are common in people with "sustained" hypertension, and the combination of these risk factors increases the risk of coronary heart disease. But some people suffer from occasional "white-coat" rather than sustained hypertension. White-coat hypertension is the term used to describe people whose blood pressure rises in the doctor's office.

Sante D. Pierdomenico, MD, of the Institute of Medical Pathology, Chieti Scalo, Italy, studied 21 patients with sustained high blood pressure, 21 with white-coat hypertension, and 21 with normal blood pressure. He and his colleagues looked specifically at their blood levels of vitamins E and C, and the oxidizability of their LDL cholesterol.

The question Pierdomenico sought to answer was whether white-coat hypertension increases the risk of heart disease. It's generally believed that hypertension forces LDL into the arterial wall and increases its risk of oxidation, whereas vitamins E and C protect against LDL oxidation.

Pierdomenico found, as have other researchers, that people with sustained hypertension did have relatively low levels of the vitamins and more oxidized LDL than healthy subjects. However, patients with white-coat hypertension did not share these risk factors. Instead, they had vitamin levels and oxidation-resistant LDL comparable to those of healthy people.

Reference: Pierdomenico SD, Costantini F, Bucci A, et al., "Low-density lipoprotein oxidation and vitamins E and C in sustained and white-coat hypertension," *Hypertension*, 1998;31:621-626. □

Natural Beta-Carotene Slows Oxidation of LDL Cholesterol

Two new studies have confirmed some of the health benefits of natural beta-carotene supplements, as well as its absorption into the skin.

In one study, researchers at the University of California, Davis, and the U.S. Department of Agriculture placed nine healthy women on a low-carotenoid diet and, months later, gave them a moderately high-potency (3.3 mg) daily beta-carotene supplement.

Andrew J. Clifford, MD, of UC Davis reported that the women's low-density lipoprotein (LDL) form of cholesterol was more prone to oxidation while they ate the low-carotenoid diet. The daily beta-carotene supplements increased the LDL's resistance to oxidation.

Clifford and his colleagues reported that 5.37 mg (8,950 IU) of beta-carotene appeared to be the ideal dose to protect against LDL oxidation.

In the other study, German researchers measured skin levels of beta-carotene in 12 women who took natural beta-carotene supplements from *Dunaliella algae* for 12 weeks. They sought to identify patterns of skin absorption because oral beta-carotene is increasingly being used to increase resistance to sunburn.

The researchers measured skin levels of beta-carotene with reflection spetrophotometry, a noninvasive technique. They found that beta-carotene levels in the forehead and palm of the hand correlated closely with blood levels of the nutrient. The largest amounts of beta-carotene were deposited in the back of the hand, the forehead, the palm of the hand, the inside of the arm, and the back.

References: Lin Y, Burri BJ, Neidlinger TR, et al., "Estimating the concentration of b-carotene required for maximal protection of low-density lipoproteins in women," *American Journal of Clinical Nutrition*, 1998;67:837-45. Stahl W, Heinrich U, Jungmann H, et al., "Increased dermal carotenoid levels assessed with noninvasive reflection spectrophotometry correlate with serum levels in women ingesting Betatene," *Journal of Nutrition*, 1998;128:903-907. □

Flaxseed Supplementation Curbs Cancer Spread in Animals

Flaxseed, a rich source of lignans and essential fatty acids, can prevent the metastasis, or spread, of cancer cells in mice.

Lin Yan, PhD, of the Creighton University School of Medicine, Omaha, and his colleagues fed laboratory mice standard diets supplemented with 2.5, 5 or 10 percent flaxseed for two weeks before and after being injected with melanoma cells.

He subsequently counted the number of tumors that formed in the animals' lungs. The average number of tumors in the lungs were 32, 54, and 63 percent lower, respectively, than that of the control animals. The flaxseed also resulted in a dose-dependent decrease in tumor diameter and volume.

"Metastasis, the spread of malignant cells from a primary tumor to distant organs that results in the growth of secondary tumors, is the most devastating aspect of cancer," Yan wrote. "Although advances in surgery and therapeutic treatments have significantly improved the

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Quick Reviews of Recent Research

• Pycnogenol® reduces platelet aggregation

Researchers determined that smoking three cigarettes rapidly increased platelet aggregation and, consequently, the risk of blood clots and cardiovascular disease. When the smokers were also given 500 mg of aspirin or 100 mg of Pycnogenol, a flavonoid complex from the bark of French maritime pine trees, platelet aggregation was reduced. Aspirin increased bleeding time by 41 percent, which Pycnogenol did not.

Watson RR, Araghi-Niknam M, Putter M, et al., "Pycnogenol inhibits platelet aggregation in vivo," American Society for Biochemistry and Molecular Biology annual meeting, Washington, D.C., May 20, 1998.

• Beta-carotene, N-acetylcysteine control cancer cells

Researchers exposed laboratory mice to a cancer-causing compound found in tobacco and then gave them one of four nutrients believed useful in preventing cancer. Fumaric acid and a synthetic form of vitamin A had no anticancer effect. Supplements of N-acetylcysteine and injections of beta-carotene slowed the progression of lung adenomas (a type of cancer) to adenocarcinomas (a more serious form of lung cancer).

Conaway CC, et al., *Cancer Letters*, 1998;124:85-93.

• Vitamin E prevents cholesterol oxidation

Oxidative, or free radical, damage to the low-density lipoprotein (LDL) form of cholesterol is an early step in the development of coronary heart disease. Many researchers have reported that 400 IU daily of vitamin E reduces the oxidation of LDL. In a study of healthy nonsmoking men, researchers found that 1,200 IU of vitamin E was much more effective than 400 IU in reducing LDL oxidation.

Fuller CJ, et al., *American Journal of Cardiology*, 1998;81:231-233.

• Beta-carotene, vitamin A increase iron absorption

In a study of 100 impoverished Venezuelan men and women, researchers found that iron absorption from cereal was improved with the addition of beta-carotene or vitamin A. Beta-carotene boosted iron absorption from rice cereal by 3 times and 1.8 times from wheat and corn cereals. Vitamin A increased iron absorption from rice cereal by 2 times, 1.4 times from corn cereal, and 0.8 times from wheat cereal.

Garcia-Casal MN, et al., *Journal of Nutrition*, 1998;128:646-650.

• Vitamin E enriches antioxidant network in skin

Antioxidants are believed to recycle each other in what Lester Packer, PhD, called the "antioxidant network." A research team led by Packer applied natural vitamin E to the skin of hairless mice one day before exposing them to a high dose of ultraviolet (UV) radiation – 10 times the amount needed to cause reddening. Levels of vitamin E increased by 62 times in the epidermis and by 22 times in the dermis. The vitamin, through presumed support of the antioxidant network, increased vitamin C levels in the dermis by 30 percent. The vitamin E also led to a 50 percent increase of glutathione in the epidermis and a 30 percent increase of superoxide dismutase in the dermis. Also, free radical levels were lower in the mice given topical vitamin E.

Lopez-Torres M, et al., *British Journal of Dermatology*, 1998;138:207-215.

• Antioxidants increase lung capacity

In an analysis of 17,925 subjects over 17 years, based on data from the third National Health and Nutrition Examination Survey (NHANES III), researchers reported that increased lung capacity was associated with higher intake of vitamins C and E, beta-carotene, and selenium. Among current smokers, only selenium was associated with increased lung capacity, as measured by forced expiratory volume (FEV1).

Hu G and Cassano PA, "Antioxidant nutrients and lung function in the third National Health and Nutrition Examination Survey (NHANES III)," Federation of American Societies for Experimental Biology (FASEB) meeting, San Francisco, April 18, 1998.

Flaxseed and Cancer...

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treatment of primary tumors, the development of metastasis remains a significant cause of poor prognosis."

Flaxseed contains about 40 percent oils, more than half of which are alpha-linolenic acid. Alpha-linolenic acid, an omega-3 fatty acid, has been shown to have anticancer properties. Lignans function as antioxidants and as estrogen-like compounds, which may also have anticancer properties.

Reference: Yan L, Yee JA, Li Donghua, et al., "Dietary flaxseed supplementation and experimental metastasis of melanoma cells in mice," *Cancer Letters*, 1998;124:181-186. □

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