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High Copper, Combined with Trans and Saturated Fats May Speed Mental Decline

More than 30 years ago, the late Carl Pfeiffer, MD, noted that high consumption of copper could suppress levels of zinc and lead to a variety of mood and personality disorders. Now researchers have found that high intake of copper, combined with a diet rich in saturated or trans fats, can accelerate mental decline among seniors.

Although copper is an essential nutrient, an excess can contribute to depression and psychotic behavior. Animal experiments have found that it can promote the development of amyloid-beta protein, the hallmark of Alzheimer's disease. Meanwhile trans fats, a type of highly processed and modified vegetable oil, increase the risk of diabetes and heart disease—and trans fats are now regarded as being more hazardous than saturated fats.

In the latest study, Martha Clare Morris, ScD, of the Rush University Medical Center, Chicago, investigated the health of 6,158 people age 65 and older over six years. At the beginning, middle, and end of the study, Morris and her colleagues used four tests to assess the subjects' cognitive function. They also analyzed their dietary habits.

All of the subjects experienced at least some mental decline during the study, and in general high copper intake was not a problem. In fact, people with high intake of copper were more likely to be mentally sharp and have other healthy lifestyle habits.

However, people who consumed a lot of copper – about 2.75 mg daily – from food, and also ate a lot of trans and saturated fat, suffered a faster mental decline. That decline was equivalent to being 19 years older.

Consuming copper-containing supplements, again when combined with a diet high in trans and saturated fat, were also problem. Such a dietary pattern was associated with a mental decline roughly equivalent to being 10 years older.

There were no problems when high copper was associated with other types of fats or low-fat eating habits. Nor was high zinc or iron associated with

mental decline, regardless of dietary fat.

Copper is found in organ meats, shellfish (which is also high in zinc), nuts, seeds, legumes, whole grains, potatoes, and chocolate. Household water pipes made with copper, particularly in soft-water regions, can also lead to high copper intake.

Not all food labels accurately identify the amount of trans fats in foods, such as margarine, nondairy creamers, shortening, cookies, fries, chicken nuggets, and many other processed foods. Trans fats are found in any food listing "partially hydrogenated" vegetable oil as an ingredient.

Some multivitamin and multimineral supplements avoid the use of copper. In addition, zinc can suppress copper levels, and a good zinc-to-copper ratio in supplements is 30-to-1, such as 15 mg of zinc and 0.5 mg of copper.

Reference: Morris MC, Evans DA, Tangney CC, et al. Dietary copper and high saturated and trans fat intakes associated with cognitive decline. *Archives of Neurology*, 2006;63:1085-1088. □

Perspectives...

Statins: A Cure Worse than the Disease

The ads for cholesterol-lowering statin drugs – Lipitor, Crestor, Vytorin, and others – feel like a feeding frenzy. Their makers have turned a symptom, elevated cholesterol, into a disease that must be treated with urgency. It has paid off royally – Lipitor sales alone are now over \$12 billion a year.

The problem is that the "cure" is often worse than the "disease."

Last year, an article in the journal *BioFactors* (2005;25:147-152) described 50 cardiology patients who were plagued with a variety of symptoms, including statin-induced cardiomyopathy, a disease of the heart muscle that has nothing to do with cholesterol. Other common symptoms included fatigue, muscle pain, breathing difficulties, memory problems, and nerve disorders.

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Statin drugs inhibit an enzyme involved in synthesizing cholesterol, but the same enzyme is also needed to make coenzyme Q10, a vitamin-like substance that was the basis of the 1978 Nobel prize in chemistry. CoQ10 is essential for life and for normal muscle function.

The 50 patients were treated with CoQ10, the dose averaging 240 mg daily, for almost two years. The prevalence of muscle pain among these patients decreased from 64 to 6 percent between their first and latest medical exam. Fatigue decreased from 84 to 16 percent, breathing difficulties from 58 to 12 percent, memory problems from 8 to 4 percent, and nerve problems from 10 to 2 percent. CoQ10 also improved heart function and reduced "statin cardiomyopathy" in half of the patients.

The pharmaceutical industry is well aware of the dangers posed by statins. Merck, the maker of the statin drug Zocor, owns two use patents (#4,933,165 and 4,929,437) that combine CoQ10 with statins to prevent and reverse statin-induced cardiomyopathy. To knowingly hurt patients and withhold treatment is nothing less than unethical. — JC

Food Allergies Confirmed in Patients with Rheumatoid Arthritis

For decades, alternative-minded physicians have described the role food allergies (sometimes called sensitivities) in rheumatoid arthritis and other diseases. However, conventional doctors usually dismissed food allergies because they couldn't document increases in blood antibodies, such as IgE or IgG.

It turns out they were looking for documentation in the wrong place.

A team of Norwegian researchers has now reported that intestinal antibody reactions to foods are increased, but blood antibodies are not, in patients with rheumatoid arthritis.

Per Brandtzaeg, MD, and his colleagues at the Rikshospitalet, Oslo, studied 14 patients with rheumatoid arthritis and 20 healthy subjects. Brandtzaeg measured both blood and intestinal levels of AgG, IgA, and IgM antibodies in all of the subjects.

"Patients with rheumatoid arthritis often feel that there is an association between food intake and their disease activity, but evidence to support such a connection has been contradictory," he wrote in the journal *Gut*. While some studies have found elevated antibody levels, others have not.

Brandtzaeg found that levels of IgM, IgA, and IgG antibodies to foods were consistently much higher in the digestive tracts of patients with rheumatoid arthritis, compared with their blood. Their intestinal antibody levels were much higher in people

with arthritis than in healthy subjects.

The findings point to a heightened immune response in the gut, somewhat similar to what occurs in celiac disease, with the effects rippling through the body. The result causes symptoms that are not always obviously related to food allergies.

The most problematic foods in the study included milk, eggs, wheat, soy, pork, and codfish. Antibody levels decreased after the patients received conventional immune-suppressing treatment.

Brandtzaeg recommended that patients who complain about foods increasing joint pain should be taken seriously and followed up medically.

Reference: Hvatum M, Kanerud L, Hallgren R, et al. The gut-joint axis: cross reactive food antibodies in rheumatoid arthritis. *Gut*, 2006;55:1240-1247. □

Magnesium Often Overlooked in Maintaining Normal Muscle Function

If you want to maintain normal muscle function as you get older, it might be smart to consume enough magnesium.

It's easier said than done. In the United States, more than two-thirds of adults fail to consume the official recommended amounts (420 mg for men and 320 mg for women) of magnesium, and almost half of people consume less than 75 percent of the recommended amounts.

Magnesium plays a number of key roles in muscle function. Just as calcium is essential for muscle contractions, magnesium is necessary for muscle relaxation. Both contraction and relaxation are needed to use muscles.

In addition, magnesium helps chemical reactions that burn food for energy. A lack of magnesium generates hazardous free radicals and leads to inflammation, both of which can damage muscle cells.

Ligia J. Dominguez, MD, of the University of Palermo, Italy, analyzed the relationship between muscle and magnesium in 1,138 men and women age 65 and older. She found that high blood levels of magnesium were significantly associated with greater muscle performance (including grip strength), lower-leg muscle power, knee-extension torque, and ankle strength. Low magnesium levels were related to poor muscle function and strength.

Dominguez noted that seniors frequently suffer from a loss of skeletal muscle mass and function, which is usually related to the risk of disability and death. Older people generally do not consume enough magnesium, averaging about half the recommended amounts.

"Despite the physiologic importance of magnesium, the multiple problems associated with its

deficiency, and the ease of supplementation, inadequate magnesium intake remains highly prevalent in various populations," she wrote.

Recent research also points to the importance of vitamin D and the amino acid leucine in maintaining normal muscle mass and function.

Reference: Dominguez LJ, Barbagallo M, Lauretani F, et al. Magnesium and muscle performance in older persons: the InCHIANTI study. *American Journal of Clinical Nutrition*, 2006;84:419-426. □

Tart Cherry Juice Can Help Maintain Strength of Sore Muscles after Exercise

Drinking some tart cherry juice after strenuous exercise can reduce pain and minimize the loss of muscle strength, according to a study published in the *British Journal of Sports Medicine*. Cherries are rich in antioxidant flavonoids, which inhibit inflammation.

Declan A.J. Connally, PhD, of the University of Vermont, Burlington, and his colleagues asked 14 male students to drink a 12-ounce blend of cherry and apple juice or a placebo drink daily for eight days. On the fourth day they engaged in strenuous arm exercises. The same protocol was followed two weeks later, but the cherry and placebo drinks were switched.

The resulting muscle damage reduced strength in the placebo group by 22 percent. When the subjects drank cherry juice, strength decreased by only 4 percent.

Muscle pain also decreased significantly.

Reference: Connally DAJ, McHugh MP, Padilla-Zakour OI. Efficacy of a tart cherry juice blend in preventing the symptoms of muscle damage. *British Journal of Sports Medicine*, 2006;40:679-683. □

Promising Research Emphasizes Fish Oils in Treating Prostate Cancer

Of the two families of polyunsaturated fats, the omega-6s (found in corn, safflower, and soybean oils) tend to promote the growth of tumors in laboratory experiments. In contrast, the omega-3s (found in fish oils) inhibit the growth of tumors.

Now, in a carefully designed animal experiment, researchers have shown that shifting the dietary ratios of these fats can dramatically blunt the growth of tumors. William J. Aronson, MD, of the University of California, Los Angeles, wrote that the results "provide a sound basis for clinical trials evaluating the effect of dietary omega-3 fatty acids from fish oils" in men with prostate cancer.

Aronson and his colleagues fed laboratory mice diets containing 20 percent fat. One group of animals

received primarily omega-6 fats while the other group was given fats containing a 1:1 ratio of omega-6 to omega-3 fats. The mice were then injected with prostate cancer cells.

The average American diet provides a ratio of 10:1 to 20:1 omega-6 to omega-3 fats.

The growth of tumors, final tumor sizes, and prostate-specific antigen levels were significantly lower among the animals receiving omega-3 fish oils. Tumor sizes in the omega-3 group were about half that in the omega-6 group.

In related experiments, Aronson and his colleagues grew some of the cancer cells in laboratory dishes, which contained body fluids from the mice. Cancer cells in the omega-3 group grew 22 percent slower compared with the omega-6 group.

In addition, omega-3s led to an 83 percent reducing in the production of prostaglandin E2, a pro-inflammatory compound known to stimulate cancer cells. Levels of cyclooxygenase-2, another cancer promoter, also decreased substantially.

Reference: Kobayashi N, Barnard RJ, Henning SM, et al. Effect of altering dietary omega-6/omega-3 fatty acid ratios on prostate cancer membrane composition, cyclooxygenase-2, and prostaglandin E2. *Clinical Cancer Research*, 2006;12:4662-4670. □

Lutein and Zeaxanthin May Help Prevent Age-Related Eye Disease

Eating vegetables rich in lutein and zeaxanthin, both antioxidant carotenoids, may lower the long-term risk of developing age-related macular degeneration (AMD), according to a study headed by Susan M. Moeller, PhD, of the University of Wisconsin, Madison.

The findings are "consistent with a broad body of evidence from observational and experimental studies that suggests that these carotenoids may protect against AMD," Moeller wrote in the *Archives of Ophthalmology*.

Early and intermediate stages of AMD affect one in four people older than 65 years. Advanced AMD affects 7 percent of people between the ages of 75 and 84 years.

Moeller and her colleagues analyzed the long-term eating habits and health of 1,787 women living in Iowa, Oregon, and Wisconsin. The women ranged from 50 to 79 years of age when the study began in the mid-1990s.

Although Moeller did not identify an overall relationship between lutein and zeaxanthin intake and AMD risk, she did find a strong protective effect among women under age 75. In this group, a consistently high intake of lutein and zeaxanthin, along

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Quick Reviews of Recent Research

• Mother's vitamin E may influence child's asthma

A study by Scottish researchers has found that pregnant women who consume adequate amounts of vitamin E are less likely to have children who develop asthma. The researchers studied 1,861 children whose mothers joined the study while pregnant. Mothers who consumed the least amount of vitamin E had children who were about 25 percent more likely to be diagnosed with asthma at age five. Low maternal intake of zinc was also associated with asthma.

Devereau G, et al. *American Journal of Respiratory and Critical Care Medicine*, 2006;174:499-507.

• Herb helpful with varicose veins

Horsechestnut seed extract (*Aesculus hippocastanum*) is a traditional herbal remedy used for treating ulcerated varicose veins. In a study of 54 patients, South Australian researchers calculated that using horsechestnut seed extract was more effective and less expensive than conventional therapies. They reported that using the herb and changing dressings on the ulcers would save \$110 AUD per patient.

Leach MJ, et al. *Ostomy Wound Management*, 2006;52:68-70.

Lutein and Zeaxanthin...

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with an absence of chronic diseases (which might lead to dietary changes), was associated with a 43 percent lower risk of developing intermediate AMD.

There was a slight trend suggesting that high intake of lutein and zeaxanthin might protect against advanced AMD, but it was not statistically significant.

High intake of lutein and zeaxanthin in this study was about 2.5 mg daily. Low intake was about 0.8 mg daily. High intake of green vegetables was also related to low risk of intermediate AMD.

The analysis suggests that high intake of lutein and zeaxanthin may reduce the risk of developing AMD, but that it has little effect on advanced AMD.

Lutein and zeaxanthin are deposited in the macula region of the retina. Experimental evidence indicates that they may filter out harmful blue wavelengths of light, neutralize free radicals, and stabilize the membranes of cells.

Reference: Moeller SM, Parekh N, Tinker L, et al. Associations between intermediate age-related macular degeneration and lutein and zeaxanthin in the carotenoids in age-related eye disease study (CAREDS). *Archives of Ophthalmology*, 2006;124:1151-1162. □

• Natural compounds reduce polyp size

Substances found in curry and onions can help shrink precancerous polyps in the colon. American researchers reported using 480 mg of curcumin and 20 mg of quercetin, three times daily, to treat five patients with polyps. After six months, all of the patients benefited from both smaller numbers of polyps and a reduction in their size. On average, the number of polyps decreased by 60 percent, and their size was reduced by half.

Cruz-Correa M, et al. *Clinical Gastroenterology and Hepatology*, 2006;4:1035-1038.

• Grapefruit flavonoid stimulates DNA repair

Cancer cells have a high rate of mutations, which can lead to treatment-resistant variations. In a laboratory experiment, American researchers found that naringenin, an antioxidant flavonoid found in grapefruit, stimulated DNA repair processes in prostate cancer cells. As a result, cancer cells may be less likely to mutate into aggressive or treatment-resistant varieties. Some previous research found that naringenin and related compounds could inhibit the growth of breast and colon cancer cells.

Gao K, et al. *Journal of Nutritional Biochemistry*, 2006;17:89-95.

• Zinc supplements help treat rosacea

Rosacea is a common acne-like inflammatory disease of the skin characterized by enlarged blood vessels on the nose, cheeks, and forehead. Iraqi researchers treated 19 men and women with rosacea, asking them to take 100 mg of zinc sulfate or placebo three times daily. After three months, the zinc and placebo were switched. While taking zinc, patients had a reduction in rosacea. Despite the very high dose of zinc, no significant side effects were noted, other than in three patients who experienced gastric upset.

Khalifa E, et al. *International Journal of Dermatology*, 2006;45:857-861.

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