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Several Supplements May Reduce Allergies and Asthma in Children

Levels of L-carnitine, a vitamin-like nutrient, appear to be low in children with asthma – and supplementation can improve both asthma and lung function, according to a new study.

Mohammed Al-Biltagi, MD, of Tanta University, Egypt, and his colleagues compared 50 children with moderate persistent asthma to 50 children without the respiratory disease. Children with asthma had lower blood levels of L-carnitine and poorer lung function, compared with the healthy children.

Al-Biltagi and his colleagues then divided the children with asthma into two subgroups, one that received L-carnitine supplements while the other took placebos each morning for six months. The daily L-carnitine dose was 1,050 mg.

By the end of the study, children taking the L-carnitine supplements had better control of their asthma and significantly improved lung function.

This was the first human study of L-carnitine for asthma, and Al-Biltagi suggested that the nutrient might be helpful for several reasons. Among them were L-carnitine's role in enhancing muscle strength, breaking down fats on the surface of respiratory tissues, and an antimicrobial effect.

In other research, Maria Makrides, PhD, of the University of Adelaide, Australia, and her colleagues studied 706 infants whose mothers had been in a study evaluating the benefits of fish oils during pregnancy. The mothers in that study had taken 900 mg of omega-3 fish oils or placebos daily after the 21st week of pregnancy.

Although the fish oils did not reduce the overall incidence of immunoglobulin E (IgE) related allergies in the infants, they did seem to lower the risk of allergy-related eczema and egg sensitivity during the infants' first year of life.

Infants had a 38 percent lower risk of allergy-related eczema and half the risk of egg allergy, if their mothers had taken fish oils while pregnant.

In another study, a team of British and Australian

researchers found that the risk of food allergies and eczema in children was partly related to latitude and, presumably, to sun exposure and vitamin D levels.

Nick J. Osborne, PhD, of the Peninsula College of Medicine and Dentistry, United Kingdom, and his colleagues found that the risk of peanut and egg allergies and asthma correlated with sun exposure. Less sun exposure was related to a greater risk of these health problems.

References: Al-Biltagi M, Isa M, Bediwy AS, et al. L-carnitine improves asthma control in children with moderate persistent asthma. *Journal of Allergy* (Cairo), 2012: doi 10.1155/2012/509730. Palmer DJ, Sullivan T, Gold MS, et al. Effect of n-3 long chain polyunsaturated fatty acid supplementation in pregnancy on infants' allergies in first year of life: randomised controlled trial. *British Medical Journal*: doi 10.1136/bmj.e18. Osborne NJ, Ukoumunne OC, Wake M, et al. Prevalence of eczema and food allergy is associated with latitude in Australia. *Journal of Allergy and Clinical Immunology*, 2012: doi 10.1016/j.jaci.2012.01.037. □

Perspectives

Sugar: Sweet and Dangerous

We know that using tobacco products and drinking large amounts of alcohol are bad for our health. For decades, "health food nuts" have argued that refined sugars are also bad for our health. Their claims have gained some traction, partly because two of every three Americans are now overweight or obese and 100 million people have some form of prediabetes.

I'm not talking about the sugars naturally found in fruits and some vegetables. The amounts of these sugars are relatively small, and they are usually buffered by fiber and other nutrients. Rather, I'm referring to the refined, concentrated sugars – particularly sucrose and high-fructose corn syrup – which are added to the vast majority of processed foods and soft drinks.

Robert H. Lustig, M.D., has long spoken of the dangers of added sugars. Last month the respected journal *Nature* published Lustig's editorial, "The

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Toxic Truth About Sugar,” giving him a much higher profile. He rightfully likened sugar to alcohol abuse, based on four criteria: pervasiveness, toxicity, potential for abuse, and negative impact on society. Of course, the sugar industry dismissed him as being alarmist, but then reducing the amount of refined sugars in foods would cut into its profits.

Lustig recommended levying a tax on sugar-containing foods, just as Denmark now taxes high-fat foods. While I’m not convinced taxation is the ideal way to limit sugar intake, there is certainly a need for some type of regulation. After all, sugar is addictive, and people have become accustomed to a sweet taste in the foods they eat and drink. “Sugar is cheap, sugar tastes good and sells, so companies have little incentive to change,” Lustig wrote.

At the very least, taxing high-sugar products might help pay for some of the social and medical consequences of high-sugar diets, including obesity, diabetes, and reduced productivity. –JC

Intravenous Vitamin C Eases Fatigue in Office Workers

Nutritionally oriented physicians often administer intravenous (IV) vitamin C as part of a broader treatment of cancer patients. But the vitamin might also benefit people who feel tired much of the time.

“Fatigue is one of the most common complaints in daily life, and the prevalence of fatigue is high in full-time workers,” wrote Chang Hwan Yeom, MD, of the Yeom Primary Care Clinic, Seoul, South Korea.

Yeom noted that oral vitamin C sometimes helped and sometimes did not relieve fatigue in people. So he decided to administer the vitamin intravenously.

He and his colleagues treated 141 office workers and sales people with either 10 grams of IV vitamin C in saline or saline alone as a placebo. They measured the workers’ response with a 10-point questionnaire focusing on their current level of fatigue – literally “fatigue right now” – before the IV, two hours after, and the next day.

Levels of fatigue were significantly reduced two hours after people received the vitamin C IV and remained lower the next day. The greatest benefit was noted in people who had low blood levels of vitamin C before the study began.

Vitamin C is needed to make L-carnitine, a nutrient involved in the burning of fat for energy.

Reference: Suh SY, Bae WK, Ahn HY, et al. Intravenous vitamin C administration reduces fatigue in office workers: a double-blind randomized controlled trial. *Nutrition Journal*, 2012;11:7. □

Resveratrol Might Help People with Impaired Glucose Tolerance

Resveratrol, an antioxidant found in red grapes and other plants, has attracted attention for its potential anti-aging benefits. In a new but small study, researchers have found that supplements lead to improvements in impaired glucose tolerance (IGT), a form of prediabetes.

Jill P. Crandall, MD, and colleagues at the Albert Einstein College of Medicine, Bronx, N.Y., asked 10 people who were obese and had IGT to take resveratrol supplements daily for four weeks. The subjects’ average age was 72 years.

The resveratrol doses were 1,000, 1,500, and 2,000 mg daily.

The subjects’ insulin function improved, and post-meal elevations in blood sugar were reduced. There were no apparent differences related to the dose of resveratrol. Resveratrol did not change fasting blood sugar levels or weight.

Reference: Crandall JP, Oram V, Trandafirescu G, et al. Pilot study of resveratrol in older adults with impaired glucose tolerance. *Journal of Gerontology: Medical Sciences*, 2012: doi 10.1093/gerona/qlr235. □

Drinking Green Tea May Reduce Risk of Disabling Diseases

Rich in antioxidants and the amino acid L-theanine, green tea may lower the risk of diseases that result in “functional disability,” including stroke, cognitive impairment, and osteoporosis.

Yasutake Tomata, MSc, of the Tohoku University School of Medicine, Japan, and his colleagues studied the dietary habits of 13,988 Japanese men and women age 65 and older. Three years after the study’s participants completed a comprehensive dietary questionnaire, Tomata and his colleagues followed up to assess their health.

The findings were dramatic and consistent. People who consumed one or two cups of green tea daily were 10 percent less likely to suffer from a disabling disease, compared with people who consumed less than one cup of green tea daily.

Furthermore, people who drank three to four cups of tea daily were 25 percent less likely to develop a disabling disease. And those who consumed more than five cups of green tea daily were 33 percent less likely to have a disabling disease.

Reference: Tomata Y, Kakizaki M, Nakaya N, et al. Green tea consumption and the risk of incident functional disability in elderly Japanese: the Ohsaki cohort 2006 study. *American Journal of Clinical Nutrition*, 2012: doi 10.3945/ajcn.111.023200. □

Fish Oils, Multivitamins May Reduce Risk of Colon Disease

Two new studies suggest that either eating fish or taking a multivitamin/multimineral supplement may reduce the risk of precancerous and cancerous growths in the colon.

In the first study, Harvey J. Murff, MD, of Vanderbilt University, Nashville, Tennessee, and his colleagues focused on 456 women with colon polyps (adenomas) and 1,400 women without them. Polyps are growths that can turn cancerous.

Women who ate three servings of fish weekly were one-third less likely to have polyps detected during colonoscopies, compared with women who infrequently ate fish. In addition, high dietary intakes of omega-3 fish oils were associated with relatively low levels of prostaglandin E2, a pro-inflammatory compound.

Meanwhile, a team of researchers from Loyola College, India, investigated whether a multivitamin and multimineral supplement might prevent precancerous colon growths called aberrant crypt foci (ACFs).

Ignacimuthu Savarimuthu, PhD, DSc, and his colleagues exposed laboratory rats to a cancer-causing chemical. They then fed some of the rats the equivalent of a moderately high-potency multi for 32 weeks. Animals getting the supplements in their drinking water had 84 percent fewer ACFs.

References: Murff HJ, Shrubsole MJ, Cai Q, et al. Dietary intake of PUFAs and colorectal polyp risk. *American Journal of Clinical Nutrition*, 2012; doi 10.3945/ajcn.111.024000. Arul AB, Savarimuthu I, Alsaif MA, et al. Multivitamin and mineral supplementation in 1,2-dimethylhydrazine induced experimental colon carcinogenesis and evaluation of free radical status, antioxidant potential, and incidence of ACF. *Canadian Journal of Physiology and Pharmacology*, 2012;90:45-54. □

Ample Dietary Fiber May Reduce the Risk of Breast Cancer

A high intake of dietary fiber, particularly soluble fiber, may reduce the risk of breast cancer in women.

Dagfinn Aune, PhD, DSc, of Imperial College London and his colleagues analyzed 16 studies that had focused on fiber and breast cancer risk. They found that women who ate relatively large amounts of fiber had a 10 percent lower risk of being diagnosed with breast cancer.

Most of that reduced risk appeared related to high intake of soluble fiber. Each 10-gram daily increase in soluble fiber intake was related to a one-fourth lower risk of breast cancer.

Soluble fiber forms a gel-like mass in the gut, creating a sense of fullness, decreasing appetite, and

promoting regular bowel movements.

The greatest benefits of fiber were noted among women consuming more than 25 grams daily.

Reference: Aune D, Chan DS, Greenwood DC, et al. Dietary fiber and breast cancer risk: a systematic review and meta-analysis of prospective studies. *Annals of Oncology*, 2012; 10.1093/annonc/mdr589. □

Fish Oils Enhance Strength Training in Older Women

As people get older, they lose muscle mass and experience changes in muscle fibers, which may be related to reduced physical activity and poor nutrition. A combination of fish oil supplements and strength training appears to reverse some of these changes.

Cintia L.N. Rodacki, MSc, hypothesized that if fish oils improved the heart, a muscle, they might also potentiate the effects of strength training on skeletal muscles.

Rodacki, with the Parana Federal University, Brazil, and her colleagues asked 45 women, all in their 60s, to participate in a study to test the effects of fish oils on strength training. Some of the women underwent supervised strength training for three months, and some did so while also taking daily fish oil capsules. Other women began taking fish oils 60 days before beginning strength training and continued taking their supplements and working out for five months.

The fish oil capsules provided 400 mg of eicosapentaenoic acid (EPA) and 300 mg of docosahexaenoic acid (DHA) daily.

All of the women had improvements in strength and functional capacity. However, women taking the fish oils had greater improvements compared with those not taking the supplements.

Reference: Rodacki CL, Rodacki AL, Pereira G, et al. Fish oil supplementation enhances the effects of strength training in elderly women. *American Journal of Clinical Nutrition*, 2012; doi 10.3945/ajcn.111.021915. □

Higher Magnesium Intake May Lead to Reduction in Stroke Risk

Consuming sufficient magnesium is associated with a “modest but statistically significant” reduction in the risk of stroke.

Susanna C. Larsson, PhD, of the Karolinska Institute, Stockholm, Sweden, and her colleagues analyzed seven published studies on magnesium and stroke risk. Collectively, these studies involved 241,378 people and 6,477 people who had suffered a stroke.

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Quick Reviews of Recent Research

• Pycnogenol® leads to skin improvements

Taking antioxidants internally can have positive effects on the skin. In a recent study, German researchers asked 20 healthy postmenopausal women to take 75 mg of Pycnogenol daily for 12 weeks. Pycnogenol is an antioxidant complex derived from the bark of French maritime pine trees. The women's skin was carefully measured for hydration and elasticity, as was the activity of some genes in skin cells. Pycnogenol supplements led to improvements in skin hydration and elasticity, with the effect being most pronounced among women who had dry skin at the beginning of the study. In addition, the researchers noted changes in gene activity that would support the production of new skin collagen.

Marini A. *Skin Pharmacology and Physiology*, 2012;25:86-92.

• Omega-3s impact cognition in seniors

The omega-3 fats are essential for brain development, learning, and good moods. Researchers from Taiwan studied 132 seniors who had recovered from severe depression. They found that higher blood levels of eicosapentaenoic acid (EPA) and total omega-3s, along with lower levels of arachidonic acid (a pro-inflammatory omega-6 fat), were associated with better cognitive function. The researchers wrote that low levels of omega-3s may predict cognitive impairment among seniors with a history of depression.

Chiu CC. *American Journal of Clinical Nutrition*, 2012; 95:420-427.

• Curcumin may have antidepressant effect

Curcumin, an antioxidant and anti-inflammatory constituent of turmeric root, may have antidepressant benefits, according to a recent animal study.

Inflammation in the brain may influence depression and other mood issues. In the study, researchers from India conducted experiments using laboratory mice and rats. Curcumin was as effective as both Prozac and Tofranil, but adding curcumin to the drugs did not increase their effect.

Sanmukhani J. *Acta Poloniae Pharmaceutica-Drug Research*, 2011;68:769-775.

• Acid-blocking drugs increase fractures

People often take proton pump inhibiting drugs (e.g., Prilosec, Prevacid, and Nexium) to treat gastric reflux and heartburn. However, these drugs also interfere with the absorption of nutrients, including magnesium and vitamins B12 and C. Researchers at Massachusetts General Hospital and Harvard Medical School, Boston, studied almost 80,000 women and their risk of hip fracture. Women who had used these drugs for at least two years were 35 percent more likely to suffer a hip fracture. The risk of hip fractures was 50 percent higher among current and former smokers who used these drugs.

Khalili H. *British Medical Journal*, 2012:e372.

• Fructose linked to various health problems

Researchers from Georgia Health Sciences University in the United States studied the relationship between total fructose intake and risk factors for heart disease and diabetes. Fructose was associated with higher systolic blood pressure, blood sugar, and C-reactive protein levels and lower levels of high-density lipoprotein cholesterol.

Pollock NK. *Journal of Nutrition*, 2012;142:251-257.

• Massage found to reduce inflammation

Canadian researchers studied the effects of massage after 11 young men engaged in strenuous exercise. Men receiving massage had lower levels of muscle inflammation, compared with those who did not receive massage.

Crane JD. *Science Translational Medicine*, 2012;4:119ra13.

Magnesium and Stroke...

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Larsson reported that a 100 mg daily increase in magnesium intake was related to an 8 percent lower risk of stroke in general and a 9 percent lower risk of ischemic stroke. Magnesium did not seem to influence the risk of hemorrhagic stroke.

She noted that low magnesium intake has been associated with high blood pressure, metabolic syndrome, and type 2 diabetes – each of which increases the risk of stroke. Other studies have found that magnesium supplementation reduces blood pressure and improves glucose tolerance.

Reference: Larsson SC, Orsini N, Wolk A. Dietary magnesium intake and risk of stroke: a meta-analysis of prospective studies. *American Journal of Clinical Nutrition*, 2012: doi 10.3945/ajcn.111.022376. □

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