

Special Interest Articles:

- Breast cancer and flavonoids
- ADHD and natural health care
- Asthma and antioxidants
- Autism and nutrition
- Flavonoids
- Folic acid
- Name that food

Name that food: a chewy red candy

DHA and Child Development

According to research appearing in the *European Journal of Nutrition* (published online, ahead of print Dec. 19, 2007), the amount of docosahexanoic acid (DHA) found in blood in the umbilical cord during pregnancy has a positive association with the child's motor function later in life. DHA levels are also associated with a lowered risk of post partum depression.

The study followed over 300 children for a period of seven years following birth. Children were evaluated using the Maastricht Motor Test. Children with higher levels of DHA in the umbilical blood scored higher on the test.

This supports other research appearing in *Archives of Disease in*

Childhood (Fetal and Neonatal Edition) (published online Dec. 21, 2006), which found that omega-3 fatty acid supplementation in the pregnant mother (from fish oil—DHA is an omega-3 fatty acid found in fish oil) created increased hand-eye coordination, improved scores for language comprehension, a tendency to use longer sentences and a better vocabulary when the children were tested at 2 ½ years. Seventy-two children were tested; 33 in the group supplemented with fish oil and 39 in the control group. They were evaluated with the Griffiths Mental Development Scales, the Peabody Picture Vocabulary Test and the Child Behaviour Checklist.

Prebiotics May Reduce Infections in Infants

The term probiotics refers to supplements that actually contain bacteria necessary for a healthy intestinal tract. Prebiotics are substances that feed and support healthy intestinal bacteria; galactooligosaccharides and long chain fructooligosaccharides are two prebiotics. Research appearing in the *Journal of Nutrition* (November 2007, Vol. 137) found that infants fed formula supplemented with prebiotics had

a reduction in recurring infections. The infants were fed either formula fortified with fructooligosaccharides and galactooligosaccharides (8g/l) or a placebo consisting of maltodextrin for the first six months of their lives. The group receiving the probiotics had a reduction in recurring infections of 9.6% with a 6.7% reduction in respiratory infections.

Breast Cancer and Flavonoids

Research appearing in Cancer Epidemiology, Biomarkers & Prevention (Nov 2007, Vol 16, # 11, pp 2285-2292) found that an increase in the intake of flavonoids can increase breast cancer survival.

Flavonoids are a class of water-soluble plant pigments found in fruits, vegetables, and certain beverages that have antioxidant effects. Antioxidants are compounds that protect cells against the damaging effects of reactive chemicals known as free radicals. Free radicals can cause oxidative stress, leading to cellular damage. There are different categories of flavonoids. Flavones, isoflavones and anthocyanidins are all types of flavonoids.

Research appearing in *Cancer Epidemiology, Biomarkers & Prevention* (Nov 2007, Vol 16, # 11, pp 2285-2292) found that an increase in the intake of flavonoids can increase breast cancer survival. The researchers used a questionnaire to find out the dietary habits of over 1,200 women during the year before being diagnosed with breast cancer. They were monitored

for over five years. During the course of the study 173 of the subjects died, 113 of them died from breast cancer. The researchers found a relationship between high intake of flavonoids and decreased mortality. A high intake of flavones was associated with a 37% reduction in mortality, including from breast cancer, over the course of the study. A high intake of isoflavones was associated with a 48% reduction in mortality. A high intake of anthocyanidins was associated with a 36% reduction in mortality.

This was, of course, a preliminary study that shows us the possibilities for flavonoids. More research is needed. In the words of the researchers, "Mortality may be reduced in association with high levels of dietary flavones and isoflavones among postmenopausal U.S. breast cancer patients. Larger studies are needed to confirm our findings."

ADHD and Natural Health Care

A small pilot study was published in the *Journal of Alternative and Complementary Medicine* (2007 Dec;13(10):1091-7). The idea was to treat the 10 subjects with multiple natural therapies, including chelation, nutrition, environmental control, behavioral therapy, speech therapy, physical therapy and educational therapy. The subjects were aged 4-10 and had been diagnosed with autism spectrum disorder and with ADHD. They were treated with a comprehensive program of natural therapies for 3-6 months. The results were judged by doctors, teachers and parents and all ten

children demonstrated significant improvement in language skills, writing, behavior and social interaction. Also, urinary lead levels dropped in all of the subjects.

Granted, this was a small study. It was not double-blind or placebo controlled. It does, however bring up the interesting possibility that children with ADHD may respond to a comprehensive program of natural therapies. It makes sense to use a multi-faceted approach and try to develop a safe and natural way to address this complex problem. A larger, objective study would be interesting to see.

Asthma and Antioxidants

Oxidation and free-radical damage are words to describe damage being done to cells by certain chemical constituents. A free radical is an electron that is easily given up by a molecule. It is "fired", like a kind of chemical "bullet". The words used to describe this action include oxidation, oxidative stress and free-radical damage. Certain nutrients, like vitamins C and E (among others) act like little "bullet-proof vests" that protect from this damage.

In asthma there are two things that contribute to the symptoms: irritation of the airways (from oxidative stress) and spasm of the airways. So it is reasonable to assume that a therapy that protects the lining of the airways, or relaxes them would be beneficial to patients with asthma. Research has shown an increased presence of free radical markers in asthma patients ("Evidence of Free Radical Activity in Asthma", Owen, Stephen, M.D., et al, *New England Journal of Medicine*, August 22, 1991;325(8):586- 587).

Research does indeed show the benefits of antioxidants. In the *American Journal of Clinical Nutrition* (1995;61(Suppl.):625S-630S) found that a diet low in vitamin C is a risk factor for asthma. Exposure to oxidants also increases the symptoms of asthma. The article reviewed 11 research studies between 1973 and 1995 that looked at vitamin C supplementation for asthma patients. Seven of the studies showed improvement in pulmonary function tests with supplementation of 1 – 2 grams of vitamin C.

Low concentration of anti-oxidant nutrients in the plasma is associated with increased severity of asthma ("Plasma concentrations of dietary and nondietary antioxidants are low in severe asthma," Misso NL, Ray S, et al, *Eur Respir J.*, 2005; 26(2): 257-64). Also, low intake of

foods containing vitamin C is low in asthmatics when compared to healthy subjects, according to research appearing in the journal *Thorax* ("Dietary antioxidants and symptomatic asthma in adults," Patel BD, Welch AA, et al, *Thorax*, 2006 Feb).

Of course vegetables are an excellent source of antioxidants. Research supports the idea that eating more vegetables can reduce asthma symptoms ("Fruit and vegetable intakes and asthma in the E3N study," Romieu I, Varraso R, et al, *Thorax*, 2006 Jan 5). In general, nutrition can be a valuable tool for bringing asthma under control. Nutrients other than antioxidants that have been shown by research to be useful for asthmatics include: omega-3 fatty acids, selenium, magnesium, CoQ10, and manganese.

According to the *British Medical Journal*, (February 17, 2001; 322: 390-395) it is a good thing when a baby gets a cold. Colds and minor infections seem to help the immune system to develop and help to prevent asthma and allergies later in life. The finding supports a theory that an immune system that has been geared up to fight infection is less likely to overreact to innocuous substances.

While repeated mild infections seemed to help prevent asthma and allergies, recurrent serious infections were another matter. Serious infections of the lower respiratory tract, like pneumonia or the flu, seemed to increase asthma risk. The researchers point out that the children who have a tendency to get asthma may be more prone to these more serious infections.

Other research supports the idea that environments that are too sterile may not allow the immune systems to develop properly and causing them to overreact to harmless substances.

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Autism: Some Things Can be Done

The Autism Research Institute sponsors Defeat Autism Now! (DAN!) Conferences. Physicians and researchers who are doing progressive work with nutrition and other alternative modalities, gather at these conferences. The FDA has taken the position that there is no effective treatment for autism. DAN! medical professionals and researchers disagree. One small example is the use of vitamin B₆ and magnesium. There are 22 published studies (11 of them were double-blind, placebo-controlled studies) by scientists in 6 countries showing that vitamin B₆, used in conjunction with magnesium, may be beneficial in the treatment of autistic children and adults.

Gluten-free diets have been of interest. One small study, published in *Nutritional Neuroscience* (2002;5(4):251-261.) compared 10 autistic children who were placed on a gluten-free, casein-free diet to 10 autistic controls who were not placed on a restrictive diet. The study lasted for one year. Those on the diet experienced a significant reduction in aloofness, anxiety and ritualistic behavior. They also experienced improved learning skills. They developed more empathy and improved relationships with other children. They became more tolerant to physical contact. There were also improvements in nonverbal communication skills, eye contact, and responsiveness to verbal cues. There was an increase in their range of interests, and responsiveness to dangerous situations. There was also a reduction in excessively passive or restless behavior. There was significant improvement in nonverbal cognitive skills.

The control group actually became worse over the course of the study. One theory for this result is that gluten and casein do not break down properly. In the autistic children, eating these foods cause a release of opioid-like peptides (peptides are pieces of protein—partially broken down), causing the change in behavior.

Another area of interest is the inflammation of the brain itself. Research appearing in the April, 2002 issue of the journal *Molecular Psychiatry*

(volume 7, number 4, pages 375-382) studied autistic children who had a form of the disease characterized by apparently normal early development followed by regression in the second year of life. Previous studies have found evidence of immune issues in this group of autistic patients. Earlier research has shown that in this group of patients, bowel inflammation is often an issue [*The Lancet* (1998; 351: 637-641), *American Journal of Gastroenterology* (2000; 95: 2285-2295)]. In this study, the researchers found changes in the cells in the intestine of the autistic patients that suggest that the immune system is reacting against the intestinal cells. Children with mental retardation, cerebral palsy, celiac disease and normal controls, none of whom had these cellular changes.

Researchers at Johns Hopkins University have found that the brains of some people with autism have signs of inflammation. In research published in the November 15, 2004 issue of the journal *Annals of Neurology*, brain tissue was examined in 11 subjects with autism. The subjects were deceased—killed by accident or injuries (as opposed to some disease process). Tissue was taken from three different areas of the brain. The tissue samples indicated the presence of inflammation.

The cerebrospinal fluid (the fluid that surrounds the brain and spinal cord) in six living patients (children between the ages of six and twelve) was tested for cytokines and chemokines. The presence of these two chemicals indicates inflammation. They were elevated in the children with autism.

The findings indicate that the immune system may be involved with autism. Also, the immune response and inflammatory response is local—happening in the brain only. It is not the result of a systemic immune response.

This opens the possibility of using antioxidants and immune support for autistic children. Perhaps the FDA needs to rethink its position.

What are Flavonoids?

Flavonoids are a class of water-soluble plant pigments found in fruits, vegetables, and certain beverages that have antioxidant effects. Antioxidants are compounds that protect cells against the damaging effects of reactive chemicals known as free radicals. Free radicals can cause oxidative stress, leading to cellular damage.

Oxidative stress has been linked to cancer, aging, atherosclerosis, ischemic injury, inflammation and neurodegenerative diseases (Parkinson's and Alzheimer's). Flavonoids may help provide protection against these diseases by contributing to the total antioxidant defense system of the human body. Studies have shown that flavonoid intake is inversely related

to mortality from coronary heart disease and to the incidence of heart attacks.

Flavonoids are broken down into categories. There is some controversy on how to categorize these substances. One system breaks flavonoids into isoflavones, anthocyanidins, flavans, flavonols, flavones, and flavanones. Some of the best-known flavonoids, such as genistein in soy, and quercetin in onions, can be considered subcategories of categories. Although they are all structurally related, their functions are different. Flavonoids also include hesperidin, rutin, citrus flavonoids, bilberry and a variety of other supplements.

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Folic Acid Protects the Mother as well as the Fetus

We are all familiar with the research that shows folic acid to be valuable for preventing birth defects. It does even more than that to benefit both the mother and the fetus. Research appearing in the *American Journal of Obstetrics and Gynecology* (January 2008, Volume 198, Issue 1) found that folic acid supplementation reduces the risk for pre-eclampsia. Pre-eclampsia exists when the blood pressure rises and there is excretion of protein in the urine.

Folic acid supplementation can also reduce the risk for premature birth, according to a report presented at the 28th Annual

Society for Maternal-Fetal Medicine meeting. There was an observational study sponsored by the National Institute of Health. It involved 38,033 participants and found that folic acid supplementation for at least one year prior to pregnancy is linked to a 70% decrease in very early preterm deliveries (20 to 28 weeks in gestational age) and up to a 50% reduction in early preterm deliveries of 28 to 32 weeks."

We are indeed much more than what we eat, but what we eat can nevertheless help us to be much more than what we are.—*Adelle Davis*

Name that "Food"

Diet and lifestyle play a large role in health and disease. Many of the things that pass for food in our society act to undermine our health.

Dietary indiscretion can cause health problems. Look at the information taken from the label of a commonly consumed "food" and see if you can guess what it is:

SUGAR, CORN SYRUP, MODIFIED FOOD STARCH, CONTAINS LESS THAN 0.5% OF THE FOLLOWING INGREDIENTS: PEAR JUICE FROM CONCENTRATE,

SODIUM CITRATE, PECTIN, CITRIC ACID, MALIC ACID, FUMARIC ACID, CONFECTIONERS GLAZE, CARNAUBA WAX, WHITE MINERAL OIL, ARTIFICIAL FLAVORS, ARTIFICIAL COLOR, MAGNESIUM HYDROXIDE, RED #3, RED #40, YELLOW #5 (TARTRAZINE) YELLOW #6, BLUE #1, BLUE #2 LAKE,

Answer on page 1

