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## IN THE NEWS

### Fish And N-3 Fatty Acids Reduce Risk Of Alzheimer's Disease



A five-year follow-up study in Finland shows that fish consumption and high serum levels of n-3 fatty acids protect patients with coronary artery disease (CAD) by reducing the risk of dying.\* The study was reported in the American Journal of Clinical Nutrition (July 2003).

Participants included 285 men and 130 women, aged 33 to 74 years, with clinically established CAD. Investigators determined dietary intakes through food records and measured fatty acid composition in serum components. The study endpoints included deaths of all causes; cardiovascular disease, coronary artery diseases; nonfatal acute myocardial infarct (AMI); nonfatal stroke; coronary artery bypass grafting; and coronary angioplasty. The results showed that patients who ate fish and had high serum levels of alpha linolenic acid (ALA), eicosapentaenoic acid (EPA), and docosahexaenoic acid (DHA) reduced their risk of all-cause mortality in direct relation to the amounts consumed. Patients who consumed 57 grams per day of fish had a 55% lower risk of death from cardiovascular disease, heart attack, and stroke, and a 51% lower risk of death from coronary artery disease.

The study's authors concluded that "ALA, EPA, and DHA are nutritional factors that could potentially reduce risk of death in patients with CAD."

—Carmia Borek, Ph.D.



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#### Reference

\*Erkkila AT, Lehto S, Pyorala K, Uusitupa MI. n-3 fatty acids and 5-y risks of death and cardiovascular disease events in patients with coronary artery disease. Am J Clin Nutr 2003 July; 78:65-71.

### Dark Chocolate May Reduce Cardiovascular Disease Risk

A new study is first to show that dark chocolate inhibits platelet clumping (aggregation), a major cause of blood clots (thrombi) that trigger heart attacks and stroke. The study, from Ninewells Hospital, Scotland, was reported recently at the XIX Congress of the International Society on Thrombosis and Haemostasis, held in the UK in July 2003. Thirty subjects were randomized to receive 100 grams of white chocolate, milk chocolate, or dark chocolate. Four hours later, blood samples of each group were tested in vitro to see if chocolate intake modified platelet aggregation. While white chocolate had no effect and milk chocolate showed a trend towards reducing clumping, dark chocolate inhibited platelet aggregation by 92%. Of the three types of chocolate, dark chocolate has the highest content of flavonoids, known to inhibit cyclooxygenase (COX1) that helps block platelet aggregation.

The researchers suggest that dark chocolate has potential to reduce thromboembolism and cardiovascular diseases.

—Carmia Borek, Ph.D.



### Adverse Side Effects from Medication Are Common

Side effects from medication may be more common than believed. In a study of more than 600 adults, one of four experienced a

potentially harmful side effect from a medication prescribed by a primary care physician.<sup>1</sup>



“Of the adverse drug events, 13% were serious,” lead study author Tejal K. Gandhi, M.D., of the Division of General Medicine at Brigham and Women’s Hospital (Boston, MA) told Life Extension magazine. “About 1 in 10 could have been completely prevented, and another third could have been ameliorated (made less serious) had they been addressed more quickly.”

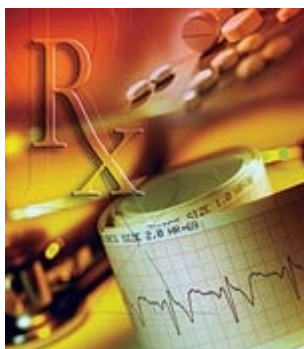
For their research, which was published in the April 17, 2003 New England Journal of Medicine, Dr. Gandhi and associates interviewed 661 patients 10-14 days after a visit to one of four adult primary care practices in Boston, MA. They questioned the patients about specific symptoms of potential medication side effects. If symptoms were present, the participants were further questioned about timing and any actions taken. The patients were then asked to read their medication bottle labels to the interviewer. This process was repeated two and one-half months later. At that time, a nurse also examined the medical records of the patients for any adverse drug events documented in the chart, including drug allergies and existing conditions.

Of the 661 patients surveyed, 162 (25%) had adverse drug events. Twenty-four (13%) of these were serious, such as decreased heart rate, decreased blood pressure, or gastrointestinal bleeding. Twenty (11%) of the events were preventable and 51 (28%) were ameliorable. Eleven of the preventable or ameliorable events were considered serious.

“Of the 20 adverse drug events that were preventable, nine were due to the selection of an inappropriate drug, two to the wrong dose, and two to the wrong frequency of use,” the researchers reported. “Advanced systems of computerized medication ordering, such as those that check the dose of the drug, interactions with other drugs, and allergy to the drug, could have prevented 7 of the 20 preventable events (35%).”

Of the 51 ameliorable events, 19 (37%) were attributed to the patient’s failure to inform the physician of the symptoms. The other 32 (63%) were presumed to be related to the physician’s failure to respond to medication-related symptoms reported by the patient.

The number of medications that a patient took was significantly associated with the risk of having an adverse event. “The mean number of events per patient increased by 10% for each additional medication,” they wrote.



Most previous studies concerning adverse drug events were performed in hospitals rather than in outpatient settings. In one study, 6.5% of patients in a hospital had an adverse drug event, of which 28% were deemed preventable.<sup>2</sup>

“This study is important because it showed that adverse drug events were found in 25% of ambulatory patients, a rate five times as high as that found in another recent study of the community-living elderly,” said Dr. Gandhi. “We probably found such a high rate because we called patients directly, while other studies have relied mainly on chart review.”

—Marc Ellman, M.D.

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## Multivitamins May Lessen Birth Defect Risk in Diabetics

Women with diabetes are at an increased risk of giving birth to infants with birth defects. While research has already proven that the regular use of multivitamins can reduce the chance of birth defects, a new study suggests that multivitamins may also specifically reduce this risk among women with diabetes.

For their study,\* researchers interviewed the mothers of 3,278 children with birth defects about their use of multivitamins from three months before pregnancy through the first three months of pregnancy (periconceptual period). They compared the results to the vitamin use of 3,029 infants born without birth defects.

“Our recent research on multivitamins, diabetes, and birth defects aimed to determine whether the protective benefits derived from multivitamin supplementation with respect to birth defects observed among women in the general population in previous studies would also apply to a subpopulation of women known to be at increased risk for having offspring with birth defects, i.e., women with diabetes,” lead researcher Adolfo Correa, M.D., Ph.D., told Life Extension magazine. “Our findings suggest that that seems to be the case.” Dr. Correa is a medical officer for the National Center on Birth Defects and Developmental Disabilities at the Centers for Disease Control and Prevention.



The investigators found that women with diabetes were nearly four times more likely to deliver a child with a birth defect if they did not take multivitamins during the periconceptional period when compared to mothers without diabetes who did not take vitamins. If the diabetic women took vitamins regularly, however, their offspring had no increased risk of having a birth defect.

Women without diabetes also showed a lower chance of having a baby with birth defects if they took a multivitamin regularly during the periconceptional period. These findings were consistent even when considering any potential confounding variables, such as the mother’s age at time of birth, period of birth, race, smoking, and alcohol use.

This study provides support that all women, especially those with diabetes, can decrease their chance of delivering an infant with a birth defect if they take a multivitamin containing at least 400 mg of folic acid regularly before and during pregnancy.

—Marc Ellman, M.D.

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## IN THE NEWS

### Insomnia Alters Immune System



Nothing feels better than a good night's sleep. New research suggests that good sleep may be essential in maintaining a healthy immune system.

Researchers at the Laval University Cancer Research Center in Québec, Canada followed 19 adults with healthy sleep schedules and compared them to 17 adults with difficulty sleeping (insomnia). They found that the insomnia group had significantly lower levels of CD3+, CD4+, and CD8+ cells, which are essential components of our immune defense system.

Insomnia is a common condition, chronically affecting an estimated 9-12% of the adult population. The condition may involve difficulty falling asleep, frequent or prolonged nighttime awakenings, early morning awakening with an inability to return to sleep, or a combination of these problems. Previous studies have shown that insomnia is associated with more frequent medical problems, including increased need for medical consultations and hospitalizations.

"It has been believed since ancient times that sleep loss can lead to illness," said the researchers in their report.\* "Although the present study was not designed to verify that broad hypothesis, it suggests that chronic insomnia affects host defenses."

Refer to the Insomnia protocol in the new edition of Disease Prevention and Treatment for information about correcting sleep disorders.

—Marc Ellman, M.D.

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### Diet as Good as Drugs in Lowering Cholesterol, C-Reactive Protein

A strict, low-fat diet high in soy protein, viscous fibers, nuts, and plant sterols was found to be just as effective in lowering cholesterol as a commonly prescribed medication, according to a study published in the *Journal of the American Medical Association*.<sup>1</sup> What's more, this diet also lowered the blood levels of C-reactive protein, an inflammatory marker in the body that has been linked to cardiovascular disease.

For their study, Canadian researchers randomized 46 adults with high cholesterol into three groups. The first group consumed a diet very low in saturated fat; the second group received the same diet, but also took 20 mg per day of lovastatin (a first-generation statin-type anti-cholesterol drug); and the third group consumed a diet high in plant sterols, soy protein, viscous fibers, and almonds. At the end of the four-week study period, the researchers found that patients in the last group had similar lowered cholesterol and reduced c-reactive protein levels as the lovastatin group.

"About half of the people currently taking statin drugs to lower cholesterol could reach their blood cholesterol target or goal by using diet alone," James W. Anderson, M.D., told *Life Extension* magazine. Dr. Anderson, who wrote a commentary accompanying the research article,<sup>2</sup> is Professor of Medicine & Clinical Nutrition at the University of Kentucky and President of the Obesity Research Network.



"This requires careful avoidance of animal fat and cholesterol, a generous intake of soluble fiber such as oatmeal, oat bran, and psyllium, use of 10 grams of soy protein twice daily, such as from a soy cereal, protein bar, or soy nuts, and use of plant sterols or stanols such as from four Benecol® gencaps every day. This regimen will decrease the LDL—or bad—cholesterol by 30%. Because of the expense, aversion to taking unnecessary medication, and side effects such as muscle pains and liver problems, many people will choose a more rigorous diet instead of taking the statin pills," said Dr. Anderson.

—Carmia Borek, Ph.D.

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## Melatonin Slows Breast Cancer

The nighttime production of the hormone melatonin by the brain's pineal gland may help prevent the growth of human breast cancer by blocking the tumor's uptake of dietary linoleic acid, according to an article published in *Breast Cancer Research and Treatment* (June 2003).

Linoleic acid is an essential polyunsaturated fatty acid consumed at high levels in the Western diet. It has been shown to stimulate the development of breast and other cancers. A group of researchers at the Bassett Research Institute in Cooperstown, NY, believes that the growth of breast cancer and other malignancies is a net balance between stimulation during the day by growth factors such as linoleic acid and inhibition during the night by melatonin.

To further explore this relationship, the Bassett group exposed rats implanted with human breast cancer tissue to varying light situations. They found that those rats that were constantly exposed to bright light demonstrated a seven-fold increase in breast cancer growth as compared to rats on an alternating light-dark cycle. This is believed to be due to increased tumor uptake of linoleic acid from the lack of melatonin. Conversely, human breast cancers subjected to normal nighttime levels of melatonin demonstrated a nearly 70% decrease in growth, as well as decreased linoleic acid uptake and metabolism.

"This is the first biological evidence for a potential link between constant light exposure and increased human breast oncogenesis involving melatonin suppression and stimulation of tumor linoleic acid metabolism," said the researchers in their article.



"You can essentially say that cancer cells are put to sleep at night by melatonin, but that they get their wake-up call during the day when there isn't enough melatonin around to block linoleic acid's stimulatory action," lead researcher David Blask, M.D., Ph.D., told *Life Extension* magazine. "The melatonin signal at night is a key to the circadian regulation of cancer growth and we now know that 75-90% of human breast cancers have specific receptors for this signal."

These findings may explain the link found in previous research between increased risk of breast and colon cancer in nurses who work rotating shifts. It is hypothesized that these nurses may be suppressing their melatonin production because of their increased exposure to light at night. In fact, research has shown that the risk of breast cancer is lower in blind women, who cannot detect light at night.

"Our study provides the first experimental evidence in a model system of human cancer to support the hypothesis that melatonin suppression in shift workers by light at night may be a major factor responsible for their increased risk of breast and colorectal cancer possibly because cells are taking up more linoleic acid than usual over the course of the day," Blask explained.

"These findings help to make a stronger case that interactions between biological clock function, light-dark cycles, and diet will increasingly need to be taken into consideration by oncologists and others when making recommendations and decisions regarding cancer prevention and treatment strategies," said Blask.\*

—Carmia Borek, Ph.D.

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## Reference

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