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Eating Breakfast Reduces Odds of Gaining Weight, Regardless of Age

Conventional wisdom holds that breakfast is the most important meal of the day – despite the fact that fewer and fewer people seem to be actually sitting down for the morning meal. Several recent studies have found that having breakfast sets the stage for eating less food the rest of the day – and gaining less weight over several years.

Mark A. Pereira, PhD, and his colleagues at the University of Minnesota, Minneapolis, tracked the eating habits and body mass index (BMI, an indicator of body fat) of 2,216 teenagers over five years. Pereira looked for patterns related to regularly, occasionally, or never eating breakfast.

At the beginning of the study, regular breakfast eaters were the thinnest, whereas those who never ate breakfast were roughly 13 pounds heavier. Teenagers who occasionally ate breakfast fell between the two groups.

The same pattern remained consistent with breakfast habits over the next five years. Teenagers who consistently ate breakfast gained only 1.5 BMI points, approximately 9 pounds. Those who occasionally ate breakfast gained about 1.9 BMI points, or about 11 pounds. And those who never ate breakfast gained about 2.1 BMI points, or an average of about 13 pounds.

“As rates of breakfast consumption decrease throughout adolescence and into adulthood, the impact of breakfast consumption on public health may be significant,” wrote Pereira and his colleagues. “More emphasis should be placed on breakfast habits, especially among adolescents and young adults, when behavioral patterns are developing and stabilizing.”

In a separate study, Nicholas J. Wareham, MB, of Cambridge University, England, and his colleagues studied 6,764 middle-age men and women for just over three and one-half years.

Nearly everyone in the study gained weight, but those who ate the largest portion of their calories at

breakfast gained the least weight. People who ate about one-fourth to one-half of their daily calories at breakfast gained only 1.7 pounds of weight during the study. Those who consumed small breakfasts, less than 11 percent of their daily calories, gained an average of 2.7 pounds during the study.

A study of more than 25,000 Dutch teenagers found a similar pattern. Simone Croezen, PhD, reported that teenagers who skipped breakfast were more than two times more likely to be overweight.

Several years ago, researchers at St. Louis University, St. Louis, Missouri, found that women eating eggs for breakfast felt fuller, were less hungry at lunch, and consumed an average of 420 fewer calories over the next 36 hours – compared with women who ate a bagel, cream cheese, and low-fat yogurt for breakfast.

References: Timlin MT, Pereira MA, Story M, et al. Breakfast eating and weight change in a 5-year prospective analysis of adolescents: project EAT (Eating Among Teens). *Pediatrics*, 2008;121:e638-645. Purslow LR, Sandhy MS, Forouhi N, et al. Energy intake at breakfast and weight change: prospective study of 6,764 middle-aged men and women. *American Journal of Epidemiology*, 2007;167:188-192. Croezen S, Visscher TLS, Ter Bogt NCW, et al. Skipping breakfast, alcohol consumption and physical inactivity as risk factors for overweight and obesity in adolescents: results of the E-MOVO project. *European Journal of Clinical Nutrition*, 2009;63:405-412. Vander Wal JS, Marth JM, Khosla P, et al. Short-term effect of eggs on satiety in overweight and obese subjects. *Journal of the American College of Nutrition*, 2005;24:510-515. □

Perspectives

A Safer Therapy for Brain Cancer

Politics aside, the diagnosis of brain cancer is awful. And although there are survivors, the results of conventional treatment are pretty dismal. When I heard that Senator Ted Kennedy had been diagnosed with malignant glioma, I immediately thought of a dear friend who was diagnosed several years ago with malignant glioma. He remained pretty sharp

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mentally, aside from forgetfulness, until shortly after he began radiation therapy, when he rapidly went downhill.

The current therapeutic vogue for brain cancer is the gamma knife, which is supposed to be a precise beam of radiation that destroys the tumor and nothing else. So they say. There is collateral damage – if not from the radiation striking normal cells, then from the creation of toxic necrotic disease as the cancer cells die. In 20 years, the gamma knife may be viewed as barbaric as we now view bloodletting.

A few days after Kennedy's diagnosis made the headlines, I accidentally came across a medical review paper published last year, in which the author described cell, animal, and three small clinical (human) studies using gamma-linolenic acid (GLA) to treat gliomas and other types of brain cancers.

GLA is an anti-inflammatory plant oil sold at every health food store in the county. In the human studies, GLA was injected directly into the tumors daily for up to 20 days (obviously something you can't do at home). Most of the people treated with GLA were alive and well almost three years after diagnosis. They experienced few if any side effects.

None of this means GLA is a miracle cure for brain cancer, or any other type of cancer, for that matter. However, it is another very promising alternative and complementary therapy – one I suspect that Senator Kennedy's doctors probably have never heard of. (By the way, I did email Senator Kennedy's office about the GLA study.)

Skeptical? You can read the actual journal article for free by going to www.pubmed.gov, typing "Das UN glioma" into the search box. Share this important article with your doctor and your friends. Maybe, just maybe, we'll be able to encourage the use of a safe and nontoxic therapy for brain cancer. –JC

Reference: Das UN. *Medical Science Monitor*, 2007;13: RA119-RA131. □

Gamma-Linolenic Acid Reduces Haze After Eye Surgery

The omega-6 family of essential fatty acids is widely considered pro-inflammatory, but this is a misconception – some omega-6 compounds have very potent anti-inflammatory properties. With the right building blocks, they can increase the body's production of prostaglandin E1 and dampen inflammation.

This benefit was recently borne out in a study that gave patients large amounts of gamma-linolenic acid (GLA), the key modulator arbiter of the anti-inflammatory effects of the omega-6 fats.

Giuseppe Querques, MD, of the University of Foggia, Italy, and his colleagues studied 80 men and women who were scheduled for photorefractive keratectomy (RPK), a type of laser eye surgery designed to improve near- or far-sightedness. The results of the study may be applicable to Lasik, which involves more extensive laser surgery.

Following RPK, patients often experience temporary visual haziness, which is likely related to localized inflammation, dry eye (lack of tearing), and the destruction of keratocytes, a type of cell found in the cornea, according to Querques.

He and his colleagues gave half the subjects daily oral supplements containing 15.1 mg of GLA, plus beta-carotene, B-complex vitamins, zinc, and copper for 30 days following RPK. The other 40 subjects served as a control group for comparison's sake.

People taking the GLA and other nutrients healed faster and had significantly fewer visual problems stemming from RPK.

Dietary trans fats inhibit the conversion of linoleic acid (found in vegetable oils and nuts) to GLA. Supplements of GLA leapfrog this bottleneck and are quickly converted to dihomogamma-LA, which in turn increases production of anti-inflammatory prostaglandin E1.

Reference: Querques G, Russo V, Barone A, et al. Efficacy of omega-6 essential fatty acid treatment before and after photorefractive keratectomy. *Journal Francais d'Ophthalmologie*, 2008;31:282-286. □

Low Vitamin D Levels Linked to Greater Risk of Heart Attack

Men with low levels of vitamin D have a significantly greater likelihood of experiencing a nonfatal heart attack or fatal coronary heart disease.

Edward Giovannucci, MD, ScD, and his colleagues at Harvard University's School of Public Health tracked 18,225 male health professionals, ages 40 to 75 years, who were initially free of heart disease. Blood samples and vitamin D levels were assessed at the beginning of the study and, after 10 years, 454 of the men either had a nonfatal heart attack or died from coronary heart disease.

Men who were deficient in vitamin D – with blood levels less than 15 ng/mL – were almost two and one-half times more likely to suffer heart problems, compared with men who had normal levels of the vitamin. Men with marginal vitamin D levels – about 22 to 29 ng/mL – had a 60 percent greater risk of heart problems, compared with men who had higher blood levels of the vitamin.

Salmon and shiitake mushrooms are among the

richest natural sources of vitamin D, but it is difficult to maintain normal levels of the vitamin from these and other foods. The body can make approximately 15,000 IU after about 15 minutes exposure to the summer sun. Most experts now recommend supplements providing at least 1,000 to 2,000 IU daily to maintain normal levels of the vitamin – that is, above 30 ng/mL.

Vitamin D levels are also measured in nanomoles per liter (nmol/L). To convert ng/mL to nmol/L, multiply the amount in ng by 2.496.

Reference: Giovannucci E, Liu Y, Hollis BW, et al. 25-hydroxyvitamin D and risk of myocardial infarction in men. *Archives of Internal Medicine*, 2008;168:1174-1180. □

Vitamin D Deficiency Common Among Infants and Toddlers

Vitamin D deficiency is common in infants and toddlers, according to a study conducted in Boston.

Catherine M. Gordon, MD, and her colleagues at Boston's Children's Hospital measured vitamin D levels in 380 infants and toddlers who were brought to an urban primary-care clinic for a routine checkup.

Forty percent of the children – essentially two of every five – had vitamin D levels that were below optimal. And just over 12 percent of the children – about one in eight – were deficient in vitamin D.

Thirteen of the vitamin D-deficient children had signs of bone demineralization, and three had x-ray evidence of rickets.

Reference: Gordon CM, Feldman HA, Sinclair L, et al. Prevalence of vitamin D deficiencies among healthy infants and toddlers. *Archives of Pediatric and Adolescent Medicine*, 2008;162:505-512. □

Supplemental Saffron May Ease Premenstrual Symptoms

One of the most flavorful – and most expensive – culinary herbs appears to reduce symptoms of premenstrual syndrome (PMS).

M. Agha-Hosseini, MD, of the Tehran University of Medical Sciences, Iran, and colleagues treated 47 women, ages 20 to 45 years, who had experienced PMS symptoms for at least six months. The women were given either 15 mg of saffron extract or placebos in the morning and evening each day for four menstrual cycles.

The women's symptoms were rated using a 17-question checklist covering mood, behavior, pain, food cravings, and swelling, as well as the 17-item Hamilton Depression Rating Scale.

Agha-Hosseini and colleagues defined "responders" as women who had a 50 percent or greater reduction in symptoms.

By the third and fourth menstrual cycles, 19 women (76 percent) responded with a reduction of PMS symptoms after taking the saffron supplements, whereas only two women (8 percent) responded to the placebos. In addition, 60 percent of the women taking saffron supplements had at least a 50 percent reduction in depression symptoms, compared with just one woman in the placebo group.

Reference: Agha-Hosseini M, Kashani L, Aleyaseen A, et al. *Crocus sativus L.* (saffron) in the treatment of premenstrual syndrome: a double-blind, randomised and placebo-controlled trial. *BJOG*, 2008;doi 10.1111/j.1471-0528.2007.01652.x □

Omega-3 Fats and Lutein Protect Against Age-Related Eye Disease

Consuming a diet rich in omega-3 fats – found in salmon and other coldwater fish – can significantly reduce the risk of age-related macular degeneration (AMD). AMD is the leading cause of blindness among seniors.

Elaine W-T Chong, MB, of the University of Melbourne, Australia, and her colleagues analyzed the results of nine previously published studies focusing on fish and omega-3 intake and the risk of AMD. The studies included a total of almost 89,000 people and about 3,200 cases of AMD.

Chong reported that eating fish at least twice weekly was associated with a 24 percent lower risk of early-onset AMD and a 33 percent lower risk of late-onset AMD. In addition, high intake of omega-3s from all sources was associated with a 38 percent reduced risk of AMD.

In a separate study, Elizabeth J. Johnson, PhD, of Tufts University, Boston, and her colleagues asked 49 middle-age and elderly women to take one of four supplements: 12 mg lutein, 800 mg docosahexaenoic acid (DHA, an omega-3 fat), a combination of lutein and DHA, or placebos daily for four months.

The DHA supplements led to an increase in the central region of the macular pigment, part of the retina responsible for fine vision. Meanwhile, lutein supplements led to increases in the outer regions of the macular pigment.

Reduced thickness of the macular pigment is an established risk factor for AMD. Many other studies have found that lutein supplements increase thickness of the macular pigment and improve visual acuity.

References: Chong E W-T, Kreis AJ, Wong TY, et al. Dietary omega-3 fatty acid and fish intake in the primary prevention of age-related macular degeneration. *Archives of Ophthalmology*, 2008;126:826-833. Johnson EJ, Chung HY, Caldarella SM, et al. The influence of supplemental lutein and docosahexaenoic acid on serum, lipoproteins, and macular pigmentation. *American Journal of Clinical Nutrition*, 2008;87:1521-1529. □

Quick Reviews of Recent Research

• Rhodiola may be helpful in treating anxiety

In a pilot study, researchers from the University of California, Los Angeles, treated 10 subjects diagnosed with generalized anxiety disorder. The men and women received 340 mg of *Rhodiola rosea* daily for 10 weeks. After taking the supplements, the subjects had a average 60 percent decrease in anxiety scores (based on the Hamilton Anxiety Rating Scale). Five of the subjects had at least a 50 percent reduction in HARS scores. Two other standardized tests for anxiety indicated some improvement.

Bystritsky A. *Journal of Alternative and Complementary Medicine*, 2008;14:175-180.

• Luteolin reduces brain inflammation

Inflammation in the brain increase the risk of Alzheimer's disease, Creutzfeld-Jacob disease, multiple sclerosis, and memory loss. In a study using brain cells, researchers from the University of Illinois found that luteolin, an antioxidant flavonoid found in celery, parsley, and chamomile tea, reduced levels of interleukin-6, a pro-inflammatory molecule. In a related study, the researchers added luteolin to the drinking water of laboratory mice, which led to reduced levels of interleukin-6 in the animals' blood and brains.

Jang S. *Proceedings of the National Academy of Sciences*, 2008;105:7534-7539.

• N-acetylcysteine protects against mercury

Researchers at the University of Rochester School of Medicine, New York, tested the effect of N-acetylcysteine (NAC) on mercury toxicity in laboratory rats. They found that supplemental NAC (in this case, added to drinking water) accelerated the urinary excretion of methylmercury and lowered the body burden of the toxic metal. The benefits were related to the dose of NAC, and larger amounts of NAC led to the more rapid excretion of methylmercury. Mercury levels in the blood, liver, brain, placenta, and fetus of pregnant rats decreased substantially after NAC ingestion. The researchers wrote, "These observations further suggest that NAC may be an excellent agent for enhancing methylmercury elimination in exposed individuals."

Aremu DA. *Environmental Health Perspectives*, 2008; 116:26-31.

• ASU has benefits in osteoarthritis

Researchers in Denmark analyzed four clinical trials in which plant extracts called avocado-soybean unsaponifiables (ASU) were used to treat a total of 664 people with osteoarthritis of the knees or back. The subjects took either 300 mg of ASU or placebos

daily for three to 12 months. Twice as many subjects responded to ASU supplements compared with placebos, and people with knee osteoarthritis seemed to respond more than did those with back osteoarthritis.

Christensen R. *Osteoarthritis and Cartilage*, 2008;16: 399-408.

• Fish and fish oils reduce risk of depression

French researchers analyzed data from a study involving 13,000 middle-age men and women. People who consumed the most fish were 36 percent less likely to experience two or more episodes of depression. The benefits were particularly striking among men – those who consumed the most fish were about two-thirds less likely to have two or more episodes of depression. Similarly, men who consumed the largest quantities of omega-3 fats were about half as likely to experience any episode of depression.

Astorg P. *Prostaglandins, Leukotrienes and Essential Fatty Acids*, 2008;78:171-182.

• Vitamin B6 deficiencies are common

Researchers from Tufts University, Boston, analyzed data from the 2003-2004 National Health and Nutrition Examination Survey (NHANES) to determine the prevalence of vitamin B6 deficiencies, based on levels of pyridoxine-5-phosphate (P5P). Their sample of 7,822 men and women showed that low blood levels of P5P – less than 20 nmol/L – were relatively common. Approximately one-fourth of all age groups were deficient. Thirty-two percent of men were deficient, compared with 16 percent of women. Smokers, elderly, non-Hispanic blacks, and current and former users of oral contraceptives had low B6 levels, even when they appeared to consume recommended amounts of the vitamin.

Morris MS. *American Journal of Clinical Nutrition*, 2008; 87:1446-1454.

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