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"Much ado about nothing!" would be an apt description of the results of a recent study on antioxidant vitamins. The study, carried out by medical researchers at Oxford University, was sponsored by two pharmaceutical companies. It involved 20,536 patients who had been diagnosed with coronary heart disease, other vascular disease, diabetes or hypertension. The participants were all considered at high risk of dying from coronary heart disease within the next 5 years – in other words, a very sick group of people. The patients were randomized to receive either a placebo or antioxidant vitamins (600 mg of synthetic vitamin E, 250 mg of vitamin C, and 20 mg of beta-carotene) daily for a 5-year period. At the end of the trial the researchers concluded that antioxidants are safe, but not effective in halting the progress of serious cardiovascular disease or in reducing overall mortality in this group of already seriously ill people.

These results should come as no surprise to anyone who has a basic understanding of how antioxidants work. Conditions like heart disease and cancer are, to a large extent, caused by oxidative stress. They only "blossom" when the body's antioxidant defenses are overcome by excessive free radical activity. Antioxidant vitamins assist the body's internally generated antioxidants in preventing oxidative stress and in so doing extend the latency period of the disease. In other words, antioxidants help PREVENT disease, but there is no evidence whatsoever that they halt or cure disease once it is in full progression – at least not in the daily amounts used in the Oxford trial.

So the results of the trial were pretty well a foregone conclusion and hopefully will not deter healthy people from maintaining their health by judicious supplementation with antioxidant vitamins.

*Yours in health,
Hans Larsen, Editor*

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LETTERS TO THE EDITOR

Do you have any information on the use of fish oil in dialysis patients to improve itching?

CR, USA

Editor: *A clinical trial involving dialysis patients found that supplementation with 6 grams/day of ethyl ester of fish oil does indeed reduce itching (pruritus). Apparently kidney failure patients tend to have an abnormal fatty acid profile and fish oil supplementation helps correct it[1].*

[1] Peck, L.W., et al. *Effect of three sources of long-chain fatty acids on the plasma fatty acid profile, plasma prostaglandin E2 concentrations, and pruritus symptoms in hemodialysis patients. American Journal of Clinical Nutrition, Vol. 64, No. 2, August 1996, pp. 210-14*

Should a PSA level be higher in an 80-year-old black male? Is 12-14 considered high in this age group? If it is, what steps should be taken in treatment?

VW, USA

Editor: *The standard cut-off point is 4 ng/mL for men. Above this one might suspect prostate cancer, prostatitis or an enlarged prostate. The cut-off point increases with age and is 6.5 ng/mL for an 80-year-old man. I am not aware of any difference in PSA levels between black and white men. I would suggest he be checked for enlarged prostate. If present, supplement with saw palmetto. Chronic prostatitis can yield high PSA*

results and should be treated before undergoing a biopsy for possible prostate cancer. If prostate cancer is present, at age 80 years, "watchful waiting" under the care of an urologist may be the best option.

I was recently diagnosed with a severe fish allergy and was told to avoid all contact with fish. Before my diagnosis I was taking a daily supplement of fish oil. Do you have any suggestions of other sources to get these benefits without taking the fish oil?

ST, USA

Editor: *Flax seed and flax seed oil can be converted to EPA and DHA, the main components of fish oil, in the body. The conversion is fairly inefficient though so you need about 4 tablespoons of flax oil to achieve the 220 mg daily requirement for EPA. This is a lot of fat - about 500 calories.*

ABSTRACTS

Light therapy involving knee not effective

BOSTON, MASSACHUSETTS. In January 1998 researchers at Cornell University reported a major discovery that could be of significant benefit to patients with seasonal affective disorder (SAD). Exposing the eyes (retina) of such patients to bright light can reset the internal circadian clock and thereby reduce SAD symptoms. The Cornell researchers found that shining a bright light (13,000 lux) on the back of the knee was effective in resetting the circadian clock. They speculated that if light was directed at the back of the knees rather than into the eyes then light therapy could presumably be performed during the night or early morning without actually waking the patient.

Now researchers at the Harvard Medical School report that they have been unable to repeat the findings observed by the Cornell researchers.

Their experiment included 22 patients who were exposed to either no light or to light specifically directed at the retina or at the knee. Shining light directly at the retina (13,000 lux for three hours) resulted in a significantly delayed melatonin phase and acutely suppressed melatonin when compared with controls. No such effect was observed when shining the light at the back of the knee. The Harvard researchers conclude that the idea that light signals are carried from the back of the knee to the human brain via the circulatory system "is not supported by our data."

Wright, Kenneth P. and Czeisler, Charles A. Absence of circadian phase resetting response to bright light behind the knees. Science, Vol. 297, July 26, 2002, p. 571

Amalgam dental fillings are a health hazard

NEW YORK, NY. Dr. Gary Null, PhD and Dr. Martin Feldman, MD have just released a major

report concerning the health hazards of dental amalgam (silver) fillings. They point to

incontrovertible evidence that mercury continually leaches from amalgam fillings at a rate of about 10-50 times the safe limit (0.28 microgram/day) set by the US Public Health Service. Mercury has been linked to birth defects, multiple sclerosis, fatigue, Alzheimer's disease, depression, anxiety, reduced immune function, antibiotic resistance, and impaired kidney function. Researchers have found that mercury is a potent killer of white blood cells and that proper removal of amalgam fillings will restore white blood cell counts to healthy levels. There is also evidence that the number of T-cells (an important part of immune defenses) decreases substantially when amalgam fillings are placed in the mouth, but increases again once the fillings are removed.

The American Dental Association (ADA) maintains that amalgam fillings are safe – a position made completely untenable by the fact that the Environmental Protection Agency (EPA) has declared amalgam to be a hazardous material. It is interesting that the ADA, when confronted by a lawsuit regarding the use of amalgam fillings, made the following statement in its defense, "The ADA owes no legal duty of care to protect the public from allegedly dangerous products used by dentists."

Several studies have found that chewing markedly increases the amount of mercury released from amalgam fillings into the mouth and that these mercury vapours easily find their way into the pituitary gland and the brain. Autopsies performed at the Karolinska Institute in Sweden revealed that people with amalgam fillings had three times more mercury in the brain and nine times more in the kidneys than did people with no amalgam fillings.

Common bacteria found in the mouth and intestines can convert mercury to methylmercury, a compound that is 100 times more toxic than is elemental mercury. Methylmercury passes both the blood-brain and placental barriers and

following a large exposure can remain in the brain for 10 years or more.

Considering that dentists still place about one million amalgam fillings in the mouths of American citizens every day it is clear that disorders caused by amalgam toxicity is a horrendous problem. Not everyone is sensitive to mercury, but various studies estimate the percentage that are to be somewhere between 10 and 44 per cent. Fortunately, a few governments are beginning to wake up to the dangers and are passing laws restricting or outright banning the use of amalgam fillings. The German, Norwegian, Swedish, Canadian and British governments have advised dentists not to install or remove amalgam fillings in pregnant women. Since November 2000 the following sign has been posted in all dental offices in California, "WARNING – Amalgam fillings contain a chemical element known to the State of California to cause birth defects or other reproductive harm". The California Dental Association apparently lobbied successfully to ensure that the word mercury did not appear in the warning.

The Australian Society of Oral Medicine and Toxicology has concluded that mercury in amalgam fillings is continuously released from the fillings and accumulates in tissues throughout the body where it interferes with many physiological functions.

Null, Gary and Feldman, Martin. Mercury dental amalgams: the controversy continues. Journal of Orthomolecular Medicine, Vol. 17, No. 2, 2nd Quarter 2002, pp. 85-110 [180 references]

Editor's comment: There is no question in my mind that amalgam fillings pose a serious health risk to everyone whether or not they actually exhibit symptoms of mercury toxicity at this time. New amalgam fillings should be avoided and old ones replaced with composite fillings under safe conditions when it becomes necessary.

Folic acid and depression

LONDON, UNITED KINGDOM. Dr. E.H. Reynolds, a consulting neurologist at King's College, has produced a comprehensive review of the association between folic acid and neuropsychiatric disorders such as depression and dementia. Dr. Reynolds points out that a folate deficiency is quite common, especially in older people. Severe folate deficiency is associated with megaloblastic anemia and it is

estimated that some two thirds of patients with megaloblastic anemia also have a neuropsychiatric disorder. In elderly people a close association has been noted between a folate deficiency and apathy, depression, dementia, withdrawal, and a lack of motivation. In a study of 164 Alzheimer's patients cognitive decline was significantly associated with raised plasma homocysteine levels and lowered folic

acid and vitamin B-12 levels. Significant improvements were noted in 24 folate-deficient, depressed persons who were given 15 mg/day of folic acid for a four-month period. Other studies have shown that supplementation with as little as 0.5 mg/day of folic acid increases the effectiveness of fluoxetine (Prozac). Dr. Reynolds

points out that folic acid can excite the nervous system so should be used with caution in epileptics. It should also be used with caution if a vitamin B12 deficiency is suspected.

Reynolds, E.H. Folic acid, ageing, depression, and dementia. British Medical Journal, Vol. 324, June 22, 2002, pp. 1512-15

Vitamin results discouraging

OXFORD, UNITED KINGDOM. A large group of British researchers from 69 participating hospitals has just released the results of the Heart Protection Study. This major, five-year study involved 20,536 UK adults aged 40 to 80 years who suffered from coronary artery disease, other cardiovascular disease or diabetes. The patients were randomized to receive a placebo or a daily vitamin "cocktail" consisting of 600 IU of synthetic vitamin E, 250 mg of vitamin C, and 20 mg of beta-carotene. After supplementing for three years the average plasma level of vitamin E had increased from 27.0 to 49.5 mmol/L, that of vitamin C from 43.2 to 58.9 mmol/L, and that of beta-carotene from 0.32 to 1.22 mmol/L indicating that the supplementation was effective in increasing blood levels of the antioxidants. It is worth noting that the increase in vitamin C concentration was quite small and not enough to reach the plasma saturation level of 77 mmol/L.

A total of 2835 (14 per cent) of the patients died during the five-year follow-up. The researchers observed no statistical differences in mortality rates between the vitamin and placebo groups whether from cardiovascular or other causes. They conclude that the vitamin supplements are safe, but not effective in preventing further deterioration in patients already diagnosed with

cardiovascular disease, diabetes, hypertension or previous stroke. NOTE: This study was funded by two pharmaceutical companies, Merck and Roche.

MRC/BHF Heart Protection Study of antioxidant vitamin supplementation in 20,536 high-risk individuals: a randomised placebo-controlled trial. The Lancet, Vol. 360, July 6, 2002, pp. 23-33

Editor's comments: The results of the Heart Protection Study are disappointing, but not really surprising. The main effect of antioxidants is that they help prevent (delay) the initiation of disease. They are not effective, certainly not in the amounts used in this trial, in reversing or even slowing down disease once it has taken hold. This is very basic antioxidant theory, but a point that seems to be ignored by many medical researchers. There are numerous studies that have shown vitamin E and vitamin C to be effective in PREVENTING many different conditions, but very few that have shown a curative effect. So basically, the Heart Protection Study just confirms that small, daily amounts of antioxidants are safe, but not effective in curing or slowing down serious diseases like cardiovascular disease, diabetes, and hypertension.

Drug interactions with grapefruit

OTTAWA, CANADA. Many pharmaceutical drugs are metabolized by an enzyme called P450, specifically its isoform CYP3A4. This enzyme is found in the liver and intestines. It is now clear that grapefruit juice suppresses the formation of CYP3A4 reducing its ability to metabolize certain drugs. The effect begins about four hours after eating a grapefruit or drinking grapefruit juice and lasts for up to 24 hours. Some of the more common drugs affected by grapefruit juice and the associated possible side effects are:

- Amiodarone (Cordarone) – arrhythmias
- Terfenadine (Terfenadine) – arrhythmias
- Diazepam (Ativan) – increased sedation
- Nifedipine (Procardia) – tachycardia, hypotension
- Lovastatin (Mevacor) – headache, muscle disease
- Pravastatin (Pravachol) – headache, muscle disease
- Simvastatin (Zocor) – headache, muscle disease

- Clomipramine (Anafranil) – drowsiness, breathlessness
- Carvedilol (Coreg) – bradycardia, hypotension
- Sildenafil (Viagra) – headache, flushing, indigestion

Ingestion of the drugs and grapefruit juice within 24 hours of each other generally increases blood concentrations of the drug and worsens its side effects.

Maskalyk, James. Grapefruit juice: potential drug interactions. Canadian Medical Association Journal, Vol. 167, August 6, 2002, pp. 279-80

Arachidonic acid and bipolar disorder

I do not usually report on animal experiments, but this one was so interesting that I thought I would make an exception.

BETHESDA, MARYLAND. Bipolar disorder (manic-depressive illness) affects about 1.5 per cent of the population and is associated with a high risk of suicide and great social and economic costs. The manic (overactive) phase of the illness has been treated for many years with lithium salts, but it is not clear how these drugs actually work. Researchers at the National Institutes of Health believe they may have found the answer. They fed laboratory rats lithium chloride for six weeks to increase the brain concentration of lithium. Analysis of the phospholipid layer of brain cells at the end of the feeding period showed a marked reduction in the concentration of

arachidonic acid and its metabolite prostaglandin E2. Brain cell concentrations of docosahexaenoic acid (DHA) were not affected. The researchers speculate that lithium works by targeting parts of the “arachidonic acid cascade”, which may be functionally hyperactive in the manic phase. Lithium also reduced the concentration of cyclooxygenase-2 leading to the speculation that cox-2 inhibitors may have some effectiveness in the treatment of bipolar disorder. The researchers also suggest that DHA (a component of fish oil) may be effective as it competes with arachidonic acid for “space” in the brain cell membranes.

Rapoport, Stanley I. and Bosetti, Francesca. Do lithium and anticonvulsants target the brain arachidonic acid cascade in bipolar disorder? Archives of General Psychiatry, Vol. 59, July 2002, pp. 592-96

No benefits of hormone therapy

SAN FRANCISCO, CALIFORNIA. In 1995 researchers at the Harvard Medical School reported that estrogen or combined estrogen/progestin therapy increased the risk of breast cancer in postmenopausal women. The fact that unopposed estrogen therapy increases the risk of breast cancer had been reported in 1992. Shortly thereafter a large clinical trial was begun to see if estrogen/progestin therapy (HRT) would be of benefit to postmenopausal women with heart disease. This trial, the Heart and Estrogen/Progestin Replacement Study (HERS), involved 2763 postmenopausal women with documented coronary heart disease. Half the participants (1380 women) were assigned to receive 0.625 mg of conjugated estrogens plus 2.5 mg of medroxyprogesterone acetate daily; the other half (1382 women) received a placebo. After 4.1 years of follow-up there was no indication that HRT was of any overall benefit in preventing non-fatal heart attacks or death from heart disease. It did appear that HRT users had

more cardiac events than the placebo users in the first year, but this was compensated for by fewer events in years three to five.

The HERS study was continued in a slightly modified form (HERS II) for another 2.7 years. At the end of the total 6.8 years of follow-up the conclusions were:

- HRT does not reduce the risk of cardiovascular events in postmenopausal women with heart disease;
- HRT doubles the risk of blood clots (venous thromboembolism);
- HRT increases the risk of gallstones and subsequent gallbladder (biliary tract) surgery by 50 per cent.

There was a slight, but statistically non-significant increase in cancer incidence among HRT users. Breast cancer rates were 27 per cent higher in the HRT group and lung cancer incidence was 39 per cent higher. Women who used HRT also tended

to have more hip fractures. The researchers conclude that HRT does not reduce cardiovascular events in women with heart disease and increases the risk of blood clots, gallstones, and hip fractures.

A larger trial involving 27,348 healthy women on HRT has just concluded that HRT increases the risk of blood clots, stroke and heart attacks in these women and may increase the risk of breast cancer. NOTE: This study was funded by Wyeth-Ayerst Research, a pharmaceutical company.

Grady, Deborah, et al. Cardiovascular disease outcomes during 6.8 years of hormone therapy. Journal of the American Medical Association, Vol. 288, July 3, 2002, pp. 49-57

Hulley, Stephen, et al. Noncardiovascular disease outcomes during 6.8 years of hormone therapy. Journal of the American Medical Association, Vol. 288, July 3, 2002, pp. 58-66

Petitti, Diana B. Hormone replacement therapy for prevention. Journal of the American Medical Association, Vol. 288, July 3, 2002, pp. 99-101

Tanne, Janice Hopkins. Hormone trial for disease prevention stopped early. British Medical Journal, Vol. 325, July 13, 2002, p. 61

Editor's comment: There has been some hope that HRT may help prevent Alzheimer's disease. A recent study, however, demolished this notion. It is now clear that HRT has no health benefits – quite the contrary – and that there is no medical justification for prescribing it.

Supplements and heart disease

BOSTON, MASSACHUSETTS. A team of American and Swiss researchers has reached the conclusion that supplementation with multivitamins, vitamin C or vitamin E does not significantly decrease the risk of death from cardiovascular disease. Their study involved 83,639 male American physicians with no cancer or heart disease at study entry in 1983. After a mean follow-up of 5.5 years 1037 of the physicians had died from cardiovascular disease. The researchers found a slightly lower risk of death (8 per cent) for vitamin E users and vitamin C users (12 per cent), but no benefits for multivitamin users. The observed risk reductions were not statistically significant. Among the subgroup of vitamin users who took both vitamins C and E there was a risk reduction of 31 per cent for cardiovascular mortality, but again, this risk reduction was not statistically significant. The risk

reduction tended to be greater among participants who took vitamin C or vitamin E if they had no major cardiovascular risk factors at baseline. The researchers conclude that their study shows “a suggestion of benefit” of vitamin use among those at low risk for heart disease. They emphasize that their results may not apply to poorly nourished populations where the benefits of supplementation could possibly be greater.

Muntwyler, Jorg, et al. Vitamin supplement use in a low-risk population of US male physicians and subsequent cardiovascular mortality. Archives of Internal Medicine, Vol. 162, July 8, 2002, pp. 1472-76

Editor's comment: It is puzzling why it took over 14 years to publish the results of this study. Was it dug out to support the ongoing campaign by the medical/pharmaceutical industry to discredit vitamins?

Glutathione helps intermittent claudication

VERONA, ITALY. Intermittent claudication (peripheral artery disease) manifests itself by pain in the calves even after walking relatively short distances. It is relieved by rest and is caused by an inadequate blood supply to the leg muscles due to atherosclerosis of the arteries feeding the legs. There is increasing evidence that oxidative stress is an important cause of atherosclerosis. Researchers at the University of Verona now report that intravenous injections of glutathione can markedly reduce the symptoms of intermittent claudication. Reduced glutathione, along with vitamin C, is the most important water-soluble

antioxidant and is vital in protecting the insides of cells against oxidation and free radical attacks. The double-blind, placebo-controlled trial involved 40 patients (35 men and 5 women between the ages of 55 and 70 years) who were randomized to receive either 646 mg of glutathione in 250 ml of 0.9 per cent sodium chloride or 250 ml of the sodium chloride solution twice a day for five consecutive days.

The patients were tested on a treadmill to determine their maximum pain-free walking distance and also underwent plethysmography to determine blood flow in their legs. The patients

given glutathione increased their pain-free walking distance by 37 per cent (from 143 m to 196 m) and also had a very significant increase in blood flow in the leg (from 2.8 to 9.3 ml per 100 ml/min). There were no significant changes in either walking distance or blood flow in the placebo group. The researchers conclude that antioxidant treatment (glutathione) can increase

pain-free walking distance in patients with intermittent claudication.

Arosio, Enrico, et al. Effect of glutathione infusion on leg arterial circulation, cutaneous microcirculation, and pain-free walking distance in patients with peripheral obstructive arterial disease. Mayo Clinic Proceedings, Vol. 77, August 2002, pp. 754-59

Homocysteine and heart disease

BERGEN, NORWAY. There is substantial evidence that high blood levels of homocysteine (a sulfur-containing amino acid) are associated with an increased risk of cardiovascular disease. It is generally believed that homocysteine exerts its effect by promoting atherosclerosis. Researchers at the University of Bergen now question this assumption. Their study involved 12,595 men and women between the ages of 40 and 42 years and 4766 men and women between the ages of 65 and 67 years. All participants had their total homocysteine level determined at entry to the study and were then followed up for an average of 5.3 years. During this period 1275 of the participants were admitted to hospital with cardiovascular disease. The researchers found that high baseline levels of homocysteine were associated with an increased risk of cardiovascular disease only in the older group. Here a homocysteine level greater than 20 micromol/L (2.7 mg/L) resulted in twice as many

hospital admissions as in the group having homocysteine levels between 9 and 11.9 micromol/L. Elderly people with preexisting cardiovascular disease or hypertension and high homocysteine levels were particularly likely to be hospitalized. There was no indication that high homocysteine levels were a risk factor in the younger group, but individuals with hypertension or cardiovascular disease at baseline did tend to have elevated homocysteine levels.

The researchers conclude that homocysteine is not involved in the development of atherosclerosis as such, but rather promotes cardiovascular events through an (acute) interaction with other cardiovascular risk factors such as diabetes and hypertension.

Nurk, Eha, et al. Plasma total homocysteine and hospitalizations for cardiovascular disease. Archives of Internal Medicine, Vol. 162, June 24, 2002, pp. 1374-81

Promising treatment for Alzheimer's disease

BOSTON, MASSACHUSETTS. Two years ago researchers at the Massachusetts General Hospital reported that the antibiotic clioquinol inhibited and even reduced the build-up of amyloid plaques in the brain of mice engineered to develop Alzheimer-like deposits. Now researchers at the Harvard Medical School and the University of Melbourne are about to release the results of a phase II trial involving the use of clioquinol in human Alzheimer's patients. So far the findings are extremely promising. Clioquinol treatment slowed down the disease and significantly reduced the accumulation of beta-amyloid plaques, a cardinal feature of Alzheimer's.

Dr. Ashley Bush of the Harvard Medical School believes that Alzheimer's disease begins when iron, copper and zinc accumulates in the brain

and turns beta-amyloid into a rogue enzyme that catalyses the production of hydrogen peroxide which then attacks and destroys brain cells. In the process beta-amyloid forms into the long chain of insoluble plaque so characteristic of Alzheimer's. Dr. Bush believes that clioquinol works by removing (chelating?) the metals from the brain. This, in turn, stops the formation of hydrogen peroxide and thus the destruction of brain cells and also prevents the beta-amyloid particles from clumping together. There is some concern that clioquinol depletes vitamin B12 in the body so vitamin B12 supplementation is a must when taking clioquinol.

Helmuth, Laura. An antibiotic to treat Alzheimer's? Science, Vol. 290, November 17, 2000, pp. 1273-74
Westphal, Sylvia Pagan. You must remember this... New Scientist, August 3, 2002, p. 14

Problems with *in vitro* fertilization

BOSTON, MASSACHUSETTS. *In vitro* fertilization (IVF) is becoming increasingly popular as natural fertility declines and women wait longer to have children. This has created a boom in IVF clinics all competing vigorously for business. Tabulations are available that show the "success rate" of the clinics, i.e. how many live births are achieved per 100 women treated.

Experts in reproductive technology in the UK and the USA now warn that a high success rate is often achieved by implanting several embryos rather than just one. This, not surprisingly, quite often leads to multiple births, but increases the chances of at least one birth. In the USA it is estimated that 71 per cent of clinics routinely implant three or more embryos. Multiple

pregnancies are bad for both mother and baby. The babies are more likely to have birth defects, be premature, have cerebral palsy, and have a low birth weight. The mother is more likely to suffer from high blood pressure, hemorrhages, and pre-eclampsia.

One of the reasons for implanting more than one embryo is to save the cost of carefully checking each embryo to ensure that it is viable and healthy. If this is done, says Swedish fertility expert, Lars Hamberger, the chances of the embryo developing into a healthy fetus is 35 to 40 per cent.

Westphal, Sylvia Pagan. The scandal of IVF league tables. New Scientist, July 13, 2002, pp. 4-5

NEWSBRIEFS

Go easy on the whale meat. Researchers at the University of Hokkaido warn that whales and dolphins are now so contaminated with mercury that even a single serving of their meat, especially the liver, can have serious health consequences. The researchers found mercury levels as high as 1980 micrograms/gram in whale liver; this is 5000 times the Japanese government's limit for mercury contamination (0.4 microgram/gram). Muscle tissue was less contaminated, but some samples still contained 200 times the safe limit. The researchers warn that pregnant women in particular should not eat whale meat as it could poison the fetus.

New Scientist, June 8, 2002, p. 17

A little nap will do you good. Having a snooze in the early afternoon is a time-honored custom in many countries, but has not exactly caught on among the Western corporate elite. This could be a mistake suggests Sara Mednick of Harvard University. Dr. Mednick and her team evaluated the performance of a group of 30 volunteers doing a mentally exhausting task. The volunteers were evaluated at 9 am, noon, 4 pm, and 7 pm. Ten had a 1-hour nap at 2 pm, another 10 slept for 30 minutes while the remainder stayed awake all day. The people who had not had a nap took 50 per cent longer to complete the task at 7 pm than they did at 9 am. The participants who had slept for an hour performed equally well at 9am and 7 pm and actually showed improved performance at

4 pm. The 30-minute nappers performed about the same through the day.

New Scientist, June 1, 2002, p. 9

Gum disease may mean heart problems. Several researchers presenting papers at the 12th International Conference on Periodontal Research believe that there is a connection between periodontal (gum) disease and atherosclerosis. They point out that both conditions have been linked to bacterial infection involving inflammatory processes and high C-reactive protein (CRP) levels. Treatment of periodontal disease has been found to lower CRP levels substantially. Other researchers believe that the effect seen for periodontal disease could be due to confounding by smoking. All agree though that taking care of your teeth is a good idea whether or not gum disease ultimately turns out to be involved in the development and progression of heart disease.

The Lancet, Vol. 360, July 13, 2002, p. 147

Lawsuit against fast food outlets. Professor John Banzhaf of George Washington University believes the stage is set to sue fast food outlets for their part in the obesity epidemic raging in the United States. Says Professor Banzhaf, "As we are getting more and more figures saying just how dangerous obesity is, people are wondering if tactics used against the tobacco industry could be used against the problem of obesity". He recently

helped win a case against McDonald's for falsely claiming that its french fries contained no animal fat when in fact the frying oil did contain beef tallow.

British Medical Journal, Vol. 324, June 15, 2002, p. 1414

Candlelight may be bad for your health.

Candlewicks are often treated with lead in order to stiffen them and give a more even burn. Burning the candle releases fine particles of toxic lead into the air. A candle burning for four hours can produce levels of lead in the room that are 4 to 13 times the safe limit. Most lead-containing candles are manufactured in the Far East and some 3 million of them are sold in the USA every year. American and European manufacturers generally use zinc to stiffen the wick and a ban on the sale of leaded candles is currently being considered by the US Consumer Product Safety Commission.

News Scientist, June 22, 2002, p. 15

Music to/from your heart. Kiyoko Yokoyama, an engineer at the Nagoya City University has developed a system that plays music reflecting a person's heart rate. He first measures the heart rate variability and converts his findings into musical notes, which are then recorded. For example, a heart rate of 60 beats/minute produces middle C ("doh") while a rate of 69 produces an A ("lah"). The interval between the heart beats determines the interval between notes. The result is that a fast, irregular heart beat produces loud, fast, and higher-pitched notes while a slower, more regular heart rate produces quieter, longer notes that are lower in tone. The system was tested on 22 volunteers who were assigned to carry out increasingly hard calculations. Those who listened to their own recording of "heart music" were more relaxed and less fatigued than those who did not.

New Scientist, July 27, 2002, p. 13

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