Dr. Shari Lieberman

Dedicated to the Scientific Pursuit of Better Health

August, 2004 Newsletter

Dr. Shari Lieberman's Nutritional & Integrative Therapy Review Newsletter

Welcome to my newsletter. Each month I review the cutting-edge research in the field of nutritional and integrative medicine and give you my commentary. At the end of each newsletter, I give a specific nutritional protocol for a specific disorder. The newsletters and nutritional protocols can also be found on my website. You may also visit my website to view my numerous Powerpoint presentations given at medical conferences and visit my Q & A, library and more. As an ongoing commitment to excellence in product development, you can also view products I have developed and co-developed with leading experts all over the world.

1. Conjugated linoleic acid supplementation for 1 year reduces body fat mass in healthy overweight humans.

Gaullier JM, Halse J, Hoye K, Kristiansen K, Fagertun H, Vik H, Gudmundsen O. Am J Clin Nutr. 2004;79(6):1118-25.

Abstract: The objective of the study was to ascertain the 1-year effect of CLA on body composition and safety in healthy overweight adults consuming an ad libitum diet. Male and female volunteers (n = 180) with body mass indexes (in kg/m(2)) of 25-30 were included in a double-blind, placebo-controlled study. Subjects were randomly assigned to 3 groups: CLA-free fatty acid (FFA), CLA-triacylglycerol, or placebo (olive oil). Change in body fat mass (BFM), as measured by dual-energy X-ray absorptiometry, was the primary outcome. Secondary outcomes included the effects of CLA on lean body mass (LBM), adverse events, and safety variables. The mean BFM in the CLA-triacylglycerol and CLA-FFA groups was 8.7% and 6.9%, respectively, significantly lower than that in the placebo group. Subjects receiving CLA-FFA had 1.8 greater LBM than did subjects receiving placebo, which was significant. These changes were not associated with diet or exercise. LDL increased in the CLA-FFA group, HDL decreased in the CLA-triacylglycerol group, and lipoprotein(a) increased in both CLA groups compared with baseline levels. Fasting blood glucose concentrations remained unchanged in all 3 groups. Glycated hemoglobin rose in all groups from baseline, but there was no significant difference between groups. Adverse events did not differ significantly between groups. Long-term supplementation with CLA-FFA or CLA-triacylglycerol reduces BFM in healthy overweight adults.

Commentary: Short-term trials showed that conjugated linoleic acid (CLA) may reduce body fat mass (BFM) and increase lean body mass (LBM), but the long-term effect of CLA was not examined. This study examined the effects of CLA over the course of one year. The participants were all overweight and did not change their eating or lifestyle habits. This study was simply to assess if CLA could change body composition without any other intervention. CLA significantly increased muscle (lean body mass) and reduced body fat. However, low density lipoprotein levels increased (LDL), high density lipoproteins decreased (HDL), and lipoprotein(a) levels increased in those taking CLA. This may have been prevented if participants followed a low glycemic index diet and engaged in regular exercise (aerobic and strength training). In addition, by adding a low glycemic index diet and exercise the results would also be far more significant. I would also suggest based on these results that perhaps CLA should be taken with flush free niacin. Niacin lowers LDL, raises HDL and lowers lipoprotein(a) thus promoting a more favorable lipid profile for those on long term supplementation with CLA.

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2. FLow plasma vitamin B-6 concentrations and modulation of coronary artery disease risk.

Friso S, Girelli D, Martinelli N, Olivieri O, Lotto V, Bozzini C, Pizzolo F, Faccini G, Beltrame F, Corrocher R. Am J Clin Nutr. 2004 Jun;79(6):992-8.

Abstract: Pyridoxal-5'-phosphate (PLP) is the active metabolite of vitamin B-6. Both low PLP and elevated inflammatory markers, such as high-sensitivity CRP (hs-CRP) and fibrinogen, are related to higher risk of coronary artery disease (CAD). A case-control study was conducted with 742 participants: 475 with severe multi-vessel CAD and 267 free from coronary atherosclerosis (CAD-free). We measured plasma PLP, fibrinogen, hs-CRP, and serum lipid concentrations and all major biochemical CAD risk factors, including total homocysteine. A significant, inverse, graded relation was observed between PLP and both hs-CRP and fibrinogen. The prevalence of lower PLP concentrations was significantly higher among CAD patients than among CAD-free subjects. The odds ratio for CAD risk related to low PLP concentrations after adjustments for the major classic CAD risk factors, including hs-CRP and fibrinogen, was 1.89. The CAD risk as a result of low PLP was additive when considered in combination with elevated hs-CRP concentrations or with an increased ratio of LDL to HDL. Low plasma PLP concentrations are inversely related to major markers of inflammation and independently associated with increased CAD risk.

Commentary: Low concentrations of pyridoxal-5'-phosphate (PLP), the active metabolite of vitamin B6, are associated with high C-reactive protein (CRP) concentrations, elevated homocysteine levels and elevated fibrinogen levels which are all risk factors for CAD. The CAD risk increases if in addition to having any one or more of these factors elevated you also have a high LDL (bad cholesterol) to HDL (good cholesterol) ratio. Studies have shown that the American population is often deficient if not insufficient in this B-vitamin. The foods that contain the highest amounts of B6 include eggs, spinach, carrots, peas, meat, chicken, fish (especially herring and salmon), brewer's yeast, walnuts and sunflower seeds. But the data on the B6 content of foods is unreliable since the amount of B6 contained in the food does not necessarily reflect the amount that is bioavailable. Heat, oxygen and light adversely affect Vitamin B6. Up to 70% of the B6 in foods can be lost during cooking, processing and refining. There are also those who lack sufficient amounts of the enzyme to convert B6 into its active metabolic form - P5P. I have found that when homocysteine levels don't decrease despite someone taking high doses of folic acid, B12 and B6, oftentimes it will decrease when the active form of B6 - P5P is given instead. In fact, I would consider switching any patient to the active form if they are taking B6 supplementation yet CRP, homocysteine and fibrinogen levels do not significantly decrease. Fish oil also decreases CRP as

well.

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3. Everything in Moderation: Experts Weigh in on the Trans Fat Debate.

Nutrition Week, May 31, 2004;34(11):3.

Abstract: The Center for Science in the Public Interest (CSPI) is calling for a complete removal of trans fats, which are derived from partially hydrogenated vegetable oils, from manufactured foods and from restaurant foods to help reduce the risk of heart disease. The American Dietetic Association (ADA) feels that reducing trans fat and saturated fat intake to 10% is reasonable, but it would be very difficult to eliminate all trans fats so quickly. CSPI has noted that Frito Lay has removed partially hydrogenated oil from many of its snack foods, and Pepperidge Farms is introducing trans-fat-free Goldfish crackers. A few restaurant chains, such as Ruby Tuesday and Legal Seafoods, have changed the oil they use for deep-frying, using liquid vegetable oil rather than partially hydrogenated shortening. One can visit the ADA's website at www.eatright.org or the Center for Science in the Public Interest at www.TransFreeAmerica.org.

Commentary: When I was completing my master's degree in nutrition, my professors were constantly pushing margarine. It made no sense. Way back then (yes it was a long time ago!) we knew that hydrogenated oils were bad, and trans fat in particular caused atherosclerosis in animals. There was never any evidence that margarine was healthier than butter. Yet, this was pushed down our throats. And this "food" was approved for human consumption by the FDA (I never recommended it!) despite no evidence that it was even safe. Now all we see is how bad trans fats are and that in fact, they are more atherogenic (artery clogging) than anything else on the planet. Trans fats do not exist to any significant degree in nature and they should not be added to our food. If you look at the sponsorship for the ADA it becomes crystal clear why they cannot vote to simply obliterate it from the food supply. But at least they are recommending a reduction to 10% of calories. This reminds me of our current administration refusing to endorse the World Health Organization's report to reduce sugar consumption to 10% because of the strong sugar lobby in our country. What I find most insane about this whole thing is that someone would think that there is a healthy way to fry foods. Especially those that seemingly have some science background. Any oil becomes carcinogenic when it is heated - it is simple biochemistry. That's why high fried food consumption is related to a host of diseases including cancer. In addition, oils become more

atherogenic when they are heated. Why these groups don't also make a recommendation to reduce the consumption of fried foods and heated oils is a mystery to me.

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4. A Pavlovian approach to the problem of obesity.

Davidson TL, Swithers SE. Int J Obes Relat Metab Disord. 2004 Jul;28(7):933-5.

Abstract: During the past 15-20 years, the incidence of overweight and obesity in the United States has grown rapidly. The processes that underlie this alarming trend remain largely unspecified. We hypothesize that degradation of the ability to use certain orosensory cues to predict the caloric consequences of intake may contribute to overeating and excessive weight gain. The results of two preliminary studies with rats are consistent with this hypothesis. In the first study, two groups of rats were given two different sweet-flavored liquids. In the first group, both liquids were sweetened with natural high-calorie sweeteners so there was a consistent relationship between sweet taste and calories. For the second group, one of the flavored liquids was artificially sweetened with non-caloric saccharin so that the relationship between sweet taste and calories was inconsistent. After 10 days of exposure to the flavors, the rats were allowed to eat a small amount of a sweet, high-calorie chocolate-flavored snack. The researchers compared the two groups' ability to compensate for the calories contained in the chocolate snack. The rats that had experienced the inconsistent relationship between sweet taste and calories and received the artificial sweetener were less able to compensate for the calories contained in the snack and ate more than the rats that had experienced the consistent relationship between sweetness and caloric intake and received a high calorie sweetener. This study suggests that the artificial sweetener disrupted the rats ability to use sweet taste to judge the caloric content of the snack and eat less of it. In the second study, two groups of rats were given a high-calorie dietary supplement along with their regular food every day for 30 days. Although the supplements were identical in calories and nutritive content, they differed in viscosity. For one group the supplement had the consistency of thick chocolate pudding, whereas for the other group, the supplement was similar to chocolate milk. Researchers found that over the course of the study, the rats given the milk-like supplement gained significantly more weight than the rats given the more viscous, pudding-like supplement. This finding indicates that rats are less

able to estimate and compensate for the calories contained in liquids than in semi-solid foods. Intake of high-calorie beverages compared to semi-solid or solid foods could increase the tendency to gain weight since they appear to affect the body's ability to detect and compensate for calories compared to more solid foods. The number of Americans consuming sugar-free products increased from less than 70 million in 1987 to more than 160 million in 2000. During the same period, the consumption of regular soft drinks increased by more than 15 gallons per capita annually. Increased consumption of artificial sweeteners and of high-calorie beverages may be a contributing factor since it appears to interfere with the body's ability to control caloric intake based on sweetness.

Commentary: Did you know that no major study ever showed that people who drink diet soda are thinner than those who drink regular soda? And the research is a mixed bag with respect to diet sodas reducing caloric intake. Studies not sponsored by Nutrasweet show that artificial sweeteners do not reduce food consumption while those sponsored by Nutrasweet do. Yet no one is ever thinner, lighter or weighing less using an artificial sweetener. And we have all seen those folks ordering a diet soda with a burger and fries or even better, a banana split or chocolate cake. This study is extremely interesting in that it demonstrates that a sweet liquid rather than a semi-solid food disrupts the body's ability to get the signal to eat less of something sweet to adjust for the added calories and prevent weight gain. People who switch from regular soda to diet soda and continue to drink a super sweet beverage throughout the day still cannot control their sweet tooth. This study sheds light on how animals use sweetness and viscosity to gauge caloric intake and interference with this innate ability may result in weight gain - even in humans.

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5. Influence of marketed herbal menopause preparations on MCF-7 cell proliferation.

Bodinet C, Freudenstein J. Menopause. 2004;11(3):281-9.

Abstract: An MCF-7 (breast cancer) cell culture model was used to evaluate the estrogen-agonist (promoting) and -antagonist (blocking) activity of commercially available herbal menopause preparations containing red clover, soy, black cohosh, or a combination of herbs. Each test substance was evaluated for cytotoxic effects before conducting the proliferation assays. Commercially available products containing soy, red clover, and herbal

combinations induced an increase in the MCF-7 proliferation rates, indicating an estrogen-agonistic activity in the absence of estradiol. In contrast, an isopropanolic black cohosh extract (Remifemin) did not stimulate MCF-7 growth and exerted inhibitory effects on cellular proliferation. None of the tested products enhanced estradiol-induced cell proliferation. The black cohosh preparation and one of the herbal combinations exhibited strong estrogen-antagonistic effects. The lack of proliferative effects of isopropanolic black cohosh extract on estrogen-sensitive breast cancer cells in vitro suggests a favorable safety profile for use in women with a history of breast cancer. Alternatively, preparations containing red clover, soy, and combinations of various herbal ingredients may induce cell proliferation, suggesting that such herbal preparations should be used with caution in the treatment of menopause symptoms in women at risk for, or with a history of, estrogen-sensitive breast cancer.

Commentary: More women are turning to natural menopause remedies since studies have revealed a significantly increased risk of breast cancer with conventional HRT. Prior studies on Remifemin demonstrated that it does not induce breast cancer proliferation (growth) and it may work synergistically when combined with Tamoxifen. The side effects of treatments for breast cancer include hot flashes and other menopausal symptoms. Hormonal treatment with estrogen is often not appropriate for these women since many are on medications to block estrogen production. Estrogen is known to promote breast cancer growth so many of these women are seeking a safe alternative to deal with their symptoms. While other black cohosh supplements are on the market, one must be sure that it is an isopropanolic extract. It is this specific extract method that is used to manufacture Remifemin. Other types of extracts may yield other plant compounds and may not yield the same results as Remifemin on breast cancer cells. Individual extracts of red clover and soy increased breast cancer cell growth. That does not mean that they should never be used. It does however suggest that these should be used with caution in women with a history of breast cancer. Flax seeds (not flax seed oil), vitamin E and fish oil are also extremely safe, do not promote breast cancer cell growth and can also be used to deal with menopausal symptoms even in women with a history of breast cancer.

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6. Homocysteine levels and the risk of

osteoporotic fracture.

van Meurs JB, Dhonukshe-Rutten RA, Pluijm SM, van der Klift M, de Jonge R, Lindemans J, de Groot LC, Hofman A, Witteman JC, van Leeuwen JP, Breteler MM, Lips P, Pols HA, Uitterlinden AG. N Engl J Med. 2004 May 13;350(20):2033-41.

Abstract: Very high plasma homocysteine levels are characteristic of homocystinuria, a rare autosomal recessive disease accompanied by the early onset of generalized osteoporosis. We therefore hypothesized that mildly elevated homocysteine levels might be related to age-related osteoporotic fractures. Researchers studied the association between circulating homocysteine levels and the risk of incident osteoporotic fracture in 2406 subjects, 55 years of age or older, who participated in two separate prospective, population-based studies, one which lasted for approximately 8 years and the other for almost 3 years. During 11,253 person-years of follow-up, osteoporotic fractures occurred in 191 subjects. The overall multivariable-adjusted relative risk of fracture was 1.4 for each increase of 1 SD in the natural-log-transformed homocysteine level. The risk was similar in all three cohorts studied, and it was also similar in men and women. A homocysteine level in the highest age-specific quartile was associated with an increase by a factor of 1.9 in the risk of fracture. The associations between homocysteine levels and the risk of fracture appeared to be independent of bone mineral density and other potential risk factors for fracture. An increased homocysteine level appears to be a strong and independent risk factor for osteoporotic fractures in older men and women.

Commentary: There has been great interest in the research world in homocysteine. While it is known that high homocysteine levels are a risk factor for coronary artery disease, there is also data demonstrating that it raises the risk of Alzheimer's disease. This study is particularly interesting because high homocysteine levels were shown to be a risk factor for osteoporotic fractures. And this association was independent of bone density and other potential risk factors for fracture. The researchers looked at this association because homocystinuria (a disease characterized by high levels of homocysteine in the urine) results in the early onset of osteoporosis. Apparently high homocysteine levels in the blood also appears to be an important independent risk factor for osteoporotic fractures in older men and women. I still see total cholesterol, LDL, HDL and triglycerides as the only cardiovascular screening for many of my patients ordered by their physicians. And oftentimes drug therapy is recommended based just on these values. This is inappropriate without also measuring homocysteine, C-Reactive Protein, Lipoprotein(a) and oxidized or anti-oxidized LDL. It is clear that homocysteine is so important and predictive, not measuring it should make you wonder about your doctor.