N U T R I T I O N

closeUP

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INSIDE

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Nutrition Close-Up is a quarterly publication of the American Egg Board, written and produced by the Egg Nutrition Center. *Nutrition Close-Up* presents up-to-date reviews, summaries and commentaries on the latest research on the role of diet in health promotion and disease prevention, including the contributions of eggs to a nutritious and healthful diet. Nutrition and health care professionals can receive a **free** subscription for the newsletter by contacting the Egg Nutrition Center.

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Fish and Omega-3 Fatty Acids Protect Against Sudden CHD Mortality

As you already know, cardiovascular diseases continue to be the leading cause of death in the US and more than half of these deaths occur in people without a history of cardiac disease. Fortunately, there are effective dietary changes to lowering risk. The latest studies show that dietary omega-3 fatty acid can help reduce the risk of sudden death from CHD. Based on data from the Nurses' Health Study and the Physicians' Health Follow-Up Study, a high fish intake can dramatically lower risk of CHD death. Results from these studies validate the current American Heart Association's Dietary Guideline which recommends that people eat at least 2 servings of fish per week.

In the study by Hu et al., using questionnaires from 1980, 1984, 1986, 1990, and 1994, the researchers were able to show that higher fish and omega-3 fatty acid intakes were associated with lower CHD risk in women. Of the 1513 cases of CHD (484 deaths and 1029 nonfatal myocardial infarction) reported during the 16 year follow-up, CHD was more likely to occur in the group with fish intake of <1 per month. In contrast, eating fish more than 5 times per week was associated with 36% lower age adjusted risk for total CHD; risk of fatal CHD and non-fatal myocardial infarction were lowered by 41% and 33%, respectively. Similarly, omega-3 fatty acid intake was also inversely associated with CHD risk. The age adjusted RR for CHD was 1.0, 0.93, 0.73, 0.57, and 0.52 across quintiles of omega-3 fatty acid intake. In all cases, fish and omega-3 fatty acid intakes had a stronger effect on protecting against CHD death than nonfatal MI.

Even though the group with higher fish and omega-3 fatty acid intakes tended to be older and heavier and have high blood pressure, they had healthier lifestyles; exercising regularly, taking aspirin and supplements, and not smoking. Including these factors slightly weakened the strength of the inverse relationship, however, the association still remained significant. Regular use of aspirin slightly mitigated this relationship. For example, beneficial effects of fish and omega-3 fatty acids on CHD incidence were much greater in women who didn't take aspirin regularly than women who did regularly take aspirin. Also, since "omega-6 and omega-3 fatty acids compete for delta-6 desaturase enzyme in the desatuation and chain elongation pathway" the researchers considered the omega-6: omega-3 fatty acid ratio in their analysis, but this did not attenuate the beneficial effects omega-3 fatty acid intake had on CHD risk.

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Fish and Omega-3 Fatty Acids

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The data also indicated that, like mortality from CHD, all-cause mortality was lowest among the group of women who ate the most fish and omega-3 fatty acids. The RR for all cause mortality were 0.68 and 0.75 for fish intake of greater than 5 servings of fish per week and highest quintile for omega-3, respectively.

In conclusion, like earlier studies which found that fish intake protected men against CHD, the data from the Nurses' Health Study indicate that high fish and omega-3 fatty acid intake also protects women against CHD, especially CHD deaths. Evidence reported by Hu et al. supports the American Heart Association's Dietary Guideline recommendation of consuming 2 servings of fish per week. The researchers' hypothesized that omega-3 fatty acid may reduce CHD incidence and mortality by its ability to reduce TAG levels and platelet aggregability.

Using the data from the Physicians' Health Follow-Up Study, Albert et al. compared baseline blood omega-3 fatty acids levels of 94 men who suddenly died of CHD during the 17 year follow-up period with 184 match controls and found that, compared to the control, the case group had slightly lower blood omega-3 fatty acid levels. For example, blood levels of long chain omega-3 fatty acid level were 4.82% in the case group and 5.24% in the control group (P=0.01). Other blood fatty acid levels were similar between the 2 groups. Separating the subjects based on their omega-3 fatty acids levels showed a dramatic difference in their risk for CHD. For example, the age and smoking adjusted RR for sudden CHD death was 1.0, 0.47. 0.37. and 0.31 across quartile of blood omega-3 fatty acid levels. Even though the men who suddenly died of CHD tended to have hypertension and a family history of CHD and were less likely to take aspirin, including other CHD risk factors in the analysis strengthened this inverse relationship between omega-3 levels and CHD death. Multivariate analysis showed that men with the highest blood omega-3 fatty acid levels had a 81% lower risk of sudden CHD death than men with the lowest blood omega-3 levels. Adjusting for MUFA and *trans* fatty acids in the analysis resulted in even stronger relationship. For example, compared to the lowest blood omega-3 fatty acid group, the group with highest blood omega-3 fatty acid reduced their risk for sudden CHD death by 90%. Other fatty acids did not play a role in the original inverse association between omega-3 fatty acid and sudden CHD death.

Results from this study indicate that even in people with no history of CHD, high blood omega-3 levels can dramatically lower their risk of future CHD death. According to the researchers, dietary omega-3 fatty acids help prevent abnormal heart rhythms thereby protecting people against sudden deaths.

Albert CM, Campos H, Stampfer MJ, et al. Blood levels of long-chain n-3 fatty acids and the risk of sudden death. *N Engl J Med*. 2002; 346:1113-1118.

Hu FB, Bronner L, Willett WC, et al. Fish and omega-3 fatty acid intake and risk of coronary heart disease in women. *JAMA*. 2002;287:1815-1821.

Key messages

- Women with highest fish and omega-3 fatty acid intake had lower CHD risk, 34% and 33%, respectively, than women with lowest fish intake.
- Fish and omega-3 fatty acid intake lowered CHD death more than non-fatal MI risk.
- Compared to men with low blood levels of long-chain omega-3 fatty acid, men with high blood levels of omega-3 fatty acid had a 90% reduced risk of sudden death.
- Theses studies support current AHA's recommendation for increasing fish intake.
- Omega-3 fatty acids are thought to prevent abnormal heart rhythms, that causes many sudden deaths.

COMMON ABBREVIATIONS

BMI: body mass index (kg/m^2)
CHD: coronary heart disease
CHO: carbohydrate
CVD: cardiovascular disease
HDL: high density lipoprotein
LDL: low density lipoprotein
Lp(a): lipoprotein (a)
MUFA: monounsaturated fatty acids
PUFA: polyunsaturated fatty acids
PVD: peripheral vascular disease
RR: relative risk
SFA: saturated fatty acids
TAG: triacylglycerol
VLDL: very low density lipoprotein

Stanol Margarine Lowers Lipid Levels in Mildly Hypercholesterolemics

According to the National Cholesterol Education Program's (NCEP) Therapeutic Lifestyle Change (TLC) guideline, people at higher risk for CHD should reduce their intake of cholesterol and saturated fat, reduce body weight by exercising, and further lower their LDL cholesterol using plant stanols and sterols. A recent Finnish study support this later recommendation. According to this study with 62 mild to moderately hypercholesterolemic subjects, adding phytosterol ester-enriched margarine to their diets significantly improved their plasma lipid and lipoprotein levels.

In this randomized, double-blind, placebo-controlled, cross-over study, the researchers tested the efficacy of 1.82 gm/d of phytosterol on lipid levels. The subjects were provided with either 20 gm/d of phytosterol ester-enriched margarine or 20 gm/d of control margarine (0.06 gm/d of phytosterols) for 3 weeks each. Aside from adding the test margarines, the subject's diet did not change during the study period.

Following the phytosterol ester-enriched margarine period, the subjects' total cholesterol, LDL cholesterol, apo B, and LDL:HDL cholesterol ratio were 3.4% ($p<0.005$), 5.4% ($p<0.001$), 4.0% ($p<0.005$), and 7.8% ($p<0.001$) lower, respectively, than after the control margarine period. HDL cholesterol levels increased by 3.4% with intake of the phytosterol enriched margarine. TAG concentrations, plasma viscosity, and fibrinogen concentrations were unaffected.

Stratifying the subjects based on their intake of cholesterol, energy, fat, and SFA showed the greatest improvement in plasma lipid levels in the group with the highest cholesterol, total fat, saturated fat, and energy consumption. Women in the study consumed slightly less dietary cholesterol (230±153 mg/d) than their male counter parts (299±156 mg/d), and the plasma LDL cholesterol reduction was a non-significant 2.7% in women vs. a significant 9.8% in men. Also, they found that adding phytosterol ester-enriched margarine dramatically improved LDL levels of people with higher rates of cholesterol absorption. Finally, data from this study suggest that BMI, baseline LDL cholesterol and intake of unsaturated fatty acids had no impact on the response to phytosterol ester-enriched margarine.

Results from Mussner et al. indicated that consuming 20 gm/d of stanol margarine benefits mild to moderately hypercholesterolemic adults by improving their lipid and lipoprotein levels. The stanol's benefit on lipid and lipoprotein levels was substantially higher in the group with high cholesterol, fat, saturated fat, and energy intakes and in subjects with high intestinal cholesterol absorption.

Mussner MJ, Parhofer KG, von Bergmann K, et al. Effects of phytosterol ester-enriched margarine on plasma lipoproteins in mild to moderate hypercholesterolemia are related to basal cholesterol and fat intake. *Metabolism*. 2002;51:189-194.

NCEP's Therapeutic Lifestyle Change Diet Results in Mixed Outcome in Lipid Parameters

Lichtenstein et al. recruited 36 moderately hypercholesterolemic individuals to test the efficacy of NCEP's TLC diet in lowing lipoprotein parameters. The subjects were fed either the TLC diet or a Western diet for 32 days. The TLC diet consisted of 16% protein, 56% CHO, 28% fat, 7% SFA, and 66 mg of cholesterol/1000 calories and the Western diet was 17% protein, 45% CHO, 39% fat, 15% SFA, and 164 mg of cholesterol/1000 calories. Calories were adjusted to maintain constant body weight.

The TLC diet improved certain plasma lipid parameters while negatively affecting others. Total cholesterol, LDL cholesterol, and apo B levels decreased by 9%, 11%, and 6%, respectively. However, the TLC diet also lowered HDL cholesterol by 7%, apo A-1 by 6%, and increased TAG levels by 7%. Since both total cholesterol and HDL cholesterol levels decreased, the total: HDL cholesterol ratio was unchanged with the TLC diet. Gender was not a factor in serum lipid responses following the TLC diet. The researchers concluded that "for individuals with LDL-C levels in the borderline high risk range this response may be sufficient to forestall the use of lipid lowering medications."

In an attempt to explain the mechanisms behind the decrease in HDL levels following the TLC diet, the researchers measured the fractional esterification rate of HDL cholesterol, phospholipid transfer protein activity, and cholesterol ester transfer protein activity and concluded that the TLC diet had no significant effects on these parameters. Also, it was determined that shifting from a Western diet to the TLC diet did not affect plasma insulin or glucose levels.

Based on the current NCEP assessment that LDL cholesterol is the most important predictor of CVD risk, the researchers concluded that the TLC diet is an effective tool in lowering serum LDL levels in hyperlipidemics. However, the 7% drop in plasma HDL cholesterol following the TLC diet makes one question the efficacy of this diet.

Lichtenstein AH, Ausman LM, Jalbert SM, et al. Efficacy of a therapeutic lifestyle change/step 2 diet in moderately hypercholesterolelmic middle-aged and elderly female and male subjects. *J Lipid Res*. 2002.43:264-273.

Elevated Plasma Homocysteine Increases Risk of Mental Impairment in Older Adults

In the past few years, an ever growing number of studies have shown that elevated plasma homocysteine levels raise the risk of CVD and stroke. Recent studies suggest that hyperhomocysteinemic individuals are also more susceptible to developing dementia and Alzheimer's disease. Using data from 1092 participants enrolled in the Framingham Study and 334 subjects in the Scottish Mental Ability Survey, Seshadri et al. and Duthie et al., respectively, were able to show that an elevated homocysteine level is a risk factor for reduced cognitive performance.

In an 8 year prospective study by Seshadri et al., 111 subjects developed dementia, of which 83 were diagnosed with Alzheimer's disease. Along with this information and plasma homocysteine levels from 1986 (baseline) and 1978, Seshadri et al. were able to analyzed the relationship between plasma homocysteine levels and risk of dementia or Alzheimer's disease. The age, sex, and apo E genotype adjusted relative risk (RR) for each 1 SD increase in log-transformed base-line homocysteine value was 1.3 for dementia (95% CI 1.1-1.6) and 1.4 for Alzheimer's disease (95% CI 1.2-1.7), respectively. The RR for dementia and Alzheimer's disease in the highest quartile group for plasma homocysteine was 1.9 for both dementia and Alzheimer's disease. For every 5 µmol/l increase in plasma homocysteine, Alzheimer's disease risk increased 40%. Compared to people with lower plasma homocysteine levels, hyperhomocysteinemic group with plasma homocysteine of >14 µmol/l (30% of study participants) had much higher RR for dementia and Alzheimer's disease. Including educational status, blood pressure, plasma B vitamin concentrations, and other CVD risk factors in the analysis did not change the association between plasma homocysteine and dementia or Alzheimer's disease. The null effect of plasma folate, vitamin B6 and B12 on dementia and Alzheimer's disease risk contradicts other research reports which clearly show an inverse relationship between these vitamins and plasma homocysteine levels. Finally, results from this study indicate that people in the highest quintile of plasma homocysteine in 1986 (baseline) were at higher risk of dementia or Alzheimer's disease and that, the small group of people with elevated plasma homocysteine in 1978 and 1986, were at even greater risk of Alzheimer's disease with RR of 2.2. In conclusion, results indicate that elevated plasma homocysteine levels are a risk factor for Alzheimer's disease and dementia.

The study by Duthie and colleagues also found that elevated plasma homocysteine levels are associated with cognitive impairment. The researchers compared the blood homocysteine, folate, and B12 levels of 186 older adults from the Aberdeen 1921 Birth Cohort Study (ABC21) and 148 older adults from the Aberdeen 1936 Birth Cohort Study (ABC36) with their scores on 6 cognition tests. The 6 standardized cognition tests used in the study were the Mini Mental State Examination (MMSE), the National Adult Reading Test (NART), Raven's Progressive Matrices (RPM), the Auditory Verbal Learning Test (AVLT), and the digit symbol (DS) and block design (BD) subtests of the revised Wechsler Adult Intelligence scale. Unlike Seshadri et al's study, which used plasma homocysteine levels from baseline, Duthie et al. used the subjects' current plasma homocysteine, B12, and folate levels.

The ABC21 subjects had significantly higher plasma homocysteine levels than the ABC36 cohort, while the plasma vitamin B12 and folate concentrations were slightly lower, but not significant. Analysis of the data showed that in both groups plasma homocysteine was inversely related to plasma and red blood cell folate concentrations and plasma B12 levels. It was determined that the plasma homocysteine concentration accounted for approximately 7-8% of variance in late-life cognition in the ABC21 group. Accordingly, the group with low plasma homocysteine levels and higher plasma vitamin levels, the ABC36 group, outperformed the ABC21 group on 5 of the 6 cognition tests. For example, "after adjusting for childhood IQ, homocysteine remained positively associated with RPM (r=-0.24), BD (r=-0.29), and DS (-0.29) scores in the ABC21."

The results suggest that due to the high plasma homocysteine and low blood B vitamin levels in the ABC21 group, they were more susceptible to mental impairment in their old age than the ABC36 group. It was estimated that elevated homocysteine levels accounted for 7-8% of the variance in their mental function. Like many other studies, results from Duthie et al. highlight the role of nutrition in brain health in older adults.

These two studies support a growing body of evidence that hyperhomocysteinemia is a major health risk that impairs a victims mind and body. Results from Duthie et al. and Seshadri et al. agree that elevated plasma homocysteine levels compromises one's mental capacity, but they seem to disagree on the role of B vitamins in lowering homocysteine levels. More studies are needed to clearly answer this question.

Duthie SJ, Whalley LJ, Collins AR, et al. Homocysteine, B vitamin status, and cognitive function in the elderly. *Am J Clin Nutr*. 2002;75:908-913.

Seshadri S, Beiser A, Selhub J, et al. Plasma homocysteine as a risk factor for dementia and Alzheimer's disease. *N Engl J Med*. 2002;346:476-483.

Eat and Improve Your Memory

As indicated by the rise in sale of Ginkgo, a supplement believed to enhance memory, many people, especially older adults, are worried about their diminished cognitive ability. The answer might not require special supplements since, according to a study by Kaplan et al., people can enhance their memory by simply eating food. It seems that independent of elevated blood glucose, energy from protein, CHO, and fat can enhance memory. Also, it was shown that each macronutrient has a unique role in improving different memory functions.

Kaplan and colleagues measured the cognitive ability of 22 senior citizens (11 men and 11 women) following 4 different drinks. The 300 ml test drinks used in the study were composed of pure whey protein, safflower oil, or glucose. Each test drink contributed 185 calories, while the placebo drink was calorie-free. By consuming all 4 drinks on consecutive weeks, each subject served as their own control. This also minimized the potential carryover effect from the different nutrients. Along with performing cognitive tests, the researchers measured blood glucose and insulin levels following each test drink to determine possible relationships between these and cognition. The palatability scores indicated that the subjects preferred the carbohydrate drink most followed by the placebo drink, fat drink, and protein drink.

The results from the cognitive tests showed that regardless of blood glucose concentrations, the protein, carbohydrate, and fat drinks all enhanced memory performance thus indicating that energy from these sources improved memory rather than the blood glucose level as earlier studies theorized. But the fact that people performed better on different tests following different drinks suggests that different mechanism are involved in enhancing memory performance. For example, CHO, fat, and protein all enhanced both immediate and delayed paragraph recall, but only glucose and fat intake improved results on the Trail Test, which tested "speed for visual search, attention, mental flexibility, and motor function." Fat was the only nutrient that enhanced attention at 60 minutes, which is regulated by frontal and parietal lobes. On the other hand, protein was the only nutrient that reduced the rate of forgetting. For example, the participants remember more information from delay recall than immediate recall after the protein drink. Therefore, the researchers theorized that protein was involved in improving the medial temporal and diencephalic regions of the brain. There was some gender difference in test results, an indication of hormonal effects on memory performance.

Based on the data, Kaplan et al. concluded that even though blood glucose is needed to improve memory performance, protein and fat intake can also improve cognition through different mechanism. It seems that energy from these nutrients can facilitate different parts of the brain to encode, retain, and recall new information. Results from this study clearly emphasize the importance of good nutrition for mind and body.

Kaplan RJ, Greenwood CE, Winocur G, et al. Dietary protein, carbohydrate, and fat enhance memory performance in the healthy elderly. *Am J Clin Nutr*. 2001; 74:687-693.

You've Got To Be Kidding Me News

What Were They Thinking? The news story out of Prairie De Chien, Wisconsin says that members of the Animal Liberation Front (ALF) released 71,000 cows from their human captors. Within hours, police began receiving reports of bovine fatalities. "We've been getting calls all night," police chief Dale Chambers said. "So far, 43 cows have been hits by cars, 11 have fallen off bridges and drowned, and 3 have been electrocuted from chewing on power lines." Animal activists are hailing the raid as a major victory for cow's rights. "Cows do not belong in dairy farmers' pens. They belong out in the wilderness, where they may run free with the wolves and bears," PETA spokesperson Linda McCune said.

[Apparently it's okay if cows get eaten by wolves and bears, it's only bad if humans drink a glass of milk. FYI to ALF: dairy cows are not wild animals.]

Even When You Do Good, You're Wrong. Supporters of the Physicians Committee for Responsible Medicine (PCRM) in 125 U.S. cities have stepped forward to help with an educational campaign targeting the March of Dimes fundraiser, WalkAmerica. In each city, local advocates will distribute information on questionable animal experiments funded by the March of Dimes. PCRM holds that resources should be directed to programs that assist at-risk mothers and focus on human-based ethical research. [PCRM certainly has a way about them. If only we could get them to take it very, very far away!]

High Protein Diet Raises Resting Energy Expenditure Rate

High protein diets have been around for several decades, but in the late '90s they reemerged as the "hot" diet, and many high protein diet books top the best seller lists. Based on their popularity, researchers finally tested the efficacy of these diets. According to Johnston and colleagues' findings, a high protein diet may help people lose weight by raising postprandial resting energy expenditure (REE) levels by twofold in young normal weight women. Also, contrary to many health professional's belief, the high protein diet did not negatively affect kidney function. However, it is too early to advocate the safety of a high protein diet from this study alone since the subjects only followed the test diets for 1 day.

Ten healthy females enrolled at the Arizona State University East participated in this cross-over trial by consuming the high protein (HP) and high carbohydrate (HC) diets. Both diets were similar in total calories (HP=1760 calories and HC=1766 calories) but the HP diet was made up of 31% of calories as protein compared to 17% of calories from protein in the HC diet. Percent of calories from fat was 26% in the HC diet and 29% in the HP diet.

Baseline and postprandial REE, non-protein respiratory quotient, and body temperature were measured and showed that, compared to the HC diet, the HP diet raised postprandial REE more. For example, postprandial REE were 8 kcal/hr higher following the HP breakfast and lunch meals and 14 kcal/hr higher following the HP dinner meal than with the HC diet. Also, following the HP diet, subjects had higher body temperatures than with the HC diet. The changes in respiratory quotient, an indicator of substrate oxidation, and plasma insulin concentration were not affected by the different diets. Urine analysis showed that the HP diet did not raise glomerular filtration rates or urine nitrogen values, indicating that the kidneys were not working harder to eliminate excess protein. The plasma urea nitrogen concentrations were higher following the HP diet indicating positive nitrogen balance.

The results from this study suggest that at least in the short term, increasing protein intake from 17% to 31% of calories does not harm kidney function in healthy females and may actually be beneficial by inducing thermogenesis. According to the researchers, this thermic response to high protein diets may be contributing to weight loss associated with the very popular high protein diets that many American are following.

Johnston CS, Day CS, Swan PD. Postprandial thermogenesis is increased 100% on high-protein, low-fat diet versus a high-carbohydrate, low-fat diet in healthy, young women. *J Am Coll Nutr.* 2002; 21:55-61.

Adding Four Serving of Soluble Fiber Lowers Plasma Lipid Levels

Evidence of dietary benefits of fiber on heart health is not new, but recent decisions by the Food and Drug Administration (FDA) to allow health claims for the viscous fibers oat ß-glucan and psyllium as cholesterol lowering agents prompted Jenkins et al. to test this claim. Sixty-eight hyperlipidemic volunteers were enrolled and fed a high fiber diet with 7.2 gm psyllium and 0.75 gm ß-glucan and compared to a control diet without the extra soluble fiber. These soluble fibers were introduced in breakfast cereals, breads, paste-based frozen dinners, tea cakes, cookies, potato chips, and smoothies and each subject was told to consume 4 serving of these items per day. Each test period lasted one month with a 2 week washout period in between. Based on the volunteers' responses, both diets were similar in palatability, satiety, and compliance (96%). As expected, side effects, bloating, flatulence or abdominal pain were slightly higher with the high fiber diet.

Fasting plasma lipid and lipoprotein levels were measured on week 2 and week 4 of each test diet period. Compared to the control diet, plasma lipid and lipoprotein levels following intake of the high fiber diet were more favorable. For example, plasma total cholesterol, TAG, apo B, total cholesterol: HDL cholesterol ratio, and LDL cholesterol: HDL cholesterol ratio were 2.1%, 5.2%, 2.9%, 2.9%, and 2.4% lower with the high fiber diet. These beneficial effects on plasma lipid and lipoprotein levels following intake of the high fiber diet were unchanged even after changes in dietary carbohydrate, SFA, PUFA, and dietary cholesterol were included in the analysis. Based on the Framingham cardiovascular disease risk equation, these changes would lower CVD risk by 4.2%.

According to the researchers, the improvement in plasma lipid and lipoproteins following 8 gm of added soluble fiber intake per day validates the current health claim allowed by FDA for soluble fiber's role in reducing the risk of CHD. Even though the plasma lipid reductions were relatively small, and would have minimal benefit on an individual basis, on a population basis it would dramatically lower mortality from CVD.

Jenkins DJ, Kendall CW, Vuksan V, et al. Soluble fiber intake at a dose approved by the US Food and Drug Administration for a claim of health benefits: serum lipid risk factors for cardiovascular assessed in a randomized controlled crossover trial. *Am J Clin Nutr.* 2002;75:834-839.

Editorial

An Idea Whose Time Should Never Come

The SSSFC agents were after me and getting closer. The government does get testy when they don't get their tax dollars. The bootleg tax-free market had sure grown over the past twenty years, and free spirit entrepreneurs had been able to do pretty well. My involvement started simple enough, I thought the whole idea was nuts in the first place and refused to buy into the mass hysteria. But the do gooders had louder voices and eventually convinced the politicos that they had the answer to what troubled America. A little mumbo jumbo and they convinced everyone that the only good politician was a taxing politician.

First came the national ban on advertising high fat, high sugar, high salt "bad foods" as defined by you know who. They actually believed that advertising caused high consumption of excess calories, the compulsion of the American public. This no doubt was based on the success achieved with bans on alcohol and cigarette advertising since clearly no one smoked or drank anymore. The consumer advocates advocated the notion that the public was just too weak willed to be able to deal with fast food ads and the insidious efforts of the food companies to sell their products. Funny, there's no advertising for marijuana or hard drugs yet they find a pretty good market out there. That darn old word of mouth gets you every time!

When that seemed not to work they tried the first wave of the new and improved "sin" taxes on high fat, high sugar, high salt "junk foods." The problem was that everyone had to pay the tax, even if their BMI, BP and cholesterol were all okay. So the geniuses added ID cards with mandated quarterly updates of your vital statistics: total cholesterol, percent body fat and BP. Buy the wrong food, have the wrong stats, pay more taxes. It all seemed fair at the time. Just don't be poor and have the wrong stats and like French fries, and everything would be fine.

When that didn't work the next maneuver was to actually ration the evil items based on their "negative nutrients" and the buyers "negative vitals" leading to not only carding people for age to get a drink but also to get snacks. "Sorry, you cannot have salami with a cholesterol of 220." "Step away from the salted pretzels unless your BP is less than 125!" Have the wrong BMI, your potato chip ration would be cut. And then along came the lawyers with class action suits against food companies which knew they were producing and promoting a health risk. Dé jà vu all over again!

Well, it's easy to figure out what the next dance step was to this tune, a growing black market in junk food. I started out simple enough, my view was "this is definitely taxation without representation." Who elected those self righteous guardians of the saw dust and wood chips dietary dictatorship to tell the government what I should and should not be allowed to eat. So I had a friend in Canada (which hadn't yet succumbed to the tyranny of the food police) set up a simple smuggling system just to provide "junk food" for personal use. Well, you know how that goes! My friends wanted in, and they were willing to pay. Then their friends and theirs friends and their friends and before I knew it I had a major import business going. Candy bars, non-diet sodas, twinkies, cold cuts, full fat cheese, M&Ms, popcorn, potato chips, etc, etc, etc. My basement looked like a 7 Eleven. It was amazing, even without advertising, how many people wanted those items just because they tasted good. No brain washing, no insidious efforts of the bad old food companies, no pay offs to researchers, they just liked the taste.

By then I was competing with the big time junk food smugglers, the Russian mafia, the Asian mafia, the South American Mafia, the African mafia, and of the course the government controlled "junk food" distribution program which provided a sufficiently large tax base to keep the income tax low, and the incumbents in. Somebody squealed on me! Over the years the ATF (Alcohol, Tobacco and Firearms) had established a special branch to deal with bootleg tax-free junk food, the SSSFC (Sugar, Salt, Saturated Fat & Cholesterol) division, a bunch of lean, mean, fighting machines dedicated to saving the American public from its worst enemy, its weak will. Most of the agents were culled from advocacy groups which had employed their own private "food police" for years, and these models of dietary deliverance attacked their job with a dedication and vengeance we've so gradually become accustomed to. Not a bunch you'd invite to a party!

So now I'm on the run, trying to stay one step ahead of these dedicated enforcers of the "fat tax." I'll probably head for South America, they don't extradite felons who violate the SSSFC directorate. In fact, they actually consider us freedom fighters. They've gone so far as to refuse import of US food items with the new heart attack/stroke/cancer warning logo. I'll once again have true freedom of the palate. My friends will be unhappy, their junk food source has dried up, guess they'll just have to pay the duty (or doody in this case). Too bad that "fat tax" scheme ever got on track, it really was a pretty dumb idea to start with!

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Executive Editor, Nutrition Close-Up

[Curious to see how we'll be remembered in 500 years? I highly recommend you read In the Devil's Garden: A Sinful History of Forbidden Foods by Stewart Lee Allen to learn how lust, gluttony, pride, sloth, greed, blasphemy, and anger (the seven deadly sins) have been linked to food. Today we have apparently added an eighth sin-junk food addiction.]

Mother's Child-Feeding Practices Affect Child's Adiposity

Childhood obesity is a major problem which currently affects a quarter of American children. According to a study by Spruijt-Metz and colleagues, mothers might unintentionally be contributing to this problem by overly controlling their child's dietary behavior and interfering with the child's natural ability to self-regulate energy intake. In this study, the mothers' child-feeding practices had a greater impact on the children's adiposity than the amount of food the child consumed. As a result, the researchers recommendations included teaching mothers about good feeding strategies in child weight loss programs which could help lower the incidence of over weight children.

Using the Child Feeding Questionnaires and dual-energy x-ray absorptiometry, the researchers tested the effect of maternal attitude and feeding practice on her child's body fatness. The study subjects included both African American (22 boys and 24 girls) and Caucasian kids (25 boys and 49 girls), and their mothers. The mean age was 11 years old. The children's dietary intakes were assessed from three 24-hour dietary recalls and socioeconomic status was measured with the Hollingshead 4-factor index of social class. The 5 subtests from the Child Feeding Questionnaires tested the mother's child-feeding attitudes and practices and her perception of the child's weight. It was determined that total fat mass was positively correlated with maternal weight concern and pressure to eat. Separating the answer to these questions based on gender and race revealed that the mothers monitored junk food, sweet, and fat intake of their sons more than their daughters, while they tended to be more concerned about the daughter's weight. The African-American mothers controlled their child's dietary behavior more than their white counter parts; however, analysis revealed that ethnicity and socioeconomic status did not contribute to any difference in total fat mass. Multivariate analysis indicated that the concern for weight and pressure to eat explained 15% of the variance in total body fat mass after adjusting for total lean mass, gender, ethnicity, socioeconomic status, and energy intake. Energy intake from non-fat sources predicted 5% of the variance in total fat mass while dietary fat intake was not a significant factor.

Even though many mothers worry about what their child eats or if their weight is appropriate out of love, too much control over the child's dietary habits may result in negative health consequences for the child. Incorporating this information in future child obesity intervention programs may further improve outcomes.

Spruijt-Metz D, Lindquist CH, Birch LL, et al. Relationship between mothers' child-feeding practices and children's adiposity. *Am J Clin Nutr*. 2002;75:581-586.

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