

Health Insights Today

A SERVICE OF CLEVELAND CHIROPRACTIC COLLEGE

May/June 2010, Volume 3, Issue 3

Whole Grains and Beans as Core Components of a Healthy Diet: Consensus, Controversy and Current Research

By Daniel Redwood, DC

A broad, deep and sustained consensus in the field of evidence-based nutrition recommends the inclusion of whole grains and beans as integral parts of a healthy diet. Nutritional recommendations and guidelines from the Surgeon General,¹ American Dietetic Association,² Harvard School of Public Health,³ American Heart Association (AHA),⁴ American Diabetes Association (ADA),⁵ American Cancer Society,^{6, 7} and a wide range of other conventional and alternative sources place strong emphasis on the health-enhancing qualities of whole grains and beans. In challenging economic times, these whole foods are cost-effective staples which, in combination with as many vegetables and fruits as a household can afford, can help anchor the nutritional component of a healthy lifestyle.

Diets that include whole grains and beans have repeatedly been shown to have protective effects against the chronic degenerative diseases that plague industrialized nations—heart disease, cancer, and diabetes foremost among these. The scientific literature supporting this is quite robust and forms the basis for the current broad consensus.

Moreover, the two great evidence-based nutrition breakthroughs of our time—Dean Ornish's pioneering research on reversing heart disease⁸⁻³³ and Neal Barnard's landmark work on reversing diabetes,³⁴⁻⁴³ employed dietary interventions that included whole grains and beans (including soy), along with fruits and vegetables, as primary components. In both Ornish's and Barnard's research studies, whole foods dietary approaches demonstrated through randomized controlled trials a statistically significant superiority to standard medical approaches.

Ornish was the first to demonstrate shrinkage of atherosclerotic plaque (along with decreases in all other symptoms of heart disease), while a comparison group following American Heart Association dietary guidelines worsened in all major parameters.⁸ Those following Barnard's diabetes protocol fared substantially better than a comparison group following American Diabetes Association guidelines. While the ADA group also achieved improvement in blood sugar control and other outcome measures, those following the Barnard approach improved far more.³⁴

Are Whole Grains Inflammatory?

Despite this overwhelming body of evidence, persistent attacks on whole grains and beans (especially soy) continue to circulate on popular websites serving the alternative health⁴⁴ and chiropractic⁴⁵ communities. A key claim asserted in opposition to eating whole grains is that grains are inflammatory. In some cases, this assertion is presented as established fact,⁴⁵ with no indication to readers of its highly controversial nature.

For anyone wishing to know whether whole grains are inflammatory, a search of PubMed (a National Library of Medicine database) is highly recommended. Using the search terms "inflammation" and "whole grains," a PubMed search (March 17, 2010) yielded 22 references.⁴⁶⁻⁶⁷ *None* of these studies indicated that whole grains are inflammatory; nearly all reported a negative association between whole grain intake and markers of inflammation. That is, the evidence strongly suggests that *whole grains have an anti-inflammatory effect*.

Of the 22 studies, one found neither inflammatory nor anti-inflammatory effects from whole grains.⁴⁷ One involved a diet with large quantities of refined grains and therefore did not sufficiently address the question under consideration.⁴⁹ One dealt with the effects of whole pollen grains on respiratory passages, not dietary whole grains.⁵⁴

Health Insights Today

A SERVICE OF CLEVELAND CHIROPRACTIC COLLEGE

May/June 2010, Volume 3, Issue 3

Page 2

One evaluated telomere length (considered a key indicator of biological aging) and found neither positive nor negative associations between telomere length and any food or food group, with the exception of an adverse effect from processed meats.⁶² Every other study brought up by the PubMed search engine had a clear, unambiguous message—whole grains are associated with *decreased* inflammation.

Paleo Diet

Some of the opposition to eating grains draws on the fact that grains evolved relatively recently in the sweep of human history and thus were not a significant part of our ancestors' diet until the dawn of agricultural era, circa 10,000 B.C. The core assertion here is that humans are genetically ill-suited to grains (whole or refined) and that a diet similar to that of our genetic forebears, a "paleo" diet, is the best choice. The foremost proponent of this viewpoint is Loren Cordain, an exercise physiologist at Colorado State University, who argues that Paleolithic hunter-gatherers, subsisting largely on wild animal and wild plant foods (with no grains, dairy or processed foods), were remarkably free of cardiovascular disease and the other chronic diseases of civilization.⁶⁸⁻⁷⁴ This data is based in significant measure on studies on contemporary aboriginal peoples and its applicability to people of the Paleolithic Age has been questioned.⁷⁵

However, even if we grant for the sake of argument that a Paleolithic Diet would be healthful and practical for those of us alive today, it is important to realize that this in no way justifies inferences widely professed by Paleo Diet advocates—that the hunter-gatherer diet (with no substantial quantities of any grains, whole or refined) is the only proper diet for modern humans.

One further point about whole grains: anyone with celiac disease, gluten intolerance, or an allergy or sensitivity to a particular cereal grain, such as wheat or corn, should avoid the offending foods. Generalizing from this affected group to the whole of the human race, however, is an ill-conceived and illogical leap.

Beans and Soy

Beans provide an excellent source of dietary protein, including the amino acid lysine, which is missing in most grains. The amino acids in grains and beans are complementary, together forming a complete protein. Beans are low in calories and high in fiber.

As noted above, there is a broad consensus in the evidence-based nutrition community regarding the health value of beans. But as with grains, there is a persistent, Internet-based attack campaign against beans, particularly soy. By far the most widespread and serious attacks are that soy foods may (1) cause or aggravate breast cancer; and (2) exert feminizing effects on men.

With a large trial published in late 2009,⁷⁶ the breast cancer issue may be nearing resolution, with soy appearing to be protective rather than harmful even for women currently being treated for breast cancer. As far as feminizing effects are concerned, they occur only with intake of quantities of soy far in excess of recommended use, as in the highly publicized case of Texas man who drank 3 *quarts* of soymilk a day for many months, during which time his beard growth slowed, he lost hair from his arms, developed breasts and generally displayed a wide range of feminized characteristics.^{77, 78} Men whose intake of soy foods is moderate (3 servings or less per day) do not experience these disturbing changes.

Health Insights Today

A SERVICE OF CLEVELAND CHIROPRACTIC COLLEGE

May/June 2010, Volume 3, Issue 3

Page 3

Soy and Cancer

When evaluating the possible relationship between soy and cancer, it is best to make three key distinctions. First, possible preventive effects for people who have never had cancer should be distinguished from potential effects on people who have (or previously had) cancer. Second, it is best to address each type of cancer separately rather than make across-the-board generalizations about all cancers. For example, breast cancer may differ in some ways from prostate cancer, in terms of prevention and the dietary management of diagnosed cancers. Last but not least, it is essential to distinguish between traditional soy foods and supplements containing concentrates or isolates of active nutrients derived from soy.

Soy and Breast Cancer Prevention

There is strong evidence that when soy is eaten regularly by girls in childhood and adolescence, it is protective against the development of breast cancer later in life. As little as one soy food serving per day may reduce eventual incidence of breast cancer by 25-45 percent. These conclusions are based on four epidemiological studies.⁷⁹⁻⁸² Women who start eating soy later in life do not appear to attain the breast cancer prevention benefit seen in women who have eaten soy their entire lives, including childhood and adolescence.

In 2006, an American Cancer Society panel published guidelines on nutrition and physical activity for cancer prevention.⁶ Regarding soy, they wrote:

Soy-derived foods are an excellent source of protein and a good alternative to meat. Soy contains several phytochemicals, some of which have weak estrogenic activity and appear to protect against hormone-dependent cancers in animal studies. Presently, there are limited data to support a potential beneficial effect of soy supplements on reducing cancer risk.⁸³ Furthermore, adverse effects of high doses of soy supplements on the risk of estrogen-responsive cancers, such as breast or endometrial cancer, are possible.⁸⁴

Soy and Breast Cancer Treatment

There is not yet a consensus on this subject but recent research leans toward a conclusion that soy intake is beneficial for women with breast cancer. Controversy has surrounded the use of soy and soy supplements by women with current or past breast cancer because the phytoestrogens in soy are chemically related (though not identical) to (1) true (endogenous) estrogens made by the human body; (2) true estrogens eaten in the meat and milk of hormone-supplemented animals, and; (3) true estrogens taken as medicines (hormone replacement therapy, birth control pills).

The controversy can be summarized with two questions: Do soy phytoestrogens helpfully block estrogen receptor sites in women so that true estrogens are unable to dock at these sites? Or do soy phytoestrogens harmfully dock at estrogen receptor sites and mimic the effects of actual estrogens, thus aggravating hormone-sensitive cancers such as breast cancer? If you are a past or present breast cancer patient, or a doctor caring for such a patient, this is an extremely significant issue.

A 2006 American Cancer Society report⁷ on nutrition and physical activity during and after cancer treatment addressed the issue directly:

Soy contains high levels of plant isoflavones that exert a variety of anticancer activities in laboratory studies. Perhaps because soy has the potential to produce both estrogenic and antiestrogenic effects, studies on

Health Insights Today

A SERVICE OF CLEVELAND CHIROPRACTIC COLLEGE

May/June 2010, Volume 3, Issue 3

Page 4

soy and breast carcinogenesis have produced conflicting results. For the breast cancer survivor, current epidemiologic and laboratory evidence suggests there are unlikely to be harmful effects when soy is provided in the diet consistent with amounts in a typical Asian diet; whether such levels of soy intake may result in beneficial effects is also unclear. This amount would be provided by as many as three servings per day of soy foods, such as tofu and soy milk. However, because higher doses of soy may have estrogenic effects and because higher levels of estrogens clearly increase the risk for breast cancer progression, it is prudent for breast cancer survivors to avoid the high doses of soy and soy isoflavones that are provided by more concentrated sources such as soy powders and isoflavone supplements.

Research on this subject is accelerating. Most significantly, a large 2009 California study⁸⁵ by Guha and colleagues followed women with breast cancer undergoing treatment with the widely-utilized chemotherapeutic agent, tamoxifen. These investigators found that the patients whose diets included the highest amounts of the soy isoflavone, daidzein, had approximately a *60% reduction in breast cancer recurrence* compared to those eating the lowest quantities of soy.

Soy and Prostate Cancer Prevention

An informed consensus that soy helps prevent prostate cancer has emerged among the scientists who closely study the issue. A 2009 meta-analysis by Yan and Spitznagel,⁸⁶ published in the *American Journal of Clinical Nutrition*, concluded that consumption of soy foods was strongly associated with a lowered risk for prostate cancer. Lin Yan, the study's lead author, states that based on current research and knowledge of traditional patterns of use in Asian societies, up to three servings per day of soy foods is beneficial, a recommendation consistent with American Cancer Society guidelines.

Soy and Prostate Cancer Treatment

There is preliminary evidence that soy may play a supportive role in the treatment of prostate cancer, as part of a comprehensive lifestyle changes program. Dean Ornish, mentioned earlier for his research on heart disease, has been deeply involved in prostate cancer research in recent years. Ornish's group has given a small group of early-stage prostate cancer patients a whole foods, low-fat, soy-supplemented vegan diet consisting predominantly of fruits, vegetables, whole grains, legumes and soy products (1 daily serving of tofu plus a fortified soy protein powdered beverage), low in simple carbohydrates and with approximately 10% of calories from fat. Ornish's program also includes exercise and stress management methods.

After one year, none of the men in the experimental group needed to undergo conventional treatments compared to six in the control group. PSA levels decreased 4% in the experimental group compared to a 6% increase in the control group, and prostate cancer cell growth was inhibited almost eight times as much in the experimental group compared to the control group.⁸⁷ Other promising but preliminary findings in this ongoing prostate cancer research include positive changes in prostate gene expression⁸⁸ and increased telomerase activity.⁸⁹

Soy and Cardiovascular Disease

Since 1995, when three *New England Journal of Medicine* articles showed cardiovascular benefits from eating soy foods,⁹⁰⁻⁹² including significant decreases in total cholesterol, LDL cholesterol and triglycerides, the Food and Drug Administration (FDA) has permitted foods containing soy protein to advertise their heart-healthy qualities. Foods that may be eligible for the health claim include soy beverages, tofu, tempeh, and soy-based meat alternatives.

Health Insights Today

A SERVICE OF CLEVELAND CHIROPRACTIC COLLEGE

May/June 2010, Volume 3, Issue 3

Page 5

Foods containing soy qualified (and still qualify) for this nutrition claim because the FDA determined that sufficient research justified the claim. However, as further research has emerged in the intervening years, the evidence for these specific cardiovascular claims has weakened. In 2006, a panel representing the American Heart Association (AHA) Nutrition Committee published a report⁹³ summarizing new research which concluded that, “isolated soy protein with isoflavones compared with milk or other proteins decreased LDL cholesterol concentrations in most studies; the average effect was approximately 3%. This reduction is very small ... no benefit is evident on HDL cholesterol, triglycerides, lipoprotein(a), or blood pressure. Thus, the direct cardiovascular health benefit of soy protein or of isoflavone supplements is minimal at best.”

The AHA panel nonetheless spoke quite positively about soy as a food, noting that “many soy products should be beneficial to cardiovascular and overall health because of their high content of polyunsaturated fats, fiber, vitamins, and minerals and low content of saturated fat.” However, they advised against use of soy isoflavone supplements.

A Food, Not a Drug

When evaluating the helpfulness of soy or other any food, it is important to consider it, first and foremost, as *one part of the overall diet and lifestyle pattern* and not as a silver-bullet answer to the symptoms or signs of a particular disease. In other words, it should be seen as a food and not a drug. From this perspective, soy, whole grains, and other healthy foods can be appreciated as a source of valuable nutrients and a potential replacement for less healthy foods. They should not be viewed as single-agent cures for high cholesterol, coronary heart disease, prostate cancer, or any of the other health issues to which they have been linked.

Summary

There is strong evidence that whole grains and beans, including soy, are nutritious components of a healthy diet.

Daniel Redwood, DC, is Associate Professor at Cleveland Chiropractic College–Kansas City and Editor-in-Chief of *Health Insights Today* and *The Daily HIT*.

This article was published in the April 2010 issue of The Journal of the American Chiropractic Association. Reprinted with permission.

REFERENCES

1. The Surgeon General’s Vision for a Healthy and Fit Nation. Washington, DC: U.S. Department of Health and Human Services; 2010.
2. Slavin JL. Position of the American Dietetic Association: health implications of dietary fiber. *J Am Diet Assoc.* Oct 2008;108(10):1716-1731.
3. Harvard School of Public Health. Health Gains from Whole Grains. <http://www.hsph.harvard.edu/nutritionsource/what-should-you-eat/health-gains-from-whole-grains/>. Accessed March 16, 2010, .
4. Lichtenstein AH, Appel LJ, Brands M, et al. Diet and lifestyle recommendations revision 2006: a scientific statement from the American Heart Association Nutrition Committee. *Circulation.* Jul 4 2006;114(1):82-96.
5. Bantle JP, Wylie-Rosett J, Albright AL, et al. Nutrition recommendations and interventions for diabetes: a position statement of the American Diabetes Association. *Diabetes Care.* Jan 2008;31 Suppl 1:S61-78.

Health Insights Today

A SERVICE OF CLEVELAND CHIROPRACTIC COLLEGE

May/June 2010, Volume 3, Issue 3

Page 6

6. Kushi LH, Byers T, Doyle C, et al. American Cancer Society Guidelines on Nutrition and Physical Activity for cancer prevention: reducing the risk of cancer with healthy food choices and physical activity. *CA Cancer J Clin.* Sep-Oct 2006;56(5):254-281; quiz 313-254.
7. Doyle C, Kushi LH, Byers T, et al. Nutrition and physical activity during and after cancer treatment: an American Cancer Society guide for informed choices. *CA Cancer J Clin.* Nov-Dec 2006;56(6):323-353.
8. Ornish D, Brown SE, Scherwitz LW, et al. Lifestyle changes and heart disease. *Lancet.* Sep 22 1990;336(8717):741-742.
9. Ornish D, Scherwitz LW, Doody RS, et al. Effects of stress management training and dietary changes in treating ischemic heart disease. *JAMA.* Jan 7 1983;249(1):54-59.
10. Sacks FM, Ornish D, Rosner B, McLanahan S, Castelli WP, Kass EH. Plasma lipoprotein levels in vegetarians. The effect of ingestion of fats from dairy products. *JAMA.* Sep 13 1985;254(10):1337-1341.
11. Ornish D, Brown SE, Scherwitz LW, et al. Can lifestyle changes reverse coronary heart disease? The Lifestyle Heart Trial. *Lancet.* Jul 21 1990;336(8708):129-133.
12. Ornish D. Can life-style changes reverse coronary atherosclerosis? *Hosp Pract (Off Ed).* May 15 1991;26(5):123-126, 129-132.
13. Ornish D. Reversing heart disease through diet, exercise, and stress management: an interview with Dean Ornish. Interview by Elaine R Monsen. *J Am Diet Assoc.* Feb 1991;91(2):162-165.
14. Gould KL, Ornish D, Kirkeeide R, et al. Improved stenosis geometry by quantitative coronary arteriography after vigorous risk factor modification. *Am J Cardiol.* Apr 1 1992;69(9):845-853.
15. Ornish D. What if Americans ate less fat? *JAMA.* Jan 15 1992;267(3):362; author reply 363-364.
16. Ornish D. Can lifestyle changes reverse coronary heart disease? *World Rev Nutr Diet.* 1993;72:38-48.
17. Ornish D, Brown SE. Treatment of and screening for hyperlipidemia. *N Engl J Med.* Oct 7 1993;329(15):1124-1125; author reply 1127-1128.
18. Ornish D, Denke M. Dietary treatment of hyperlipidemia. *J Cardiovasc Risk.* Dec 1994;1(4):283-286.
19. Gould KL, Ornish D, Scherwitz L, et al. Changes in myocardial perfusion abnormalities by positron emission tomography after long-term, intense risk factor modification. *JAMA.* Sep 20 1995;274(11):894-901.
20. Ornish D. Serum lipids after a low-fat diet. *JAMA.* May 6 1998;279(17):1345-1346.
21. Ornish D. Dietary fat and ischemic stroke. *JAMA.* Apr 15 1998;279(15):1172; author reply 1172-1173.
22. Ornish D. Avoiding revascularization with lifestyle changes: The Multicenter Lifestyle Demonstration Project. *Am J Cardiol.* Nov 26 1998;82(10B):72T-76T.
23. Ornish D. Low-fat diets. *N Engl J Med.* Jan 8 1998;338(2):127; author reply 128-129.
24. Ornish D, Scherwitz LW, Billings JH, et al. Intensive lifestyle changes for reversal of coronary heart disease. *JAMA.* Dec 16 1998;280(23):2001-2007.
25. Ornish D. Very-low fat diets. *Circulation.* Aug 31 1999;100(9):1013-1015.
26. Dunn-Emke S, Weidner G, Ornish D. Benefits of a low-fat plant-based diet. *Obes Res.* Nov 2001;9(11):731.
27. Ornish D. Statins and the soul of medicine. *Am J Cardiol.* Jun 1 2002;89(11):1286-1290.
28. Koertge J, Weidner G, Elliott-Eller M, et al. Improvement in medical risk factors and quality of life in women and men with coronary artery disease in the Multicenter Lifestyle Demonstration Project. *Am J Cardiol.* Jun 1 2003;91(11):1316-1322.
29. Pischke CR, Weidner G, Elliott-Eller M, Ornish D. Lifestyle changes and clinical profile in coronary heart disease patients with an ejection fraction of $\leq 40\%$ or $>40\%$ in the Multicenter Lifestyle Demonstration Project. *Eur J Heart Fail.* Sep 2007;9(9):928-934.
30. Dewell A, Weidner G, Sumner MD, Chi CS, Ornish D. A very-low-fat vegan diet increases intake of protective dietary factors and decreases intake of pathogenic dietary factors. *J Am Diet Assoc.* Feb 2008;108(2):347-356.
31. Frattaroli J, Weidner G, Merritt-Worden TA, Frenda S, Ornish D. Angina pectoris and atherosclerotic risk factors in the multisite cardiac lifestyle intervention program. *Am J Cardiol.* Apr 1 2008;101(7):911-918.

Health Insights Today

A SERVICE OF CLEVELAND CHIROPRACTIC COLLEGE

May/June 2010, Volume 3, Issue 3

Page 7

32. Govil SR, Weidner G, Merritt-Worden T, Ornish D. Socioeconomic Status and Improvements in Lifestyle, Coronary Risk Factors, and Quality of Life: The Multisite Cardiac Lifestyle Intervention Program. *Am J Public Health*. Nov 13 2008.
33. Harvinder SD, Ravindra B, Venu S, et al. Effect of Intensive Lifestyle Changes on Endothelial Function and on Inflammatory Markers of Atherosclerosis. *The American journal of cardiology*. 2010;105(3):362-367.
34. Barnard ND, Cohen J, Jenkins DJ, et al. A low-fat vegan diet improves glycemic control and cardiovascular risk factors in a randomized clinical trial in individuals with type 2 diabetes. *Diabetes Care*. Aug 2006;29(8):1777-1783.
35. Turner-McGrievy GM, Barnard ND, Cohen J, Jenkins DJ, Gloede L, Green AA. Changes in nutrient intake and dietary quality among participants with type 2 diabetes following a low-fat vegan diet or a conventional diabetes diet for 22 weeks. *J Am Diet Assoc*. Oct 2008;108(10):1636-1645.
36. Barnard ND, Cohen J, Jenkins DJ, et al. A low-fat vegan diet and a conventional diabetes diet in the treatment of type 2 diabetes: a randomized, controlled, 74-wk clinical trial. *Am J Clin Nutr*. May 2009;89(5):1588S-1596S.
37. Barnard ND, Gloede L, Cohen J, et al. A Low-Fat Vegan Diet Elicits Greater Macronutrient Changes, but Is Comparable in Adherence and Acceptability, Compared with a More Conventional Diabetes Diet among Individuals with Type 2 Diabetes. *J Am Diet Assoc*. Feb 2009;109(2):263-272.
38. Barnard ND, Katcher HI, Jenkins DJ, Cohen J, Turner-McGrievy G. Vegetarian and vegan diets in type 2 diabetes management. *Nutr Rev*. May 2009;67(5):255-263.
39. Barnard ND, Noble EP, Ritchie T, et al. D2 dopamine receptor Taq1A polymorphism, body weight, and dietary intake in type 2 diabetes. *Nutrition*. Jan 2009;25(1):58-65.
40. Levin SM, Ferdowsian HR, Hoover VJ, Green AA, Barnard ND. A worksite programme significantly alters nutrient intakes. *Public Health Nutr*. Jan 15 2010:1-7.
41. Trapp C, Barnard N, Katcher H. A plant-based diet for type 2 diabetes: scientific support and practical strategies. *Diabetes Educ*. Jan-Feb 2010;36(1):33-48.
42. Nicholson AS, Sklar M, Barnard ND, Gore S, Sullivan R, Browning S. Toward improved management of NIDDM: A randomized, controlled, pilot intervention using a lowfat, vegetarian diet. *Prev Med*. Aug 1999;29(2):87-91.
43. Jenkins DJ, Kendall CW, Marchie A, et al. Type 2 diabetes and the vegetarian diet. *Am J Clin Nutr*. Sep 2003;78(3 Suppl):610S-616S.
44. Mercola J. <http://www.drmercola.com/>.
45. Seaman DR. www.deflame.com.
46. Anand P, Kunnumakkara AB, Sundaram C, et al. Cancer is a preventable disease that requires major lifestyle changes. *Pharm Res*. Sep 2008;25(9):2097-2116.
47. Andersson A, Tengblad S, Karlstrom B, et al. Whole-grain foods do not affect insulin sensitivity or markers of lipid peroxidation and inflammation in healthy, moderately overweight subjects. *J Nutr*. Jun 2007;137(6):1401-1407.
48. Boldogh I, Aguilera-Aguirre L, Bacsı A, Choudhury BK, Saavedra-Molina A, Kruzel M. Colostrinin decreases hypersensitivity and allergic responses to common allergens. *Int Arch Allergy Immunol*. 2008;146(4):298-306.
49. Esmailzadeh A, Kimiagar M, Mehrabi Y, Azadbakht L, Hu FB, Willett WC. Dietary patterns and markers of systemic inflammation among Iranian women. *J Nutr*. Apr 2007;137(4):992-998.
50. Esposito K, Ceriello A, Giugliano D. Diet and the metabolic syndrome. *Metab Syndr Relat Disord*. Dec 2007;5(4):291-296.
51. Esposito K, Marfella R, Ciotola M, et al. Effect of a mediterranean-style diet on endothelial dysfunction and markers of vascular inflammation in the metabolic syndrome: a randomized trial. *JAMA*. Sep 22 2004;292(12):1440-1446.

Health Insights Today

A SERVICE OF CLEVELAND CHIROPRACTIC COLLEGE

May/June 2010, Volume 3, Issue 3

Page 8

52. Giugliano D, Ceriello A, Esposito K. The effects of diet on inflammation: emphasis on the metabolic syndrome. *J Am Coll Cardiol.* Aug 15 2006;48(4):677-685.
53. Giugliano D, Esposito K. Mediterranean diet and metabolic diseases. *Curr Opin Lipidol.* Feb 2008;19(1):63-68.
54. Hauser R, Rice TM, Krishna Murthy GG, et al. The upper airway response to pollen is enhanced by exposure to combustion particulates: a pilot human experimental challenge study. *Environ Health Perspect.* Apr 2003;111(4):472-477.
55. Jacobs DR, Jr., Andersen LF, Blomhoff R. Whole-grain consumption is associated with a reduced risk of noncardiovascular, noncancer death attributed to inflammatory diseases in the Iowa Women's Health Study. *Am J Clin Nutr.* Jun 2007;85(6):1606-1614.
56. Jeerakathil TJ, Wolf PA. Prevention of strokes. *Curr Atheroscler Rep.* Jul 2001;3(4):321-327.
57. Jensen MK, Koh-Banerjee P, Franz M, Sampson L, Gronbaek M, Rimm EB. Whole grains, bran, and germ in relation to homocysteine and markers of glycemic control, lipids, and inflammation 1. *Am J Clin Nutr.* Feb 2006;83(2):275-283.
58. Kennedy A, Martinez K, Chuang CC, LaPoint K, McIntosh M. Saturated fatty acid-mediated inflammation and insulin resistance in adipose tissue: mechanisms of action and implications. *J Nutr.* Jan 2009;139(1):1-4.
59. Lopez-Garcia E, Schulze MB, Fung TT, et al. Major dietary patterns are related to plasma concentrations of markers of inflammation and endothelial dysfunction. *Am J Clin Nutr.* Oct 2004;80(4):1029-1035.
60. Lutsey PL, Jacobs DR, Jr., Kori S, et al. Whole grain intake and its cross-sectional association with obesity, insulin resistance, inflammation, diabetes and subclinical CVD: The MESA Study. *Br J Nutr.* Aug 2007;98(2):397-405.
61. Mozaffarian D. Does alpha-linolenic acid intake reduce the risk of coronary heart disease? A review of the evidence. *Altern Ther Health Med.* May-Jun 2005;11(3):24-30; quiz 31, 79.
62. Nettleton JA, Diez-Roux A, Jenny NS, Fitzpatrick AL, Jacobs DR, Jr. Dietary patterns, food groups, and telomere length in the Multi-Ethnic Study of Atherosclerosis (MESA). *Am J Clin Nutr.* Nov 2008;88(5):1405-1412.
63. Nettleton JA, Schulze MB, Jiang R, Jenny NS, Burke GL, Jacobs DR, Jr. A priori-defined dietary patterns and markers of cardiovascular disease risk in the Multi-Ethnic Study of Atherosclerosis (MESA). *Am J Clin Nutr.* Jul 2008;88(1):185-194.
64. Nettleton JA, Steffen LM, Mayer-Davis EJ, et al. Dietary patterns are associated with biochemical markers of inflammation and endothelial activation in the Multi-Ethnic Study of Atherosclerosis (MESA). *Am J Clin Nutr.* Jun 2006;83(6):1369-1379.
65. O'Keefe JH, Gheewala NM, O'Keefe JO. Dietary strategies for improving post-prandial glucose, lipids, inflammation, and cardiovascular health. *J Am Coll Cardiol.* Jan 22 2008;51(3):249-255.
66. Qi L, Hu FB. Dietary glycemic load, whole grains, and systemic inflammation in diabetes: the epidemiological evidence. *Curr Opin Lipidol.* Feb 2007;18(1):3-8.
67. Qi L, van Dam RM, Liu S, Franz M, Mantzoros C, Hu FB. Whole-grain, bran, and cereal fiber intakes and markers of systemic inflammation in diabetic women. *Diabetes Care.* Feb 2006;29(2):207-211.
68. Cordain L, Eaton SB, Sebastian A, et al. Origins and evolution of the Western diet: health implications for the 21st century. *Am J Clin Nutr.* Feb 2005;81(2):341-354.
69. Cordain L. Cereal grains: humanity's double-edged sword. *World Rev Nutr Diet.* 1999;84:19-73.
70. Cordain L, Eaton SB, Miller JB, Mann N, Hill K. The paradoxical nature of hunter-gatherer diets: meat-based, yet non-atherogenic. *Eur J Clin Nutr.* Mar 2002;56 Suppl 1:S42-52.
71. Cordain L, Miller JB, Eaton SB, Mann N. Macronutrient estimations in hunter-gatherer diets. *Am J Clin Nutr.* Dec 2000;72(6):1589-1592.
72. Cordain L, Miller JB, Eaton SB, Mann N, Holt SH, Speth JD. Plant-animal subsistence ratios and macronutrient energy estimations in worldwide hunter-gatherer diets. *Am J Clin Nutr.* Mar 2000;71(3):682-692.

Health Insights Today

A SERVICE OF CLEVELAND CHIROPRACTIC COLLEGE

May/June 2010, Volume 3, Issue 3

Page 9

73. Eaton SB, Strassman BI, Nesse RM, et al. Evolutionary health promotion. *Prev Med*. Feb 2002;34(2):109-118.
74. O'Keefe JH, Jr., Cordain L. Cardiovascular disease resulting from a diet and lifestyle at odds with our Paleolithic genome: how to become a 21st-century hunter-gatherer. *Mayo Clin Proc*. Jan 2004;79(1):101-108.
75. Milton K. Hunter-gatherer diets-a different perspective. *Am J Clin Nutr*. Mar 2000;71(3):665-667.
76. Guha N, Kwan ML, Quesenberry CP, Jr., Weltzien EK, Castillo AL, Caan BJ. Soy isoflavones and risk of cancer recurrence in a cohort of breast cancer survivors: the Life After Cancer Epidemiology study. *Breast Cancer Res Treat*. Nov 2009;118(2):395-405.
77. Is This the Most Dangerous Food for Men? *Men's Health*: Rodale; June 2009.
78. Redwood D. The Great Soybean Controversy II: Misleading Media Narratives. *Health Insights Today*. (November 2009). <http://www.healthinsightstoday.com/articles/v2i6/index.html>.
79. Wu AH, Wan P, Hankin J, Tseng CC, Yu MC, Pike MC. Adolescent and adult soy intake and risk of breast cancer in Asian-Americans. *Carcinogenesis*. Sep 2002;23(9):1491-1496.
80. Shu XO, Jin F, Dai Q, et al. Soyfood intake during adolescence and subsequent risk of breast cancer among Chinese women. *Cancer Epidemiol Biomarkers Prev*. May 2001;10(5):483-488.
81. Thanos J, Cotterchio M, Boucher BA, Kreiger N, Thompson LU. Adolescent dietary phytoestrogen intake and breast cancer risk (Canada). *Cancer Causes Control*. Dec 2006;17(10):1253-1261.
82. Korde LA, Wu AH, Fears T, et al. Childhood soy intake and breast cancer risk in Asian American women. *Cancer Epidemiol Biomarkers Prev*. Apr 2009;18(4):1050-1059.
83. Peeters PH, Keinan-Boker L, van der Schouw YT, Grobbee DE. Phytoestrogens and breast cancer risk. Review of the epidemiological evidence. *Breast Cancer Res Treat*. Jan 2003;77(2):171-183.
84. Petrakis NL, Barnes S, King EB, et al. Stimulatory influence of soy protein isolate on breast secretion in pre- and postmenopausal women. *Cancer Epidemiol Biomarkers Prev*. Oct 1996;5(10):785-794.
85. Guha N, Kwan ML, Quesenberry CP, Jr., Weltzien EK, Castillo AL, Caan BJ. Soy isoflavones and risk of cancer recurrence in a cohort of breast cancer survivors: the Life After Cancer Epidemiology study. *Breast Cancer Res Treat*. Feb 17 2009.
86. Yan L, Spitznagel EL. Meta-analysis of soy food and risk of prostate cancer in men. *Int J Cancer*. Nov 20 2005;117(4):667-669.
87. Ornish D, Weidner G, Fair WR, et al. Intensive lifestyle changes may affect the progression of prostate cancer. *J Urol*. Sep 2005;174(3):1065-1069; discussion 1069-1070.
88. Ornish D, Magbanua MJ, Weidner G, et al. Changes in prostate gene expression in men undergoing an intensive nutrition and lifestyle intervention. *Proc Natl Acad Sci U S A*. Jun 17 2008;105(24):8369-8374.
89. Ornish D, Lin J, Daubenmier J, et al. Increased telomerase activity and comprehensive lifestyle changes: a pilot study. *Lancet Oncol*. Nov 2008;9(11):1048-1057.
90. Krauss RM, Chait A, Stone NJ. Soy protein and serum lipids. *N Engl J Med*. Dec 21 1995;333(25):1715-1716.
91. Erdman JW, Jr. Control of serum lipids with soy protein. *N Engl J Med*. Aug 3 1995;333(5):313-315.
92. Anderson JW, Johnstone BM, Cook-Newell ME. Meta-analysis of the effects of soy protein intake on serum lipids. *N Engl J Med*. Aug 3 1995;333(5):276-282.
93. Sacks FM, Lichtenstein A, Van Horn L, Harris W, Kris-Etherton P, Winston M. Soy protein, isoflavones, and cardiovascular health: a summary of a statement for professionals from the American Heart Association nutrition committee. *Arterioscler Thromb Vasc Biol*. Aug 2006;26(8):1689-1692.