BRIEF REPORT: Nutrition and Weight Loss Information in a Popular Diet Book: Is It Fact, Fiction, or Something in Between?

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BACKGROUND/OBJECTIVE: Diet books dominate the New York Times Advice Best Seller list and consumers cite such books as an important source of nutrition information. However, the scientific support for nutrition claims presented as fact (nutrition facts) in diet books is not known.

DESIGN/MEASUREMENTS: We assessed the quality of nutrition facts in the best-selling South Beach Diet using support in peer-reviewed literature as a measure of quality. We performed structured literature searches on nutrition facts located in the books' text, and then assigned each fact to 1 of 4 categories (1) fact supported, (2) fact not supported, (3) fact both supported and not supported, and (4) no related papers. A panel of expert reviewers adjudicated the findings.

RESULTS: Forty-two nutrition facts were included. Fourteen (33%) facts were supported, 7 (17%) were not supported, 18 (43%) were both supported and not supported, and 3 (7%) had no related papers, including the fact that the diet had been "scientifically studied and proven effective."

CONCLUSIONS: Consumers obtain nutrition information from diet books. We found that over 67% of nutrition facts in a best-seller diet book may not be supported in the peer-reviewed literature. These findings have important implications for educating consumers about nutrition information sources.

KEY WORDS: health information; nutrition; weight loss.
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There is significant academic and public interest in the effectiveness of popular diets, particularly low-carbohydrate diets,¹⁻⁷ but to our knowledge there is little information on the quality of nutrition information contained in these diet books. Several aspects of health information quality have been assessed in other widely accessible non-peer reviewed sources such as the internet.^{8,9} Assessing the quality of nutrition information provided in diet books is particularly important because they are read by millions of consumers, as evidenced by their frequent presence at the top of the New York Times Best Seller Advice Book list.¹⁰ Consumers cite books as an important source of nutrition information;¹¹ but, diet books are not

subject to the scientific standards of peer-reviewed journals. Because these books are often presented in a scientific manner, consumers may assume that the nutrition information contained in these books is supported by studies that have met criteria similar to that found in peer-reviewed literature.

Nutrition information that is not supported in the scientific literature may have consequences for consumers, and there are laws protecting consumers against nutrition misinformation.¹² The American Dietetic Association position paper on food and nutrition misinformation states that nutrition information presented in non-peer-reviewed publications may "pose risks that include profit at the expense of a trusting but uninformed public and health risks for the individual."¹³ There is benefit in educating the public about the difference between nutrition information based on theory and scientifically evaluated hypotheses.

The South Beach Diet has been on the bestseller list since its publication in April 2003¹⁰ and has more than 7 million copies in print. We chose to evaluate the South Beach Diet as a case study of the quality of nutrition information in a popular diet book because it was outselling all other diet books at the time of this inquiry and remains on bestseller lists. Evidence supporting the nutrition information in the book has not, to our knowledge, been subject to scientific review. We assessed scientific support for nutrition facts available at the time South Beach was published, recognizing that peer-reviewed data related to these facts have since evolved and may be different now than what existed at the time of publication of the South Beach Diet.

DESIGN/MEASUREMENTS

We included only nutrition facts in this review. Readers may perceive opinions to be scientifically based as well, but opinions would not be expected to have peer-reviewed support. Fact checking consisted of 4 stages: fact identification, literature review for each fact, scientific support categorization for each fact based on literature review findings, and expert adjudication of fact categorization.

Fact identification was carried out by a subset of the study team. Three members, including an experienced health services researcher/cardiologist (H.K.), an internist/pediatrician with experience in obesity prevention and health services re-

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search (S.G.), and a medical student with training in health services research, read the text of the South Beach Diet. Each initially independently identified all statements containing nutrition facts. One hundred eighty-seven facts were identified in this initial phase, with 53% of the facts having been identified by at least 2 of the fact checkers. Fact inclusion was refined after this preliminary fact identification, and all statements containing qualifiers such as "might," "could," or "possibly" were excluded as opinion. In addition, all statements of medical facts and definitions such as "carbohydrate digestion begins in the mouth" were excluded, and facts that did not pertain specifically to nutrition were excluded. For example, "statins have been shown to help lower LDL cholesterol" was excluded. Forty-two facts remained after the exclusion process was completed, and 75% of these facts had been identified by at least 2 of the 3 fact checkers. The team resolved differences of opinion in fact exclusion through discussion. Facts were then classified into 1 of 5 major topic areas for organizational purposes by the lead author (S.G.). There was no *a priori* categorization scheme, but through the process of fact identification, it became clear that the facts fit into specific clinically relevant categories. Once facts were identified and classified, we reviewed the scientific literature pertaining to each fact. The review team consisted of a preventive cardiologist (J.F.) and 2 students at the school of public health studying nutrition-related disease processes in addition to 2 of the 3 team members who identified facts (S.G. and medical student).

We performed a structured literature review system using the British Medical Journal Clinical Evidence search strategies so that searches were standard among the 5-member search team. Details of this search strategy are available elsewhere.¹⁴ The Medline database was searched, and initially limited to Core Clinical Journals unless no articles were found, and then the Core Clinical Journal limit was dropped and the search was rerun. If no systematic reviews were found, the Cochrane Systematic Reviews were searched. Searches were limited from 1993 to April 2003 as studies published prior to this would likely be captured in systematic reviews or be outdated. We searched systematic reviews first and stopped with systematic reviews if any were found. If no systematic reviews were identified, we searched randomized-controlled trials, and if no randomized-controlled trials were found, we searched observational studies. We also reviewed consensus statements from national associations such as the American Heart Association¹⁵ and American Diabetes Association,¹⁶ when available, as a check on our search findings.

Reviewers abstracted information including author, title, journal, year of publication, study design, sample size, findings supporting fact, findings refuting fact, and findings deemed inconclusive by the authors. Each fact was assigned to 1 of 4 categories of support based on search results of: (1) fact supported, (2) fact not supported, (3) fact both supported and not supported, and (4) no related papers identified. If debate over categorization occurred among team members, "benefit of doubt" was given and the fact was categorized as supported.

A team of 4 experts in the following major topic areas reviewed the category assignment for each fact: preventive cardiology, endocrinology, public health/nutrition and cancer, and public health/nutrition and preventive health. If an expert reviewer disagreed with the research team's category of

support, they were asked to supply sources of data to support their position and fact category was reassigned if data indicated that reassignment was appropriate. Expert review team members supplied additional evidence for their recommended change from sources not captured by the search strategy, providing a resolution to disagreements on initial categorization.

RESULTS

A total of 42 facts were identified. Facts were classified into 1 of 5 categories: cardiovascular health, cancer prevention, metabolism, satiety, or miscellaneous. Cardiovascular health and metabolism had additional subclasses, including saturated/trans and polyunsaturated fats, micronutrients/phytochemicals/fiber, carbohydrate metabolism/glycemic index, and general metabolism. Fourteen (33%) of the facts were supported in peer-reviewed literature, 7 (17%) were not supported, 18 (43%) were both supported and not supported, and 3 (7%) had no related papers (Table 1).

An example of a supported fact was "Fish oil capsules decrease sudden death." An example of an unsupported fact was "This diet (South Beach) has been scientifically studied and proven effective." In some cases, categorization proved difficult. Categorization for 7 (17%) facts was adjusted after expert review. Three facts were changed from "no data" to a different category based on data supplied by reviewer, or to a less supported category, reflecting a leniency on the part of the initial review towards favoring the South Beach position. The other 4 changes were based on supporting evidence provided by the expert.

DISCUSSION

Obesity is a major public health issue,^{67,68} and consumers are seeking guidance on weight loss from numerous sources. Based on the high number of books sold and American Dietetic Association information,^{10,11} diet books are a popular source of guidance. There is potential for the nutrition information in these books to be misleading if the quality of the information is poor. In this study, we demonstrate that the nutrition facts in a popular, heralded diet book authored by a physician are commonly incorrect or still in evolution. It is particularly of interest that the facts regarding the scientific testing and proven effectiveness of the diet and that "people lose 8 to 13 pounds in the first 2 weeks" were not found in peer-reviewed literature and that the facts regarding carbohydrate metabolism and satiety, which are the basis for the diet, were frequently not supported by medical literature.

This study offers only one book as an example and it is not possible to extrapolate the findings to other popular diet books such as the Atkins Diet, the Zone Diet, or Dr. Ornish's Diet. Future work could involve development of a system, such as 1 using a rating scale or Likert scale system, to apply to any diet book.

Completing a full systematic review on each nutrition fact might have strengthened the findings, but we found publications in high-quality journals that gave an indication of the recently reported data using our review method. It would be possible to complete exhaustive reviews, weighting various types of evidence, but we were exploring whether the literature supported each fact, meaning once disagreement was detected, this question of disagreement was answered.

Table 1. Classification and Scientific Support for Nutrition Facts in the South Beach Diet

Peer-reviewed Literature Support Categories					
+, fact supported; +/−, fact supported and not supported; −, fact not supported; 0, no data located					
Facts Asserted	Articles Reviewed	+	−	+/−	0
I. Nutrition and cardiovascular disease					
A. Saturated/trans and polyunsaturated fats					
1. Saturated fat consumption leads to MI. (3)	Hu and Willet ¹⁷ ; Kabagambe et al. ¹⁸	X			
2. Saturated fat consumption leads to CVA. (3)	He et al. ¹⁹			X	
3. Saturated fat causes immediate dysfunction in the arteries. (3)	de Roos et al. ²⁰ ; de Roos ²¹	X			
4. Trans-fats present a greater CV risk than saturated fats. (5)	Mensink et al. ²²			X	
5. Lyon Heart Study showed nonsaturated fat spread decreased recurrent MI. (5)	de Lorgeril et al. ²³	X			
6. Fish oil capsules decrease sudden death. (5)	Di Minno et al. ²⁴ ; Leaf et al. ²⁵	X			
7. Eating fish a few times a week prevents MI. (5)	American Heart Association ¹⁵	X			
8. Eating fish a few times a week prevents CVA. (5)	He et al. ²⁶	X			
9. Egg yolks have a neutral to favorable effect on the balance between good and bad cholesterol. (2)	Kritchevsky and Kritchevsky ²⁷ ; McNamara ²⁸ ; Weggemans et al. ²⁹			X	
B. Micronutrients/phytochemicals/fiber					
1. Several forms of nuts prevent MI. (5)	Albert et al. ³⁰ ; Hu ³¹	X			
2. Several forms of nuts prevent CVA. (5)	American Dietetic Association ³²			X	
3. Resveratrol prevents heart disease. (6)	Kris-Etherton et al. ³³ ; Di Castelnuovo et al. ³⁴			X	
4. Folate prevents heart disease. (6)	Homocysteine Studies Collaboration ³⁵ ; Vermeulen et al. ³⁶			X	
5. Fiber consumption minimizes the cardiovascular danger of dietary fat. (3)	Jenkins et al. ³⁷			X	
II. Nutrition and cancer					
1. Resveratrol prevents cancer. (6)	Kris-Etherton et al. ³³			X	
2. Lycopene prevents cancer. (6)	Fairfield and Fletcher ³⁸			X	
III. Nutrition and metabolism					
A. Carbohydrate metabolism/GI					
1. Much of our excess weight comes from the carbohydrates we eat. (2)	Bravata et al. ¹			X	
2. Insulin resistance clears up on its own with decrease in consumption of “bad” (processed) carbohydrates. (2)	Bouche et al. ³⁹ ; Brand-Miller et al. ⁴⁰ ; Frost et al. ⁴¹ ; Fung et al. ⁴²		*X		X
3. The faster sugars and starches are processed, the fatter you get because of the cycle of high insulin response, low blood glucose, cravings for high GI foods. (6)	Anderson and Woodend ⁴³			*X	X
4. Eating fruit in the morning will trigger cravings for carbohydrates.	Anderson and Woodend ⁴⁴				X
5. Carrots, beets, and watermelon promote weight gain because of a high GI. (7)	Raben ⁴⁵ ; Roberts ⁴⁶		X		
6. The speed with which you eat something affects its GI. (7)	Laboure et al. ⁴⁷		*X		X
7. Fats in low fat foods are replaced with carbohydrates. (2)	USDA Nutrient ⁴⁸	X			
8. Protein, fat, acid, and fiber each slow the absorption of carbohydrates. (6)	Englyst et al. ⁴⁹ ; Jenkins et al. ³⁷			X	
9. Food chopped into small pieces causes a more rapid rise in blood sugar than larger pieces. (6)	Laboure et al. ⁴⁷ ; Behall et al. ⁵⁰			X	
10. Ludwig’s study on carbohydrate content of breakfast and subsequent calorie consumption showed that a lower carbohydrate meal resulted in lower calorie consumption later. (8)	Ludwig et al. ⁵¹	X			
11. White bread and white potatoes increase blood sugar faster than table sugar does. (3)	1. GL7sugar:10bread:18potato	X			
12. Ice cream is less fattening than white bread. (7)	Saris ⁵² ; Blundell and MacDiarmid ⁵³		*X	X	
13. French fries are better than baked potatoes for losing weight. (7)	Saris ⁵²		*X	X	
14. A baked potato is less fattening topped with sour cream or low fat-cheese. (7)	Saris ⁵²		*X	X	
B. General metabolism					
1. The insulin response to beer leads to fat storage in the abdomen. (6)	Bobak et al. ⁵⁴ ; Dallongeville et al. ⁵⁵ ; Janssens et al. ⁵⁶			X	
	Graham et al. ⁵⁷	X			

Table 1 (continued)

Peer-reviewed Literature Support Categories		Articles			
Facts Asserted		Reviewed			
		+	–	+/–	0
2. Caffeine stimulates insulin but does not cause a drop in blood sugar. (7)					
3. Anything that slows digestion prevents weight gain. (6)					
IV. Satiety					
1. Food volume does not matter for weight gain or loss if you eat the right foods. (4)					
2. There is a lag between when your belly fills and when your brain begins to notice it. (10)					
3. Fats and proteins cause satiety more efficiently than carbohydrates. (3)					
4. Numerous studies have shown that low-glycemic foods satisfy your hunger longer and minimize food cravings better. (8)					
V. Diets/data/miscellaneous					
1. There is no evidence that AHA/low fat diets are effective for weight loss. (2)					
2. In several small studies, Dean Ornish demonstrated improved vascular health as a result of his diet. (3)					
3. This program has been scientifically studied. . . and proven effective for both losing weight and keeping a healthy cardiovascular system. (2)					
4. People lose anywhere from 8 to 13 pounds during the first 2 weeks on the South Beach Diet. (12)					
5. More than half of all meals eaten in restaurants are fast food. (9)					

*Categorization changed to starred category based on expert reviewer recommendation and citations.

First chapter where fact located is in parentheses.

MI, myocardial infarction; CVA, cerebrovascular accident; CV, cardiovascular; GI, Glycemic Index; AHA, American Heart Association.

Nutrition experts may not all agree with each categorization, even keeping in mind the authors' caution to include in the literature review only publications available before the publication of the South Beach Diet, but some statements in the book are clearly misleading or incorrect. We considered a fact to be supported if there was debate in the literature, meaning that our findings may actually overestimate the quality of the facts contained in this case study. It is also important to note that we did not imply any findings related to the safety or effectiveness of the South Beach Diet, but looked only at the nutrition facts presented in support of the diet.

Primary care physicians who care for adolescents and adults report feeling unprepared to counsel patients on diet, exercise, and weight loss^{69–72}; yet, because of the substantial morbidity and mortality associated with poor diet, sedentary lifestyle, and obesity, they are called upon to assist patients in designing weight loss strategies, at times even asked their opinions of popular diet books. Assessments such as the one we report here may be helpful to any health practitioner in the position of advising patients on nutrition and weight loss strategies. The findings reported here may also serve to increase public awareness of the difference between peer-reviewed standards and popular publications, and might encourage consumers to scrutinize the facts presented in popular diet books before acting on them. The results of this study may provide material for developing a guideline to diet books for

consumers. This guideline might include brief education about the peer review process and a comparison of hypotheses versus facts, with general red flags and positive aspects of diet recommendations, as well as suggested questions to bring to health professionals.

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REFERENCES

1. Bravata DM, Sanders L, Huang J, et al. Efficacy and safety of low-carbohydrate diets: a systematic review. *JAMA*. 2003;289:1837–50.
2. Stern L, Iqbal N, Seshadri P, et al. The effects of low-carbohydrate versus conventional weight loss diets in severely obese adults: one-year follow-up of a randomized trial. *Ann Intern Med*. 2004;140:778–85.
3. Yancy WS Jr, Olsen MK, Guyton JR, Bakst RP, Westman EC. A low-carbohydrate, ketogenic diet versus a low-fat diet to treat obesity and hyperlipidemia: a randomized, controlled trial. *Ann Intern Med*. 2004;140:769–77.
4. Astrup A, Meinert Larsen T, Harper A. Atkins and other low-carbohydrate diets: hoax or an effective tool for weight loss? *Lancet*. 2004;364:897–9.

5. **Katz DL.** Competing dietary claims for weight loss: finding the forest through the truculent trees. *Annu Rev Public Health.* 2005;26:61–88.
6. **Katz DL.** Pandemic obesity and the contagion of nutritional nonsense. *Public Health Rev.* 2003;31:33–44.
7. **Cheuvront SN.** The Zone Diet Phenomenon: a closer look at the science behind the claims. *J Am Coll Nutr.* 2003;22:9–17.
8. **Berland GK, Elliot MN, Morales LS, et al.** Health information on the Internet: accessibility, quality, and readability in English and Spanish. *JAMA.* 2001;285:2612–21.
9. **Eysenbach G, Powell J, Kuss O, Sa ER.** Empirical studies assessing the quality of health information for consumers on the World Wide Web: a systematic review. *JAMA.* 2002;287:2691–700.
10. New York Times Best Seller Web Page: <http://www.nytimes.com/pages/books/bestseller/>. Accessed May 2004.
11. **Nutrition and You-Trends 2000 Final Report.** American Dietetic Association: <http://www.eatright.org/Public/SearchResults.cfm>. October 1999.
12. **McNamara SH.** So you want to market a food and to make health-related claims—how far can you go? What rules of law will govern the claims you want to make? *Food Drug Law J.* 1998;53:421–36.
13. **Ayoob KT, Duyff RL, Quagliani D.** Position of the American Dietetic Association: food and nutrition misinformation. *J Am Diet Assoc.* 2002;102:260–6.
14. **BMJ Clinical Evidence Literature Searching.** Page: http://www.clinicalevidence.com/ceweb/about/lit_search.jsp. Accessed September 2004.
15. **American Heart Association.** Website: <http://www.americanheart.org>. Accessed September 2004.
16. **American Diabetes Association.** Website: <http://www.diabetes.org/home.jsp>. Accessed September 2004.
17. **Hu FB, Willett WC.** Optimal diets for the prevention of coronary artery disease. *JAMA.* 2002;288:2569–78.
18. **Kabagambe EK, Baylin A, Siles X, Campos H.** Individual saturated fatty acids and nonfatal acute myocardial infarction in Costa Rica. *Eur J Clin Nutr.* 2003;57:1447–57.
19. **He K, Rimm EB, Merchant A, et al.** Fish consumption and risk of stroke in men. *JAMA.* 2002;288:3130–6.
20. **de Roos NM, Siebelink E, Bots ML, van Tol A, Schouten EG, Katan MB.** Trans monounsaturated fatty acids and saturated fatty acids have similar effects on postprandial flow-mediated vasodilation. *Eur J Clin Nutr.* 2002;56:674–9.
21. **deRoos NM.** Fat and arterial function. *Metabolism.* 2002;51:1534–7.
22. **Mensink RP, Zock PL, Kester AD, Katan MB.** Effects of dietary fatty acids and carbohydrates on the ratio of serum total to HDL cholesterol; on serum lipids and apolipoproteins: a meta-analysis of 60 controlled trials. *Am J Clin Nutr.* 2003;77:1146–55.
23. **de Lorgeril M, Salen P, Martin JL, Monjaud I, Delaye J, Marmelle N.** Mediterranean diet, traditional risk factors, and the rate of cardiovascular complications after myocardial infarction: final report of the Lyon Diet Heart Study. *Circulation.* 1999;99:779–85.
24. **Di Minno G, Tufano A, Garodi Minno G, et al.** Polyunsaturated fatty acids, thrombosis and vascular disease. *Pathophysiol Haemost Thromb.* 2002;32:361–4.
25. **Leaf A, Kang JX, Xiao YF, Billman GE.** Clinical prevention of cardiac death by n-3 polyunsaturated acids and mechanism of prevention of arrhythmias by n-3 fish oils. *Circulation.* 2003;107:2646.
26. **He K, Merchant A, Rimm EB, et al.** Dietary fat intake and stroke in male US healthcare professionals: 14 year prospective cohort study. *BMJ.* 2003;327:777–82.
27. **Kritchevsky S, Kritchevsky D.** Egg consumption and CHD: an epidemiologic overview. *J Am Coll Nutr.* 2000;19:S549–S555.
28. **McNamara DJ.** The impact of egg limitations on CHD risk: do the numbers add up? *J Am Coll Nutr.* 2000;19:S540–S548.
29. **Weggemans RM, Zock PL, Katan MB.** Dietary cholesterol from eggs increases the ratio of total cholesterol to high density lipoprotein cholesterol humans; a meta-analysis. *Am J Clin Nutr.* 2002;75:33–5.
30. **Albert CM, Gaziano JM, Willett WC, Manson JE.** Nut consumption and decreased risk of sudden cardiac death in physicians health study. *Arch Intern Med.* 2002;162:1382.
31. **Hu FB.** Plant based foods and prevention of CVD: an overview. *Am J Clin Nutr.* 2003;78:S544–S551.
32. **American Dietetic Association.** Website. Available at: <http://www.eatright.org>. Accessed February 2005.
33. **Kris-Etherton PM, Hecker KD, Bonanome A, et al.** Bioactive compounds in foods: their role in the prevention of cardiovascular disease and cancer. *Am J Med.* 2002;113(Suppl 9B):71S–88S.
34. **Di Castelnuovo A, Rotondo S, Iacoviello L, Donati MB, De Gaetano G.** Meta-analysis of wine and beer consumption in relation to vascular risk. *Circulation.* 2002;105:2836–44.
35. **Homocysteine Studies Collaboration.** Homocysteine and risk of ischemic heart disease and stroke: a meta-analysis. *JAMA.* 2002;288:2015–22.
36. **Vermeulen EG, Stehouwer CD, Valk J, et al.** Effect of homocysteine-lowering treatment with folic acid plus vitamin B6 on progression of subclinical atherosclerosis: a randomised, placebo-controlled trial. *Lancet.* 2000;355:517–22.
37. **Jenkins DJ, Kendall CW, Augustin LS, Vuksan V.** High-complex carbohydrate or lente carbohydrate foods? *Am J Med.* 2002;113(Suppl 9B):30S–7S.
38. **Fairfield KM, Fletcher RH.** Vitamins for chronic disease prevention in adults: clinical applications. *JAMA.* 2002;287:3127–9.
39. **Bouche C, Rizkalla SW, Luo J, et al.** Five-week, low-glycemic index diet decreases total fat mass and improves plasma lipid profile in moderately overweight nondiabetic men. *Diabetes Care.* 2002;25:822–8.
40. **Brand-Miller JC, Petocz P, Colagiuri S.** Meta-analysis of low-glycemic index diets in the management of diabetes: response to Franz. *Diabetes Care.* 2003;26:3363–4.
41. **Frost G, Keogh B, Smith D, Akinsanya K, Leeds A.** The effect of low-glycemic carbohydrate on insulin and glucose response in vivo and in vitro in patients with coronary heart disease. *Metabolism.* 1996;45:669–72.
42. **Fung TT, Hu FB, Pereira MA, et al.** Whole-grain intake and the risk of type 2 diabetes: a prospective study in men. *Am J Clin Nutr.* 2002;76:535–40.
43. **Anderson GH, Woodend D.** Effect of glycemic carbohydrates on short-term satiety and food intake. *Nutr Rev.* 2003;61(5 Part 2):S17–S26.
44. **Anderson GH, Woodend D.** Consumption of sugars and the regulation of short-term satiety and food intake. *Am J Clin Nutr.* 2003;78:843S–9S.
45. **Raben A.** Should obese patients be counseled to follow a low carbohydrate diet? *No Obes Rev.* 2002;3:245–56.
46. **Roberts SB.** High-glycemic index foods, hunger, and obesity: is there a connection? *Nutr Rev.* 2000;58:163–9.
47. **Laboure H, Van Wymelbeke V, Fantino M, Nicolaidis S.** Behavioral, plasma, and calorimetric changes related to food texture modification in men. *Am J Physiol Regul Integr Comp Physiol.* 2002;282:R1501–R1511.
48. **USDA Nutrient.** Database. Available at: <http://www.nal.usda.gov/fnic/foodcomp/search/>. Accessed September 2005.
49. **Englyst KN, Vinoy S, Englyst HN, Lang V.** Glycaemic index of cereal products explained by their content of rapidly and slowly available glucose. *Br J Nutr.* 2003;89:329–40.
50. **Behall KM, Scholfield DJ, Hallfrisch J.** The effect of particle size of whole-grain flour on plasma glucose, insulin, glucagon and thyroid-stimulating hormone in humans. *J Am Coll Nutr.* 1999;6:591–7.
51. **Ludwig DS, Majzoub JA, Al-Zahrani A, Dallal GE, Blanco I, Roberts SB.** High glycemic index foods, overeating and obesity. *Pediatrics.* 1999;103:p656.
52. **Saris WHM.** Sugars, energy, metabolism and weight control. *Am J Clin Nutr.* 2003;78:850S–7S.
53. **Blundell JE, MacDiarmid JI.** Fat as a risk factor for overconsumption: satiety, satiety and patterns of eating. *J Am Diet Assoc.* 1997;97(7 Suppl):S63–S69.
54. **Bobak M, Skodova Z, Marmot M.** Beer and obesity: a cross-sectional study. *Eur J Clin Nutr.* 2003;57:1250–3.
55. **Dallongeville J, Marecaux N, Ducimetiere P, et al.** Influence of alcohol consumption and various beverages on waist girth and waist-to-hip ratio in a sample of French men and women. *Int J Obes Relat Metab Disord.* 1998;22:1178–83.
56. **Janssens JP, Shapira N, Debeuf P, et al.** Effects of soft drink and table beer consumption on insulin response in normal teenagers and carbohydrate drink in youngsters. *Eur J Cancer Prev.* 1999;8:289–95.
57. **Graham TE, Sathasivam P, Rowland M, Marko N, Greer F, Battram D.** Caffeine ingestion elevates plasma insulin response in humans during an oral glucose tolerance test. *Can J Physiol Pharmacol.* 2001;79:559–65.
58. **Liu S, Willett WC, Manson JE, Hu FB, Rosner B, Colditz G.** Relation between changes in intakes of dietary fiber and grain products and

- changes in weight and development of obesity among middle-aged women. *Am J Clin Nutr*. 2003;78:920-7.
59. **Bell EA, Roe LS, Rolls BJ.** Sensory-specific satiety is affected more by volume than by energy content of a liquid food. *Physiol Behav*. 2003;78:593-600.
60. **Rolls BJ.** The role of energy density in the overconsumption of fat. *J Nutr*. 2000;130(2S Suppl):268S-71S.
61. **Ludwig DS.** Dietary glycemic index and obesity. *J Nutr*. 2000;130(2S Suppl):280S-3S.
62. **National Institute of Diabetes and Digestive and Kidney Diseases.** Website. Available at: <http://www.niddk.nih.gov/>. Accessed September 2005.
63. **Leser MS, Yanovski SZ, Yanovski JA.** A low-fat intake and greater activity level are associated with lower weight regain 3 years after completing a very-low-calorie diet. *J Am Diet Assoc*. 2002;102:1252.
64. **Willett WC, Leibel RL.** Dietary fat is not a major determinant of body fat. *Am J Med*. 2002;113(Suppl 9B):47S-59S.
65. **Ornish D.** Avoiding revascularization with lifestyle changes: the Multicenter Lifestyle Demonstration Project. *Am J Cardiol*. 1998;82:72T-6T.
66. **National Restaurant Association.** Available at: <http://www.restaurant.org/>. Accessed September 2005.
67. **Hedley AA, Ogden CL, Johnson CL, Carroll MD, Curtin LR, Flegal KM.** Prevalence of overweight and obesity among US children, adolescents, and adults, 1999-2002. *JAMA*. 2004;291:2847-50.
68. **Troiano RP, Flegal KM.** Overweight children and adolescents: description, epidemiology, and demographics. *Pediatrics*. 1998;101(3 Part 2):497-504.
69. **Must A, Spadano J, Coakley EH, Field AE, Colditz G, Dietz WH.** The disease burden associated with overweight and obesity. *JAMA*. 1999;282:1523-9.
70. **Story MT, Neumark-Stzainer DR, Sherwood NE, et al.** Management of child and adolescent obesity: attitudes, barriers, skills, and training needs among health care professionals. *Pediatrics*. 2002;110(1 Part 2):210-4.
71. **Perrin EM, Flower KB, Garrett J, Ammerman AS.** Preventing and treating obesity: pediatricians' self-efficacy, barriers, resources, and advocacy. *Ambul Pediatr*. 2005;5:150-6.
72. **Huang J, Yu H, Marin E, Brock S, Carden D, Davis T.** Physicians' weight loss counseling in two public hospital primary care clinics. *Acad Med*. 2004;79:156-61.