

Food for thought ... and health

Making a case for plant-based nutrition

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Family physicians and their patients know that our Canadian health care system is struggling. Cancers, lifestyle diseases—obesity, diabetes, atherosclerosis—and all their complicating health issues are filling clinics, hospitals, and chronic care facilities. Expensive medicines and interventions are being devised and used to treat and ameliorate these problems in a reactive rather than proactive way—adding to the expense and wait-time spiral. How much does angioplasty or cardiac bypass surgery cost? Chemotherapy? Stomach stapling? How many of your patients are taking statins? Angiotensin-converting enzyme inhibitors? Calcium channel blockers or β -blockers? Oral hypoglycemics?

Another way

There is an easier, less expensive route to better health. Epidemiologic research has demonstrated solid evidence linking the prototypical North American diet—high in refined sugar, animal fat, and animal protein—to obesity, diabetes, cardiovascular disease, high cholesterol, hypertension, cholelithiasis, Alzheimer disease, and the development of some cancers.¹ An opposite association occurs with vegetarian and vegan diets. This strongly suggests that acceptance and promotion of plant-based nutrition can substantially reduce many of our current health care concerns and costs. Simply put, a whole plant-based diet is healthier.^{2,3}

Over the past 30 to 40 years, as traditionally low-risk Asian, Middle Eastern, and African countries abandoned their mainly plant-source diets and adopted our Western refined sugar and animal-based nutrition, these cultures have experienced rapidly rising rates of lifestyle diseases.⁴ Obesity is now an epidemic worldwide (Table 1).⁵ Pediatric obesity, with its increased risks of hypertension (3 times higher), abnormal lipid profiles, and type 2 diabetes, often tracks through to adulthood as gross obesity, coronary artery disease, and early mortality.⁶

The average Canadian consumes 23.5 kg of poultry, 38.8 kg of red meat, 16.8 dozen eggs, and 8.6 kg of fish per year.⁷ In addition to lifestyle diseases, this ongoing degree of meat consumption might also be associated with increased risk of renal, colorectal, and breast cancers; Alzheimer disease; and age-related macular degeneration.¹⁻³

The average Canadian also ingests almost 60 L of milk each year.⁷ This cow's milk contains a substantial quantity of bovine estrogens, sufficient to cause measurable hormonal changes in adults and children following ingestion.⁸ Some researchers question a causal or contributory role for these estrogens in prostate cancer, testicular cancer, breast cancer, and the declining worldwide age at which menarche is occurring. Cultures ingesting diets low in animal fat and protein have much lower prevalences of all these conditions.¹

A vegetarian or vegan diet lowers cholesterol and confers at least 25% lower mortality from ischemic heart disease.³ It can even result in regression of coronary artery plaques.³ In addition, irrespective of age, sex, and

Table 1. Proportions of the population who are overweight or obese in various countries

COUNTRY	OVERWEIGHT (BMI >25.0 KG/M ²), % OF POPULATION	OBESE (BMI >30.0 KG/M ²), % OF POPULATION
Canada		
• Adult (2004)	59	23
• Pediatric (2004)	26	8
United States		
• Adult (2003)	66	32
• Pediatric (2003)	29	13
United Kingdom		
• Adult (2002)	61	23
• Pediatric (2002)	30	16
Saudi Arabia		
• Adult (1999-2000)	73	
Zimbabwe		
• Adult (2005)	37	16
Chile		
• Adult (2003)	60	22
Germany		
• Adult (2003)	49	13
Hungary		
• Adult (2003-2004)	53	18
Brazil		
• Adult (2002-2003)	41	11

BMI—body mass index.
Data from Low et al.⁵

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geography, vegetarians are leaner than omnivores and have a lower prevalence (less than 6%) of obesity.² They are also about half as likely to develop diabetes as non-vegetarians. In patients with established type 1 and type 2 diabetes, institution of a plant-based diet consistently results in improved glycemic control, even for those with insulin resistance. Investigators have also reported regression of diabetic neuropathy, and substantial and sustained improvement in microalbuminuria with such dietary change.³

Children following a plant-based diet maintain excellent health and grow normally compared with omnivore cohorts. They tend to be leaner with lower relative body weights and skinfold thickness while maintaining normal cardiorespiratory fitness and physical maturation. Similarly, studies show that adult vegetarians in affluent countries have unusually good health and longevity. Studies have demonstrated quite impressively that vegetarian or vegan diets positively influence and possibly prevent development of obesity, some cancers, ischemic heart disease, hypercholesterolemia, hypertension, dementia, diverticular disease, and even gallstones.¹⁻³

While vegans (and to a smaller degree vegetarians) ingest less calcium and protein than omnivores, the higher intake of vegetable-source protein is excellent for bone health and protective against osteoporosis when adequate calcium and vitamin D sources are assured. Conversely, laboratory research suggests that the concentrated animal protein in meat and cow's milk actually *contributes* to osteoporosis by inducing renal loss of calcium. Various studies show increased risk of hip and wrist fractures in older women with higher milk intake.⁹

Addressing limitations

Vegetarian and vegan diets are not panaceas. There are nutritional risks if one does not achieve the recommended variety in daily food choices. This can result in excess refined sugar and calories, or in micronutrient deficiencies. Education (**Box 1**) combined with judicious supplementation with minerals and vitamins, especially for vegans, will prevent such problems.^{2,3}

Opinions regarding the risks and benefits of dietary choice—omnivore, vegetarian, and vegan—can at times be polarized, with contradictory evidence cited.^{10,11} Indeed, there are many researchers and health

organizations who disagree that meat and milk consumption cause substantial health risks.^{12,13} However, regardless of your take on the research, a slow shift away from red meat, processed meats, and refined sugar is occurring, and a number of very steady organizations—the American Dietetic Association, the Physicians Committee for Responsible Medicine, and even the Heart and Stroke Foundation—are supporting these moves.

According to the American Dietetic Association, “appropriately planned vegetarian diets, including total vegetarian or vegan diets, are healthful, nutritionally adequate and may provide health benefits in the prevention and treatment of certain diseases.”²

Making change

Lifestyle diseases and cancers are too widespread and serious to tolerate complacency and “same old” practices. The public's perception of the “best” diet requires education, with plant food-based lifestyles and avoidance of refined sugar given emphasis. In both the medical and political realms, new policy statements that reflect the proactive nature of such a paradigm shift need to be devised.

Education. It is important that medical schools and residency programs provide nutritional teaching to ensure that physicians have up-to-date, unbiased dietary information to share with their patients.

Access. Access to reliable nutritional advice needs to be streamlined for the general population. Referrals to private nutritionists or dietitians, rather than hospital-based programs, would increase access if costs could be covered by provincial health insurance. Education and counseling are key components of the promotion of change.

Dissemination. Medical journals must recognize the potential that dietary change has to influence disease. Articles that critically and fairly address the benefits and drawbacks of omnivorous, vegetarian, and vegan diets are needed. In researching this topic, very few papers expounding the benefits of a plant-based diet could be found in any of the popular national medical journals.

Recommendations

You can contribute to the shift toward healthier dietary choices.


- Become proactive within your practice. Dietary change has far-reaching public health implications. Engage and encourage families and teens who are contemplating or practising vegetarianism or veganism. Help them learn more about the necessary supplements.
- Recommend a vegetarian or vegan diet to your patients with heart disease, diabetes, hypercholesterolemia, or

Box 1. Vegetarian and vegan resources

The Vegetarian Resource Group: www.vrg.org
The Vegan Society: www.vegansociety.com
Vegan Health: www.veganhealth.org
Toronto Vegetarian Association: www.veg.ca
PETA's Vegetarian/Vegan Starter Kit: www.goveg.com
Physicians Committee for Responsible Medicine: www.pcrm.org/health/index.html

obesity. Discuss similar dietary changes with families of children who are obese or who have diabetes.

- Educate your own taste buds. Reducing or eliminating animal products from your own diet need not require any sacrifice in flavour, palatability, or variety. Visit vegan or vegetarian websites for recipes and try vegan or vegetarian selections in restaurants. If such selections are not offered, ask why.
- Educate yourself. Dairy and meat industries have far-reaching effects. The Food and Agricultural Organization of the United Nations has expressed concern about the contribution of factory farming (cows, pigs, and fowl) to such disparate issues as global warming, land and water pollution, clearcutting of boreal forests, water shortages, and more.¹⁴

Rather than just continuing to expand the early-detection, early-intervention model of health care that we now use, a switch in emphasis to a preventive modus operandi—actual promotion of a health-protecting diet—is now justifiable. Shifting dietary emphasis from animal- to plant-based nutrition combined with a reduction in refined sugar intake has the potential to exact wide-reaching public health benefits. Less obesity, less ischemic heart disease, less cancer, less diabetes, less Alzheimer disease ... Food for thought, eh? 

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Competing interests

None declared

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References

1. Campbell TC, Campbell TM. *The China Study*. Dallas, TX: Binbala Books; 2006.
2. Craig WJ, Mangels AR; American Dietetic Association. Position of the American Dietetic Association: vegetarian diets. *J Am Diet Assoc* 2009;109(7):1266-82.
3. Segasothy M, Phillips PA. Vegetarian diet: panacea for modern lifestyle diseases? *QJM* 1999;92(9):531-44.
4. Lee Y, Lee C, Kwon T. *Future of foods: harmonization of Eastern and Western food systems*. Oakville, ON: International Union of Food Science and Technology, Institute of Food Technologists; 2009. Available from: www.worldfoodscience.org/cms/?pid=1000947. Accessed 2012 Jan 18.
5. Low S, Chin M, Deurenberg-Yap M. Review on epidemic of obesity. *Ann Acad Med Singapore* 2009;38(1):57-9.
6. Bridger T. Childhood obesity and cardiovascular disease. *Paediatr Child Health* 2009;14(3):177-82.
7. Statistics Canada. *Food available for consumption in Canada*. Ottawa, ON: Statistics Canada; 2011. Available from: www5.statcan.gc.ca/cansim/a0519lang=eng&id=0020019. Accessed 2012 Jan 18.
8. Maruyama K, Oshima T, Ohyama K. Exposure to exogenous estrogen through intake of commercial milk produced from pregnant cows. *Pediatr Int* 2010;52(1):33-8. Epub 2009 May 22.
9. Weikert C, Walter D, Hoffmann K, Kroke A, Bergmann MM, Boeing H. The relationship between dietary protein, calcium and bone health in women: results from the EPIC-Potsdam cohort. *Ann Nutr Metab* 2005;49(5):312-8.
10. Minger D. *The China Study: fact or fallacy?* Portland, OR: Raw Food SOS [blog]; 2010. Available from: <http://rawfoodsos.com/2010/07/07/the-china-study-fact-or-fallac/>. Accessed 2012 Jan 18.
11. Masterjohn C. *The truth about the China Study*. Storrs, CT: Cholesterol-And-Health.com [website]; 2008. Available from: www.cholesterol-and-health.com/China-Study.html. Accessed 2012 Jan 18.
12. Health Canada. *Canada's food guide. Meat and alternatives*. Ottawa, ON: Health Canada; 2008. Available from: www.hc-sc.gc.ca/fn-an/food-guide-aliment/choose-choix/meat-viande/index-eng.php. Accessed 2012 Jan 18.
13. Wyness L, Weichselbaum E, O'Connor A, Williams EB, Benelam B, Riley H, et al. Red meat in the diet: an update. British Nutrition Foundation. *Nutr Bull* 2011;36(1):34-77.
14. Seinfeld H, Gerber P, Wassenaar T, Castel V, Rosales M, de Haan C. *Livestock's long shadow: environmental issues and options*. Rome, Italy: Food and Agriculture Organization of the United Nations; 2006. Available from: <ftp://ftp.fao.org/docrep/fao/010/a0701e/a0701e00.pdf>. Accessed 2011 Oct 1.

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