Value-added nutrition

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At its most basic level, the content of physician-patient interactions can be broken down into disease-specific and health maintenance information. Clinicians, by virtue of training focusing on diagnostics and therapeutics, are experts in the care of the sick, but arguably weak in the care of the healthy. Health maintenance, or preventive care, has typically been regarded as the domain of public health and a patient responsibility. Nonetheless, patients expect physicians, as curators of life, to excel in both. A cornerstone of health maintenance is diet. With certain disease conditions excluded, notably diabetes, the bulk of dietary advice revolves around caloric reduction for the purposes of weight loss and a tacit reference to Canada's food guide.

Industry has effectively exploited this gap by targeting a host of products with purported benefits beyond the conventional item in the form of value-added foods. So-called nutraceuticals, a derivation of the terms 'nutrition' and 'pharmaceuticals', are foods that claim to have added benefits to human health. Such products, also known as functional foods, are to be distinguished from organic products, fortified products, genetically modified products and supplements. Milk high in fibre, orange juice with calcium and bread enriched with omega-3 fatty acids are examples of nutraceuticals. Indeed, these are some relatively mundane manipulations. More exotic examples include oil extracted from Antarctic krill, read 'whale food', for the purposes of treating arthritis and dyslipidemia. A trip to the local grocery store will demonstrate the prolific nature of these products. Estimates of global consumption of nutraceuticals range from \$70 to \$250 billion annually. Canada makes up 3% of this market. Furthermore, the nutraceutical industry is growing at a rate of 7% to 10%, whereas the conventional food industry is growing at 2% to 3% annually.

Regardless of personal sentiments on these products – be they innovation or misrepresentation – it is this very proliferation that forces physicians to take notice, because all patients are consumers and many consumers will at some time become patients. However, it is difficult to restrain the inner skeptic when one learns of these products in the financial pages of a newspaper rather than in reputable medical journals. From a medical perspective, many questions remain. For example, what is the influence of nutraceuticals on conventional pharmaceuticals? Are pharmacokinetic and pharmacodynamic properties altered? This is particularly important for medications with a narrow therapeutic window such as digoxin and warfarin. Also, what of the importance of concomitant nutrients? For example, a woman who curtails milk intake in favour of

calcium-enriched orange juice may actually increase her risk of fracture by virtue of a reduction in vitamin D intake. Indeed, marketing efforts to date have stressed the importance of calcium in bone health with little attention paid to vitamin D, making this scenario eminently plausible.

Central to the proliferation of functional foods is the health claims made on food labels. This is a highly controversial area, and it is not surprising that countries in the developed world have different regulations. In fact, not only can the wording of the claim vary, but also the number of claims per product and the strength of the science behind the claim. Canada is the most restrictive, at five claims allowed per product. The United States will allow up to 18 different claims (and soon up to 30), whereas Japan will soon allow 400. Loopholes can also be exploited by the industry to give a false impression of the health benefits of foods. For example, in 1999, Kellogg's functional foods division introduced a line of 21 items known as Ensemble in the United States. These items included cereals, frozen entrees, baked snacks and cookies. The foods contained psyllium husk and whole oats, which are known to lower cholesterol. Packaging for the items stated, "Great tasting food made with a natural soluble fibre that actively works to promote heart health". However, the overall fat and caloric items of some of these items made them anything but heart healthy. This so-called structure/function claim is one loophole that allows manufacturers to make a claim based on a few ingredients rather than the whole food item. Fortunately, the Ensemble line was eliminated soon after it was introduced due to poor sales.

If nutraceuticals were to be held to the same level of scientific rigour and scrutiny as pharmaceuticals, many, if not most, would be doomed to fail. Critics of the scientific purist raise economic arguments. While much of the developed world, including the United States, Japan and the European Union, are moving to a less restrictive environment in labelling, Canada maintains its oppressive and stifling regulations. In fact, some countries have a fast-tracking system of approval for novel nutraceuticals such as the GRAS (generally recognized as safe) system in the United States. Industry has long argued that, at the very least, most functional foods do no harm to the vast majority of the population, and the international competitive equality gained by Canadian companies justifies a more liberal regulatory environment. The industry is not composed of just private companies. Partnerships have been established between private companies and major Canadian universities, as well as the Canadian Institutes of Health Research, all to find the next form of bottled water.

Selected sites on nutraceuticals

1. Wikipedia
<en.wikipedia.org/wiki/Nutraceutical> 2. Sibbald B. Health Canada leery as US "nutraceutical" movement prepares to move north. CMAJ 1999;161:742. 3. Agriculture and Agri-food Canada
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<www.neptunebiotech.com> 6. Center for Science in the Public Interest
<www.cspinet.org/reports/functional_foods> 7. Helium
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For comments or to suggest a Web site for discussion in a future column, write to pgmalik@hotmail.com