

# Report from:

THE NINTH ANNUAL HEALTH AND NUTRITION SYMPOSIUM

THIS IS A REPORT ON  
A SYMPOSIUM THAT WAS  
HELD ON OCTOBER 5-8, 2009,  
IN EDMONTON, TORONTO,  
MONTREAL AND MONCTON.

## The plate and beyond New perspectives on food and nutrition



For the ninth consecutive year, Dairy Farmers of Canada invited a panel of respected researchers and nutrition experts to present the latest information related to nutrition practice and education at a series of meetings across Canada. The meetings, which were held in October in Edmonton, Toronto, Montreal and Moncton, drew hundreds of participants from the field of nutrition and related disciplines. Presenting thought-provoking data and ideas, the speakers delved into topics such as defining healthy food, the role of whole foods in the prevention of chronic disease, the importance of family meals, and the impact of technology on nutrition practice.

### FOOD FOR THOUGHT



**Leslie Beck, RD**  
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There is no question that Canadians' eating and lifestyle habits are changing. Just a generation ago, families regularly ate dinner together, dining out was a rare treat, children walked to school (after having breakfast), and "screen time" was limited to a bit of television in the evening. Today, these behaviours are often the exception, not the norm.

One positive change is that Canadians are now more knowledgeable about nutrition than ever. But, as this chart shows, although people know more about healthy eating, they are failing to apply that knowledge to daily living. As a result, more than half of all Canadians now carry excess weight.

*This meeting coverage from Dairy Farmers of Canada Symposium is printed as a service to health professionals. For more information on this Symposium, please see [dairynutrition.ca](http://dairynutrition.ca).*

**FIGURE 1** Tracking nutrition trends: More knowledge but less success

- 8 out of 10 Canadians consider themselves very or somewhat knowledgeable about nutrition.
- 50% of Canadians consider nutrition to be very important when deciding what to eat.
- 57% of Canadians read food labels.
- 6 out of 10 Canadians made an effort in the past year to adopt a healthier diet—in particular, eating more fibre, more fruits and vegetables, less sugar, less salt and fewer calories.
- 50% of adults and 70% of children age 5 to 9 do not eat the recommended daily minimum of 5 servings of fruit and vegetables.
- Only one third of children age 5 to 9 consume the recommended daily minimum of two servings of milk products. This trend worsens with age: 61% of boys and 83% of girls age 10 to 16, and more than 75% of seniors over age 71, do not consume enough milk products.
- 40% of Canadians skip breakfast at least once a week.
- 17% of Canadian adults are obese (up from 15% in 2003).
- One quarter of Canadian children are overweight or obese.

## FOOD BEYOND NUTRIENTS IN PREVENTION OF CHRONIC DISEASE



**G. Harvey Anderson, PhD**  
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The nutritional quality and health benefits of food are the subjects of an enormous amount of research. While we have come a long way in understanding how our diets can help promote good health, it is clear that nutrient-based food guidance systems, such as Canada's Food Guide, are inadequate for chronic disease prevention. If we look at food beyond its nutrients, we may be able to reduce healthcare costs.

Many people attribute the cause of chronic disease to the Western diet (i.e., high fat, high sugar, and nutrient poor). Some think the solution is the Mediterranean food pattern—which emphasizes fruits, vegetables, grains, fish, seafood and olive oil—as it is thought to reduce the incidence of cardiovascular disease (CVD). But a closer examination of CVD death rates shows that Canada ranks sixth lowest out of 36 countries. In fact, CVD death rates are lower in Canada than in Mediterranean countries such as Italy and Greece.

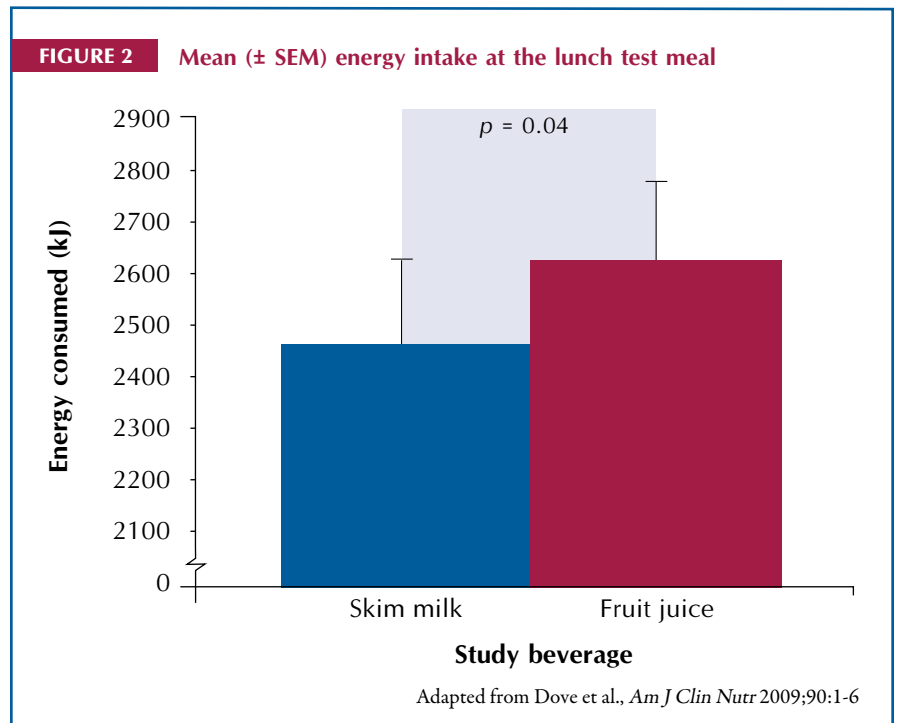
Rather than importing food and eating patterns from other countries we should be looking closer to home for solutions; in particular, we should be developing and marketing the Canadian Climate Advantage diet. From shore to shore, we have wonderful foods that can promote good health. One of this country's greatest advantage is winter; the annual freeze means that there are fewer pests to control, fewer pesticides used on our food and less soil depletion.

There are a number of developments that take advantage of the Canadian climate. Canola oil, for example, which was developed in Manitoba and Saskatchewan in the 1960s and 70s, is a healthy oil, balanced in fatty acids, and healthier than olive oil.

Potatoes are a low-cost, nutrient-dense vegetable that is very high in dietary fiber. Canadian researchers were responsible for the development of the very popular yellow-fleshed Yukon Gold potato and are continuing to study the health benefits of this often misunderstood vegetable.

Flax is another great Canadian food from the Prairies. It contains omega-3 fatty acid, soluble and insoluble fiber and lignans (compounds protective against certain kinds of cancer). Also from the Prairies, pulses (lentils, beans, peas and chickpeas) are considered by some to be the ideal food for satiety, weight management and blood glucose control. They are low calorie, low GI, high fiber, high protein and nutrient rich. A recent study found that individuals who ate one serving of pulse daily for two months lost weight and improved their blood lipid levels.

Another great whole food from Canada is milk. Unfortunately, negative messaging about calories and saturated fat has led to a significant decline in milk consumption over recent years. Contrary to this perception, research now indicates that there is an inverse relationship between body weight and milk consumption. One study, for example, found that the more servings of cereal that children eat per week, the less prevalence of overweight, suggesting that lower obesity rates can be attributed to milk consumed with the cereal. Another recent study



(Dove et al. *Am J Clin Nutr* 2009;90:1-6), which compared a toast-and-jam breakfast with milk versus one with fruit juice (total 500 calories; 21 grams protein provided by skim milk) in overweight subjects, found that milk drinkers consumed fewer calories at lunch (see Figure 2).

Additionally, it was recently reported that supplementing dairy products into obese adults' calorie-reduced weight loss diets enhances weight loss, and this effect is more effective than an equivalent amount of supplemental calcium. It was therefore concluded that there must be several components in dairy products, including calcium, contributing to this inverse relationship between dairy products and weight loss.

Another study looked at the effect of milk protein (whey) on food intake and metabolic control. Researchers found that as little as 10 grams of pre-meal whey markedly reduced blood glucose in healthy adults. As well, whey protein

consumed before a carbohydrate meal stimulates insulin and incretin hormone secretion, slows gastric emptying and reduces postprandial glycemia in type 2 diabetes.

There are many other aspects of milk functionality that go beyond nutrients. Among its properties, milk is:

- Antimicrobial—including control of gut microflora
- Antiviral
- Anticancer
- Immunomodulation
- Antioxidation
- Bone protective
- Appetite suppressant
- Anti-hypertensive

The Canadian food supply, combined with our healthcare system, has served us well. We need to continue to put more research into understanding the health benefits of Canadian food beyond their nutrients and to communicate those benefits to the public.

## USE OF TECHNOLOGY IN PRACTICE: Are we ready to let our kids teach us?



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At the dawn of the 21st century, the rapid evolution of the Internet and mobile telecommunication devices is giving humans the speed and efficiency they need to connect with each other, to learn from each other and to transmit and disseminate knowledge across the world. This technological renaissance could transform nutrition practice and education, but we need to understand how today's generation uses online tools. Take, for example, mobile telephones and email. Cell phones are used most often by young people for gaming, listening to music, texting and surfing the Internet, yet many healthcare professionals are still trying to learn how to use them to make

simple calls. Email, which is a primary means of communication for many of us, is already old hat for young people. Online social networking sites, such as Facebook, MySpace, YouTube and Twitter, are reshaping how we communicate, learn and live.

We, as healthcare professionals, do not use the same technology in the same way as our clients, how are we going to teach this generation how to eat well? Perhaps we need to let this generation teach us and let them work with us as partners. Here are a few lessons we should learn from them.

**LESSON 1** There are no experts anymore.

If you Google "dairy", 46 million sites will appear in less than one second. People have literally instant access to unlimited information, some of it accurate, some of it not.

**LESSON 2** We are really boring.

When reading and writing for medical journals, healthcare professionals are

using structures designed more than 100 years ago. In order to convey our messages, we have to be creative and combine education with entertainment ("edutainment").

**LESSON 3** We gain by playing together.

Consider that Facebook now has more than 300 million users, equivalent to the fourth largest country in the world. That is a tremendously powerful resource, worth millions of dollars in infrastructure, offered without charge.

**LESSON 4** Today's generation lives "glocal" lives.

The Internet has no boundaries; borders, geography, institutions, education are all invisible online.

Consider that a mobile web device can now offer consumers grocery lists, nutritional information and recipe books in the palm of their hand. If dietitians do not take these lessons and learn to innovate

and work in a meaningful way with today's young people, they will become obsolete. Our children are ready to embrace new technology; the question is, are we ready?



## DEFINING HEALTHY FOOD: Using science to create healthier diets



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*The Nutrient-Rich Foods Index does not delineate “good” foods from “bad.” Rather, the index represents a continuum, offering consumers plenty of good choices to be made within and among the food groups.*

The North American diet is energy rich but nutrient poor. Skyrocketing rates of obesity can be associated with this unfavourable ratio of calories to nutrients.

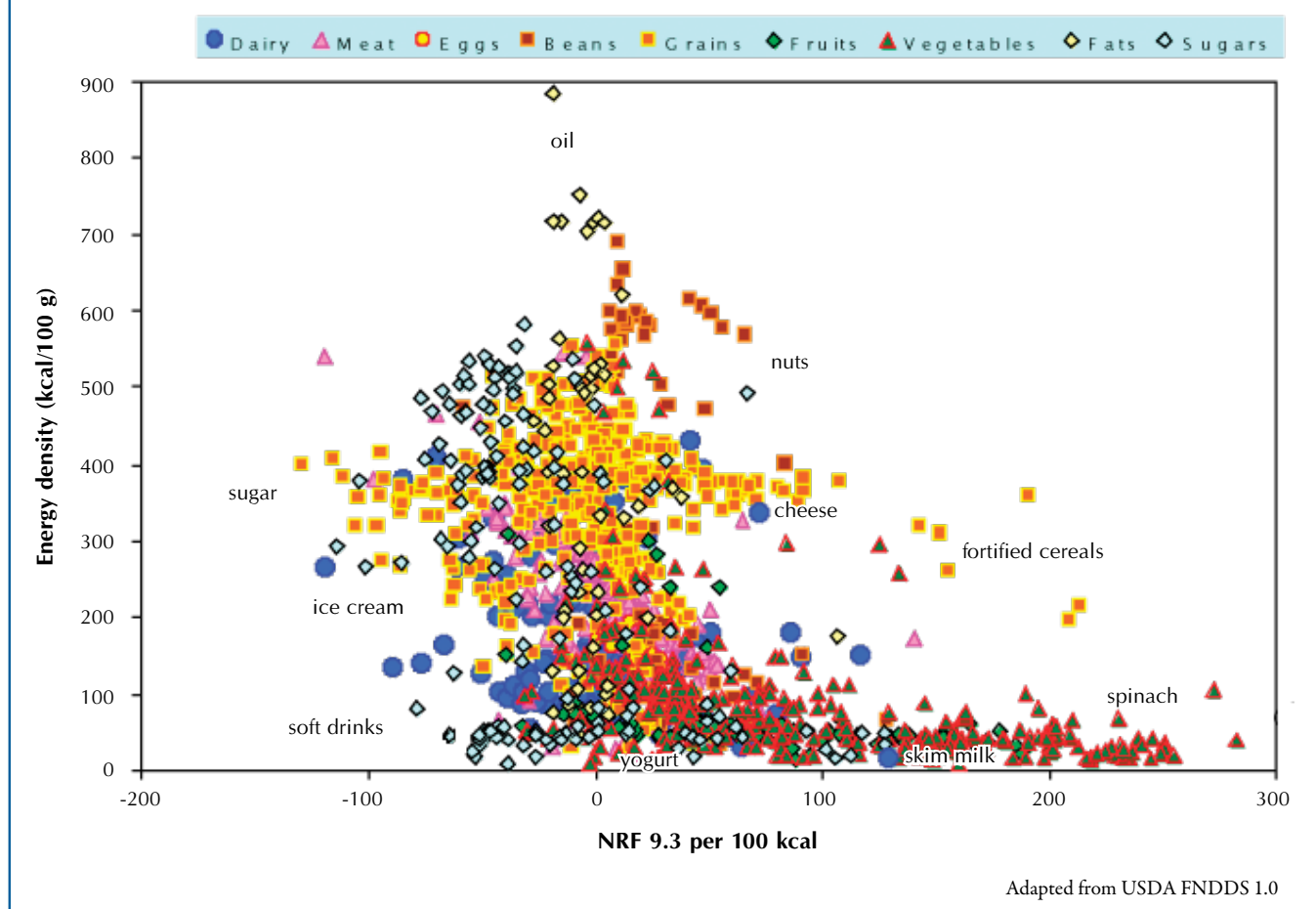
Consumers need to spend less time counting calories and instead **focus on making sure that every calorie counts.** The development of the Nutrient-Rich Foods (NRF) Index aims to enable people to build and enjoy healthier diets by getting the most nutrition from their calories. This science-based, consumer-driven system of food guidance was born from the 2005 Dietary Guidelines for Americans, which identified nutrient density as a key concept in diet quality. The NRF Index uses the science of ranking or classifying foods based on their nutrient composition. Each food is assigned a unitary score that best reflects its total nutrient quality.

The goal in nutrient profiling is to provide “nutrition at a glance.” Current nutrition facts panels are too complicated for average consumers, who often feel like they need a calculator to determine whether a particular food offers optimal amounts of calories, total fat, saturated fat, sodium, etc.

The other problem with nutrient facts panels is that they create an environment of fear by stressing the avoidance of “bad” nutrients (an approach known as “nutrients to limit” or LIM). A far better approach to nutrition is to provide more positive messages that encourage consumers to choose good and better foods.

Because this nutrient profiling system is science driven, it follows science-driven rules. The NRF system is

**FIGURE 5** Nutrient density (NRF) and energy density (kcal/100 g)



objective, based on accepted nutrition science and labeling practices. It is simple, based on published daily values, algorithms and open-source data (much of which is available online through the USDA and Health Canada). The NRF system is balanced, capturing both nutrients to encourage and nutrients to limit. Validation is also extremely important, and the NRF has been tested against the USDA’s Healthy Eating Index. Most importantly, this system is designed to be consumer friendly, accessible and easy to understand, guiding people to make better food choices.

The choice of nutrients to encourage was based on the U.S. 2005 Dietary Guidelines, which identified “nutrients of concern,” i.e., those nutrients that are not consumed in recommended amounts in the American diet. A variety of nutrient profiling models, which were based on a range of 5 to 23 nutrients to encourage, were reviewed, tested and evaluated (see Figure 4). The final nine nutrients included in the NRF 9.3 index are: protein, fiber, vitamins A, C and E, calcium, iron, potassium and magnesium. The choice of nutrients to limit was similarly guided by the U.S. Dietary Guidelines and

includes: saturated fat, added sugars and sodium.

Nutrient density can be based on 100 gram (as in Britain), 100 calorie (as in France), or serving sizes (the FDA’s Reference Amounts Customarily Consumed [RACC]). NRF is based on RACC values. *Figure 5* illustrates food scores based on NRF and energy density. While foods to the right of the graph are more nutrient-rich than those on the left, it is important to note that there is no one point that delineates “good” foods from “bad.” Nor is any one food group better than another. Rather, the NRF represents a continuum, offering consumers plenty of good choices to be made within and among the food groups. Even within one category of food, such as fruits and vegetables, there is a range of values, from highly nutrient-rich spinach to lower scoring syrup-packed canned peaches. To make the NRF more consumer friendly, a 5-point scale is being developed.

In addition to nutrients per calorie, a new study is now examining the economic aspect of the NRF, looking at dollars per calorie and nutrients per dollar. While some nutrient-rich foods are very expensive, **the best sources of nutrients per dollar are: eggs, milk, pulses, pasta and potatoes.**

Recent research suggests that a positive approach to food guidance, such as the NRF, is more effective in promoting healthy diets than the negative, “foods-to-avoid” approach. In one study that contrasted NRF with negative approaches (i.e., avoidance of saturated fat, added sugar and sodium), researchers found that the NRF participant’s diets were not only higher in calcium, vitamins A, C and B<sub>12</sub> and in fruits and vegetables, but also lower

in calories. These results have important implications for body mass index, blood pressure and plasma lipid profiles.

It is important to note that the creation of NRF is intended to be far more than the simple assigning of a number or rank to foods. The Index is the cornerstone of creating positive nutrition education and food guidance. It provides a bridge between the regulatory components of the nutrition facts panel and the educational purpose of the Food Pyramid. This shift away from the climate of fear engendered by negative nutrition messaging creates a positive focus for consumers. In telling people what to eat, rather than what to avoid, the NRF helps consumers build healthier diets and achieve better health.

### KEY LEARNING POINTS

- The Nutrient-Rich Foods Index is a scientifically valid definition of nutrient density of foods that meets the criteria for nutrient profiling.
- It is validated against objective diet quality measures.
- Higher NRF scores mean healthier diets that are richer in nutrients and food groups to encourage.
- Approaches that focus on nutrients to avoid (e.g., saturated fat, added sugar and sodium) do not appear to translate into healthier diets.

**FIGURE 4** The validation process

- A formal process was used to decide among alternative algorithms
- Tested a family of NRF Indices:
  - Range of positive nutrients (5-15)
  - With and without nutrients to limit (3-4)
  - Calculated per 100 kcal and per RACC
- Used diet quality measures (e.g., Healthy Eating Index- HEI-2005) and health-related variables
- Used regression analyses with dependent variables:
  - Measure of diet quality (HEI-2005)
  - Selected health outcomes (BMI, blood pressure, lipids)

## ON THE MENU: The future of family meals



**Mary Sue Waisman, MSc, RD, FDC**  
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Compared to past generations, today's families are eating fewer meals together. Several studies estimate that about 50 to 60 percent of Canadians regularly share a daily family meal (defined as a child and at least one parent or two family members eating together). According to a UNICEF survey that asked 15-year-olds how routinely they ate dinner with a parent, Canada ranks a poor 18 out of 25 countries.

Although almost all parents (98%) and a majority of teens (74%) report that they enjoy and value eating as a family. Mealtime togetherness is often thwarted by busy adolescent and parent schedules, teens' desire for autonomy and easy access to food outside the home.

Family meals are worth saving, however. Studies show significant nutritional

benefits to eating together. When children and parents eat together, their diets tend to include more vegetables, fruits, grains and calcium-rich foods, and less fried foods, soft drinks, sweets and fast foods. These benefits may be long-lasting, as teens are likely to carry these positive eating habits into adulthood. In addition, children who eat dinner at home with their family are less likely to be overweight or obese.

The benefits of family meals go beyond nutrition. One study found that teens who have frequent family dinners (five to seven times per week) are half as likely to smoke cigarettes and marijuana and one third less likely to drink alcohol compared to teens with two or fewer family dinners per week. Increased conversation time and improved family relationships have also been reported among families that eat together.

Preparing meals at home is also beneficial. Home-cooked meals not only ensure control over taste, quality and quantity of ingredients, but the act of food preparation is an opportunity to

hand down food traditions and teach life skills to children. Better nutrition also results from home cooking: one study showed that meals prepared by young adults are more likely to meet dietary objectives for fat, calcium, fruit, vegetables and whole grains. Not surprisingly, the most commonly cited barriers to home meal preparation are lack of time and cooking skills.

Dietitians play an important role in helping to ensure that family meals continue. Some dietitians are advocating for a return to Home Economics in schools to ensure that

children learn about food and cooking skills. The establishment of chef/nutritionist teams, such as the American Culinary Federation Chef and Child Foundation Program, get children involved in cooking and learning about food and health in a fun environment. Summer camp programs and school garden projects similarly help promote good food and healthy eating among children.

Most importantly, dietitians can use their skills to tell and show people how they can get healthy, tasty, inexpensive family meals on the table.

**FIGURE 6** Nutritional benefits—Eat together and eat better (children and adolescents)

- More vegetables and fruit; less fried foods and soft drinks—*Gillman, 2000*
- Fewer sweets and fast foods—*Haapalahti, 2003*
- More fruits and vegetables, grains, calcium-rich foods and less soft drinks—*Neumark-Sztainer, 2003*
- Canadian students (grades 6-8) who infrequently eat meals with their families had poorer diet quality—*Woodruff, 2007*
- As the number of meals increased, so did the nutritional benefits—*Videon, 2003*

## QUESTION AND ANSWER SESSION

The thought-provoking presentations from this knowledgeable panel of speakers prompted a dynamic question and answer session with the audience following the talks.

**What advice do you have for health professionals who want to learn about social media and use it in their practices?**

**Dr. Jadad:** It is so important to have a presence on social networks. That is where the young people are, and if we don't join them, we will lose "mind share."

I have some very practical suggestions. First, create a Facebook account; young people communicate through Facebook and text messaging more often than email. Next, develop your own collection of websites that offer valuable information. Ask everyone you know for their favourite sites, then create links that you can share with your clients as an "information prescription."

**What is your vision for the future of the Nutrient-Rich Foods (NRF) Index and how do you see this system being applied?**

**Dr. Drewnowski:** We are looking at using the NRF as more than just a labelling system. It is the centrepiece of a broader system of nutrition education and food guidance. Also, we need to move towards more positive nutrition messaging, away from "bad nutrients to avoid" and towards good and better foods to encourage.

**Our grocery stores are filled with so many imports—grapes from Chile, tomatoes from California, etc. Is it a problem to have more foreign foods than local?**

**Dr. Anderson:** The environmental costs of moving foods around the world just aren't sustainable. We have to get out of the trap of thinking that we need to import foods from across the globe. The solution is to focus on eating locally within the region of Canada and recognize that it is possible to have a very healthy home-grown diet. For example, it is perfectly acceptable to eat frozen or canned fruits and vegetables when locally grown fresh produce is not available in the winter.

**How do we reconcile food guidance on nutrients, such as DRIs, and chronic disease prevention?**

**Dr. Drewnowski:** Nutrient-based systems have been used in their extreme form to disqualify whole foods based on a single nutrient. But a food shouldn't be considered "bad" just because it has, for example, three grams of fat or one gram of saturated fat per serving. The whole point of nutrient profiling is to find out what else foods contain and look at the totality of their nutrient package.

**Ms. Waisman:** We need nutrients to survive, and we get nutrients by eating food. We don't eat nutrients; we eat *food*. We need to be more positive in our messaging, and focus on the positive benefits of food and savouring meals.

