Canada's Food Supply: A Preliminary Examination of Changes, 1992-2002

Canada's Food Guide to Healthy Eating, released in 1992, is a key nutrition education tool for Canadians aged four years and over. Based on *Nutrition Recommendations for Canadians* and *Canada's Guidelines for Healthy Eating*, the Food Guide recommends a pattern for selecting foods to meet energy and nutrient needs while reducing the risk of chronic disease.

After more than a decade of use, the Food Guide is now being reviewed by Health Canada to assess whether the guidance continues to promote a pattern of eating that meets nutrient needs, promotes health and minimizes risk of nutrition-related chronic disease. This comprehensive review includes assessments of the Food Guide in relation to updated scientific underpinnings, changes in the food supply and food use patterns, the use and understanding of the Food Guide by consumers and by intermediaries, and a stakeholder consultation.

Understanding changes in the Canadian food supply will help ensure that national dietary guidance, including *Canada's Food Guide to Healthy Eating*, is relevant to the current environment in which Canadians are making food and nutrition-related choices.

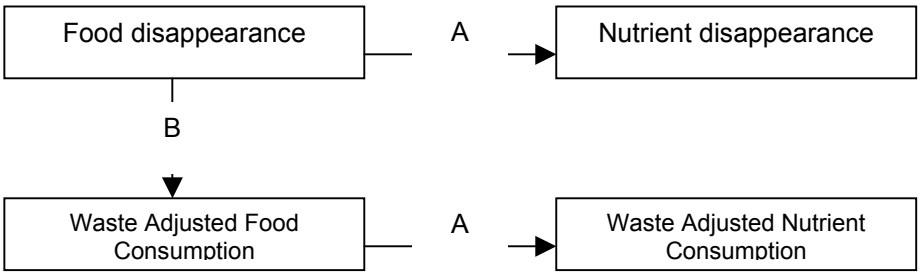
The Office of Nutrition Policy and Promotion, Health Canada, in collaboration with Statistics Canada and Agriculture and Agri-Food Canada, is currently investigating changes in the Canadian food supply since 1992 when *Canada's Food Guide to Healthy Eating* was released. This report summarizes preliminary findings of this review.

Methodology

This report is based on an analysis of data from Statistics Canada's "Food Statistics Vol. 2, No. 2", released in October 2003 and "Canada Food Stats, 2003" released in November 2003.

Statistics Canada releases both "food disappearance" data, which reflect quantities available for consumption by Canadians, and "food consumption" data, which are obtained by applying waste-adjustment factors (adapted from those used by the United States Department of Agriculture) to the disappearance data. The waste-adjustment factors take into account waste at the retail, restaurant and household levels and therefore represent a better estimate of quantities consumed than the disappearance values. However, Statistics Canada's food and nutrient consumption data do not allow for investigation by age or gender groups, nor should they be considered substitutes for actual consumption data (e.g., measured at the individual level using 24-hr recall). Nutrient data were derived by Statistics Canada by applying nutritional equivalent factors, developed in partnership with the Food Bureau of Agriculture and Agri-Food Canada, to the food data.

Below is a simplified diagram showing the different types of food statistics data produced by Statistics Canada and used in the preparation of this report; more information is available at <http://www.statcan.ca/english/freepub/21-020-XIE/free.htm>.



A= Nutritional equivalent factors
B= Waste-adjustment factors

This report is based on preliminary analysis of the waste-adjusted per capita consumption data for food and nutrients in 1992 and 2002. Considering these two points in time, the data offer an opportunity to see overall changes in per capita consumption since the release of *Canada's Food Guide to Healthy Eating*. In the current report, key findings are presented according to major food commodity groups in the Food Statistics series. However, these commodity groupings are not necessarily identical to the food groups represented in *Canada's Food Guide to Healthy Eating*. For example, Statistics Canada's commodity grouping 'cereals' captures raw commodities such as flour and corn meal whereas *Canada's Food Guide to Healthy Eating* includes foods that contain these commodities, such as bread and pasta. Terms shown between single quotes (' ') refer to Statistics Canada's Canada Food Stats groupings while those terms shown between double quotes (" ") make reference to the food groups in Health Canada's Food Guide.

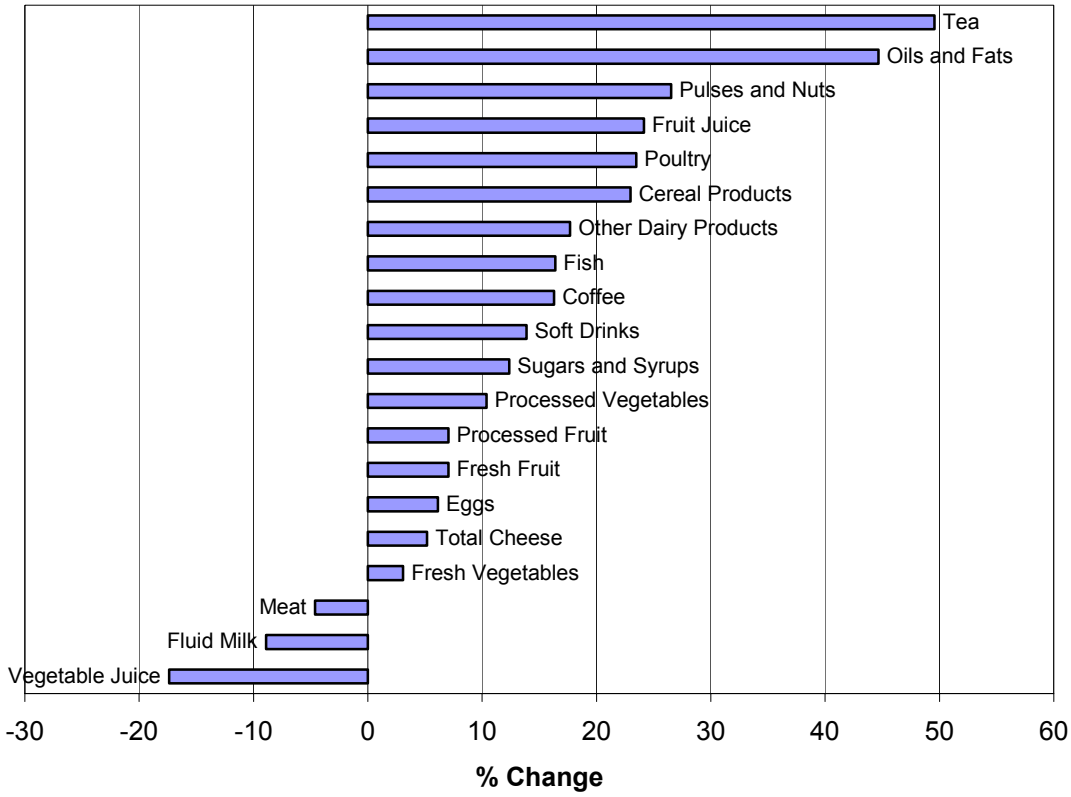
Changes in data collection methodology concerning the 'oils and fats' commodity group occurred during the decade of interest, likely resulting in an artificially magnified change in disappearance and consumption data. Although Statistics Canada plans to investigate the impact of these methodological changes, it is currently difficult to draw conclusions about the actual magnitude of change in per capita consumption of 'fats and oils' and associated energy and nutrients.

All calculations were undertaken with unmodified per capita data provided by Statistics Canada, however, reported findings have been rounded to the nearest whole number.

Key Findings

Apparent Per Capita Food Consumption

With few exceptions, consumption of all major commodity groups increased between 1992 and 2002.



Note: Interpret data with caution due to changes in data collection introduced between the time points studied (e.g., data collection of 'Oils and Fats')
Source: Statistics Canada, Canada Food Stats November 2003. Waste-adjusted data

Cereal Products

Per capita consumption of 'cereal products' increased over the period by approximately 23%, from 53 kg in 1992 to 66 kg in 2002.

- Consumption of 'rice' and 'wheat flour' increased by 31% and 26%, respectively, while consumption of 'oatmeal and rolled oats' decreased markedly (-43%).

Vegetables and Fruit

Total consumption of 'vegetables' increased by approximately 5% from nearly 106 kg per capita in 1992 to over 110 kg per capita in 2002. Total consumption of 'fruit' increased by 15% from 81 kg per person in 1992 to 93 kg per person in 2002.

- 'Fresh' vegetables continued to be the major contributor to overall vegetable consumption at 74 kg per person in 2002, over half of which was 'white potatoes' (38 kg). The largest relative increase in consumption of vegetables came from 'frozen vegetables', which increased by 30% over the time period to almost 5 kg per person. Consumption of 'vegetable juice' decreased by 17% from almost 2 litres to a little over 1 litre per person in 2002.

- 'Fresh' fruit continued to be the major contributor to overall fruit consumption at 37 kg per person in 2002, with apples (8 kg), bananas (6 kg) and oranges (5 kg) consumed in the largest quantities. 'Fruit juice' consumption increased by 24%, reaching 25 litres per person in 2002.

Dairy Products

Consumption of 'total dairy products' in 2002 was similar to that in 1992, although shifts within this commodity group were apparent, including decreased consumption of 'fluid milk' and increased consumption of 'cheese' and 'other dairy products'.

- While consumption of 'fluid milk' decreased by 9%, consumption of both 'skim' and '1% milk' increased over the decade; '1% milk' increased by 67% from almost 8 litres per person in 1992 to almost 13 litres per person in 2002; 'skim milk' consumption increased by 40%, from almost 5 litres per person in 1992 to almost 7 litres per person in 2002. While remaining the most popular variety of fluid milk, representing almost half of all fluid milk consumed in 2002, consumption of '2% milk' decreased by 26% from 40 litres per person in 1992 to 30 litres per person in 2002. Consumption of 'standard (whole) milk' decreased by 28%, from 14 litres per person in 1992, to 10 litres per person in 2002.

- Consumption of 'cheese' increased by 5%. A 20% increase in consumption of 'variety cheese', from 4 kg per person in 1992 to almost 5 kg per person in 2002, contributed to the overall increase in consumption of 'cheese'.

- Consumption of 'other dairy products' increased by 18%. Among 'other dairy products', consumption of 'yogurt' increased by 81% from 1992 to 2002. Another notable increase was seen in consumption of 'table cream', (18% M.F.) from 0.4 litres per person in 1992 to 1.4 litres per person in 2002 - a 269% increase.

Meat and Alternatives

Consumption of most foods within this group increased over the time period, with the exception of 'meats.

- Consumption of red meat decreased by almost 5% to 27 kg per person in 2002. Both 'beef' (13 kg) and 'pork' (12 kg) were major contributors to this group.

- Consumption of 'poultry' increased 24% to 14 kg per person in 2002.

- Consumption of 'eggs' increased from 12 to 13 dozen per person in 2002.

- 'Fish' consumption increased 16% to 7 kg per person in 2002. Within this commodity group, 'fresh and frozen seafish' (3 kg) and 'processed seafish' (3 kg) were consumed in the greatest quantities in 2002. Since 1992, 'shellfish' consumption increased by 20% to over 1 kg per person in 2002.

- While the data suggest that consumption of 'pulses and nuts' increased substantially from 1992 to 2002, the apparent magnitude of the change may be misleading. Much of the apparent change is attributable to a dramatic increase in consumption of 'dry beans' (+191%), however, according to the data available, most of this change actually occurred between 1992 and 1993,

when consumption increased from 0.6 to almost 2 kg per person. The reasons for this large increase in a one-year period are unclear.

Other Foods

Canada's Food Guide to Healthy Eating includes an "Other Foods" category to accommodate foods and beverages not part of the four food groups. Because the food consumption data primarily reflect "raw" and unprocessed foods, it was not possible to determine changes in the consumption of these foods. Highlights of changes in the consumption of beverages and key ingredients of "Other Foods" include:

- Consumption of 'non-alcoholic beverages' increased between 1992 and 2002. The most notable increase was in 'tea' consumption (+50%) to 63 litres per person. Consumption of 'coffee' increased 16% to 91 litres per person, and 'soft drink' consumption increased 14% to 100 litres per person in 2002.

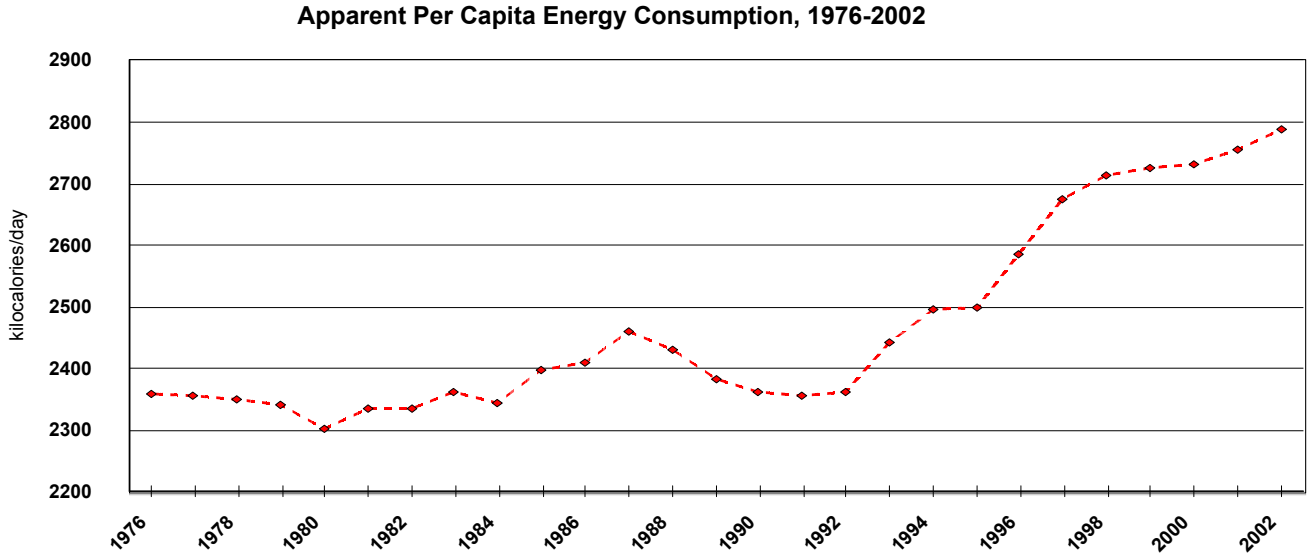
- The data suggest that consumption of 'oils and fats' increased substantially from 1992 to 2002. However, methodological changes in data collection occurred in 1995, resulting in more accurate estimates of 'oils and fats' available in the food supply. The occurrence of this change in data collection procedures in the middle of the time period studied distorts the real magnitude of the shift in consumption of 'oils and fats'. The impact of this change in methodology will be the focus of further study by Statistics Canada. In the meantime, it is difficult to quantify the shift in consumption of this commodity group.

- The consumption of 'sugars and syrups' increased by 12% from 30 kg per person in 1992 to 34 kg per person in 2002.

Apparent Per Capita Energy and Nutrient Consumption

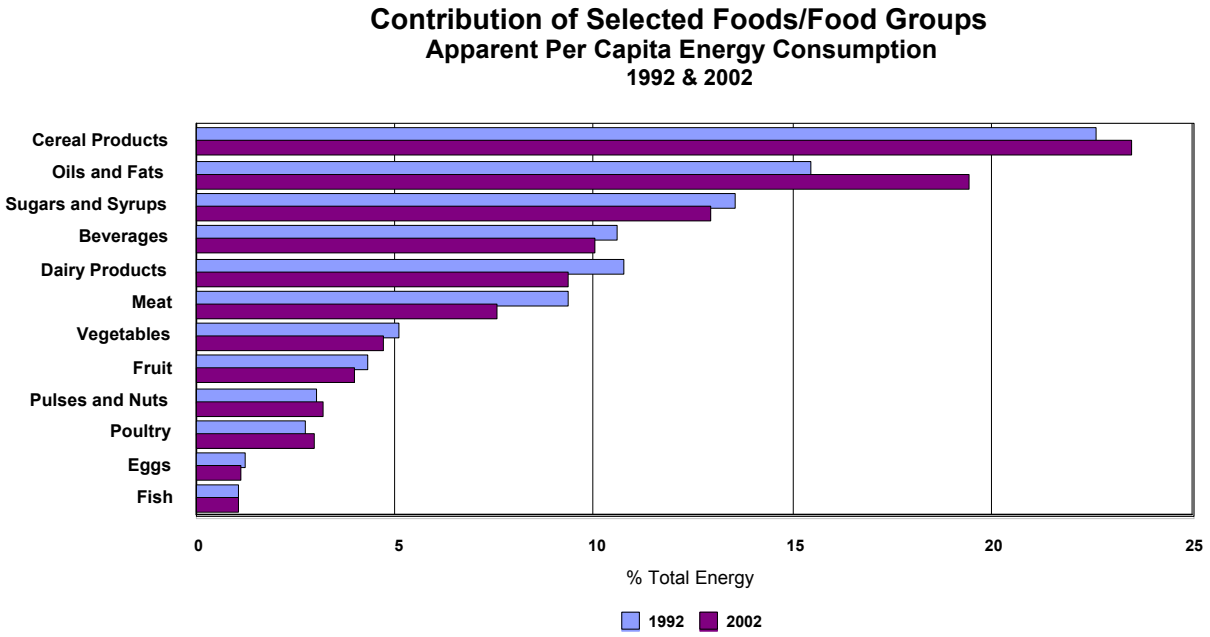
Energy

The data suggest that per capita energy consumption increased in the period from 1992 to 2002. However, the extent of this increase is not clear. Because 'oils and fats' are primary contributors to energy consumption, the methodological changes in 1995 associated with this commodity group need to be considered in the interpretation of the energy data. While the data do indicate that per capita energy consumption increased by approximately 10% since 1995, the largest increase occurred between 1995 and 1998, which may reflect a period of adjustment to the new methodology.



Note: Interpret data with caution due to changes in data collection of 'oils and fats' introduced in 1995
Source: Statistics Canada, Canada Food Stats November 2003. Waste-adjusted data

- In 2002, 'cereal products' (24%), 'oils and fats' (19%) and 'sugars and syrups' (13%) remained the major contributors to energy consumption.



Note: Interpret data with caution due to changes in data collection of 'oils and fats' introduced in 1995
Source: Statistics Canada, Canada Food Stats November 2003. Waste-adjusted data

- 'Total dairy products' accounted for 9% of total energy in 2002, down from 11% in 1992.
- 'Meat' contributed 8% of total energy in 2002, down from 9% in 1992.
- 'Soft drinks' supplied 4% of total energy in 2002, similar to 1992.

Contribution from Macronutrients

In 2002, carbohydrates contributed 51% of total energy, fat 35%, protein 11% and alcohol 3%. Compared to 1992, this distribution represents a small increase in fat, and decrease in carbohydrates, when considering relative contribution to total energy intake. However, as with energy consumption these data should be interpreted with caution due to the challenges in determining the impact of the methodological changes associated with 'oils and fats'.

- Carbohydrate consumption increased by 16% from 1992 to 2002. Primary contributors to carbohydrate consumption in 2002 were 'cereal products', 'sugars and syrups', and 'beverages', representing 39%, 26%, and 12%, respectively, of total carbohydrates consumed. The largest increase in carbohydrate consumption was associated with 'citrus fruit, including juice' (+36%).
- Fibre consumption increased by slightly over 1.0 gram per person per day over the period to reach almost 14 grams per person in 2002 - an increase of 10% since 1992. 'Cereal products' continued to be the major contributor of fibre in 2002, at 6 grams, or 41% of total fibre intake. 'Total vegetables' contributed 30% of total fibre intake in 2002, while 'total fruit' was the source of 19%. The relative contribution of 'cereal products' to fibre

consumption increased over the 10-year period by 6%, while the relative contribution of 'total fruit' (-2%) and 'total vegetables' (-6%) decreased.

- Data suggest that daily dietary fat consumption increased by 25% from 1992 to 2002. 'Oils and fats' were the primary contributor to this increase, which makes it difficult to accurately quantify the change in consumption due to methodological changes with this commodity group introduced in 1995. As a proportion of total fat consumed in 2002, 'oils and fats' (56%), 'meat' (14%) and 'total dairy products' (14%) were the primary contributors.

- During the period from 1992 to 2002, protein consumption increased by 10%. 'Cereal products', 'meat' and 'total dairy products' were the major contributors to protein intake in 2002, contributing 23%, 23%, and 20%, respectively, of total protein consumption. The relative contribution of 'poultry' (+14%), 'cereal products' (+11%), and 'fish' (+10%) increased, while the relative contribution of 'fluid milk' (-16%) and 'meat' (-13%) decreased.

Relevance of Findings to *Canada's Food Guide to Healthy Eating*

The review of major changes in Canada's food supply since the release of *Canada's Food Guide to Healthy Eating* in 1992 revealed some noteworthy changes. Overall, consumption of most major commodity groups increased between the 2 time periods studied (i.e., 1992 and 2002).

While the data suggest a rather substantial increase in consumption of 'oils and fats' and energy since 1992, the magnitude of change is unclear. Methodological changes in the collection of 'oils and fats' data introduced in 1995 have likely resulted in an artificial inflation of the magnitude of change in consumption between 1992 and 2002. Because 'oils and fats' are primary contributors to energy consumption, the methodological changes introduced in 1995 make it difficult to interpret the energy data, as well.

Canada's Food Guide to Healthy Eating contains a number of directional statements to help Canadians select foods from within the food groups. Although constrained by the nature of the commodity groups monitored in the Food Statistics series, the review of changes in the food supply offers some insight into consumption patterns relative to these statements.

Grain Products - *"Choose whole grain and enriched products more often"*

"Grain products" are captured in the Food Statistics commodity group 'cereal products'. Consumption of 'cereal products' increased by one quarter during the period reviewed, however, it is impossible to determine the consumption of whole grain or enriched products within this group.

Vegetables and Fruit - *"Choose dark green and orange vegetables and orange fruit more often"*

Consumption of 'vegetables' and 'fruit' did increase over the time period, although shifts in dark green and orange vegetables were not readily apparent. Shifts in consumption of juice were noteworthy - consumption of 'fruit juice' increased by almost one quarter, while 'vegetable juice' consumption decreased. 'White potatoes' were by far the most popular 'vegetable', however, it is not possible to discern the format in which they were being consumed (e.g., fresh or processed in pre-packaged meals, potato chips, or French fries).

Milk Products - *"Choose lower-fat milk products more often"*

Within the 'dairy products' commodity group of the Food Statistics series, 'fluid milk' is the primary category in which products with various fat content are monitored. The shifts in consumption are consistent with the directional message of the Food Guide - consumption of both 'skim' and '1% milk' increased, while consumption of 'whole' and '2% milk' decreased. A notable finding inconsistent with the Food Guide's directional message is that consumption of 'table cream' (18% M.F.) increased substantially over this time period to 1.4 litres per person in 2002. While the data indicate that 'cheese'

consumption increased, it is not possible to determine the contribution of lower-fat varieties to total 'cheese' consumption.

Meat and Alternatives - *"Choose leaner meats, poultry and fish, as well as dried peas, beans and lentils more often"*

The data reviewed do not allow for an assessment of the "choose leaner meats, poultry and fish" aspect of this directional message. Consumption of 'pulses and nuts' in general increased from 1992 to 2002, however, the magnitude of change is not clear due to the questionable dramatic shift in consumption of 'dry beans', which occurred from 1992 to 1993.

Other Foods - "(…) *use these foods in moderation*"

Canada's Food Guide to Healthy Eating also describes some of the foods in the "Other Foods" category as often being higher in fat and/or sugar and of low nutritive value. It is not possible to comment on consumption patterns of foods such as cookies, potato chips, chocolate bars, donuts, etc. as consumption data on processed food products are not monitored as part of the Food Statistics series. However, the data show that consumption of 'oils and fats', 'sugars and syrups' and 'beverages' increased from 1992 to 2002.

Next Steps

An analysis of trends using the Food Expenditure Survey (FoodEX) data series from 1986 through 2001 will be undertaken in collaboration with Agriculture and Agri-Food Canada in the winter of 2004/2005. The analysis of FoodEX data will complement the findings of this review of changes in the food supply using the Food Statistics data series. The FoodEX data, which reflect food expenditures of Canadian households, will provide a better estimate of food consumption at the household level. The FoodEX data will also allow for examination of consumption trends by geographic area (e.g., urban, rural, provincially), household characteristics (e.g., household size and composition, income), and by food purchase 'venue' (e.g., store or restaurant). When available in 2005, data from the current Canadian Community Health Survey (CCHS) Cycle 2.2, Nutrition Focus will offer a rich dataset through which actual dietary intake by Canadians in all age groups and both genders can be analysed, adding to our understanding of food consumption patterns of Canadians.

Ultimately, a synthesis of key findings from the analyses of the food supply and FoodEX data, together with results from the CCHS Nutrition Cycle 2.2., Nutrition Focus survey, will provide important evidence to assess food consumption patterns of Canadians with respect to current and future nutrition and dietary guidelines.

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Health Canada

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