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Eating in Ontario: What Do We Know?

Comparing intake of key nutrients, vegetables and fruit in Ontario with Canadian intake and dietary recommendations: a report based on CCHS 2015 – Nutrition

Nutrition Connections, April 2021

This report is part of a series prepared to provide a better understanding of the state of healthy eating and food literacy in Ontario. These reports are intended to inform policy and program development surrounding healthy eating and chronic disease prevention.

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Other reports in the Series:

Eating in Ontario: What Do We Know? Vegetable and fruit consumption, food insecurity, self-rated health, and physical activity based on CCHS 2017 with implications related to COVID-19. Nutrition Connections - Ontario Public Health Association; March 2021.

Healthy Eating in Ontario: What do We Know? An Analysis of Eating Behaviours, Food Literacy and Food Insecurity Indicators. Nutrition Resource Centre, September 2017

Food Literacy Programming in Ontario: A Focus on Programs Offered to Children, Youth, Parents and Caregivers. Nutrition Connections, September 2019

Policies that Influence Food Literacy among Children and Youth in Ontario. Nutrition Connections, November 2019

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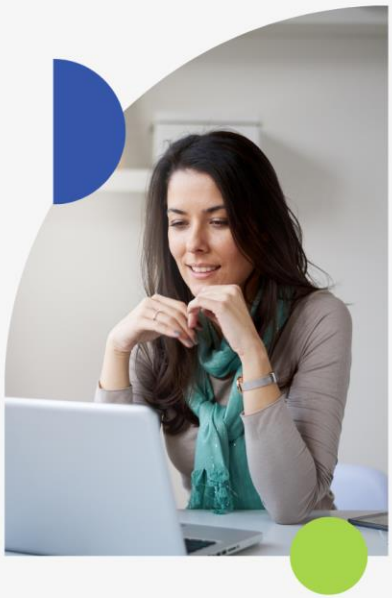

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Summary

Nutrition Connections has an ongoing interest in examining the state of healthy eating and food literacy in Ontario. A previous report entitled “Healthy Eating in Ontario: What do We Know?”[1] examined vegetable and fruit consumption, food literacy and food insecurity indicators among Ontarians, but did not include nutrient intake data. This present report provides information on the dietary intakes of Ontarians over the age of two, based on the Canadian Community Health Survey (CCHS) 2015 nutrition component. Results for Ontario, which are similar to national results, reveal that the intake of some key nutrients, as well as vegetables and fruit, were not in keeping with current dietary recommendations. Examining and identifying dietary intake concerns at the provincial level is important as this information can be used to inform policy and programming in Ontario to improve eating behaviours, promote health and prevent chronic disease.

Dietary choices have never been more important for health and preventing chronic diseases such as heart disease, cancer and diabetes. In 2015, three-quarters of deaths in Ontario were attributable to chronic diseases.[2] The total direct health care costs and indirect costs in Ontario were estimated to be $5.6 billion for unhealthy eating, including $1.8 billion for inadequate vegetable and fruit consumption.[2] Unhealthy eating poses a significant economic burden in Canada that is similar in magnitude to the burden of smoking and larger than that of physical inactivity.[3]

This report identified several dietary intake concerns in the Ontario population including sodium, potassium, vitamin D, calcium, fibre, and vegetables and fruit.

High sodium intake was a concern for all age groups in Ontario, with a large percentage of the population exceeding the Chronic Disease Risk Reduction Intake (CDRR) level. Males 14 to 18 years had the highest estimated daily sodium intake (3621 mg/day). Research has shown that reducing Canadians’ daily sodium intake by approximately 1,800 mg would save $1.38 billion annually in health care costs.[36] Over half of the sodium in the Canadian diet comes from bakery products (e.g., breads, muffins, and cookies), mixed dishes (e.g., pizza, lasagna, frozen entrées), and processed meat products.[23]

Adults over the age of 19 in Ontario may not have been meeting their needs for potassium, although the interpretation of the adequacy of nutrients with an Adequate

Intake (AI) is limited. Males in general had higher reported intakes of potassium than females. The sodium and potassium intake patterns of children and adults are important as they influence long-term health through complex relationships with dietary intake, blood pressure and cardiovascular health. For example, not consuming enough potassium and consuming too much sodium can contribute to high blood pressure.[37] Vegetables, fruit, dairy products, fish, beans and legumes are sources of potassium, while sodium intakes can be reduced by lowering intake of processed foods and not adding salt to foods.

Vitamin D is a concern as mean intakes for all of the age-sex groups in Ontario fell below the EAR of 10 µg/day. Males on average had higher intakes of vitamin D compared to females. Even with fortification of vitamin D in staple foods such as milk and margarine, Canadians may not be meeting recommendations for vitamin D, especially in the winter. Use of vitamin D supplements for certain population groups is recommended. For calcium, females 9 years of age and older and males 71 years of age and older in Ontario were not meeting recommendations for calcium intake from food and beverages alone. Recent surveys have noted decreased intakes of milk servings since 2004.[17] This shift could be a concern from a population health perspective if fluid milk is not replaced with other foods or beverages that provide calcium and vitamin D. Some foods that are good sources of calcium and vitamin D are milk and dairy products, fortified plant-based milk alternatives, and canned salmon.

Mean intakes of fibre in children, youth and adults in Ontario were significantly below the AI, although the interpretation of the adequacy of nutrients with an AI is limited. For example, 38 grams of fibre per day for males and 25 grams per day for females ages 19 to 50 is considered an adequate intake but intake was found to be only 18 grams per day for males and 14-15 grams per day for females. Fibre intakes can be increased by consuming more whole grains, vegetables, fruit, and pulses including beans, peas and lentils.

The overall average intake of sugar for the population in Ontario over two years of age was 91 grams, equivalent to about 22 tsp of sugar a day. Energy from mean total sugar contributed 20% to total energy intake in Ontario.

The mean daily total fat intake for children in Ontario ages 2 to 3 years was 83 grams and for children 4 to 8 years of age, 75 grams. Fat intake for males ranged from 73 to 83 grams per day and was highest for males 9 to 18 years of age in Ontario. Mean total fat

intake in Ontario females ranged from 55 grams a day for females 19 to 50 years of age up to 63 grams per day for females 9 to 13 years of age. Energy from total fat contributed 33% to total energy intake in Ontario.

Consuming adequate amounts of vegetables and fruit (excluding juice) has long been considered a foundation for a healthy diet and is associated with reduced risk of cardiovascular disease and other diet related chronic diseases. Consuming five or more servings of vegetables and fruit per day has been used as an indicator of healthy eating in previous studies and in Ontario in 2017 less than 27% of the population aged 12 and over met that benchmark.[57] This present report showed that the mean daily intake of vegetables and fruit for all age groups was under four servings per day. Children 2 to 5 years old in Ontario consumed 3.6 servings per day for males and 3.2 servings per day for females. For children 6 to 12 years old, the mean intake was 3.5 and 3.3 servings per day for males and females, respectively. For youth 13 to 18 years of age, mean intake was 3.5 and 3.2 servings per day for males and females, respectively, while mean daily intake of vegetables and fruit was 3.9 servings per day for males and 3.7 servings per day for females 19 and over. Whole vegetables accounted for a greater proportion of intake at 2.2 servings per day than whole fruit at 1.3 servings per day on average across all age/sex groups in Ontario. Dark green and orange vegetables accounted for less than one serving per day for all age/sex groups in both Ontario and Canada.

A number of food literacy policy actions are recommended to improve healthy eating and dietary intakes of the population in order to promote and protect population health and improve well being.

- Mandate the inclusion of sodium on menus in food service premises as part of the Healthy Choices Menu Act legislation, and increase education about the nutrients that increase risk for adverse health, specifically sodium, sugar, and saturated/trans fats
- Continue promotion and education on the use of food labels and nutrition labelling to enable consumers to make healthy food choices, including decisions surrounding nutrients of concern (sodium, potassium, calcium, vitamin D, fibre, sugar, and fat)
- Reduce marketing of unhealthy food and beverages for children
- Provide government sanctioned healthy eating campaigns targeted to children and the general public to improve eating behaviour
- Increase efforts to promote Canada's Food Guide and Canada's Dietary Guidelines to all population groups to increase vegetable, fruit and whole grain food consumption; choose more plant-based protein foods; and limit intakes of processed foods high in fat, salt and sugar

- Include food literacy as a mandatory component of school curriculum at every grade level, including in the training of child care providers and educators

This report was prepared by Nutrition Connections at the Ontario Public Health Association with support from The Helderleigh Foundation. Detailed results at the national level can be accessed at: Ahmed M, Ng AP, L'Abbe MR. 2020. Nutrient adequacy of Canadian adults: results from the Canadian Community Health Survey (CCHS) – 2015 Public Use Microdata Files. American Journal of Clinical Nutrition (Submitted); Ng AP, Ahmed M, L'Abbe MR. 2020. Nutrient adequacy of Canadian children and adolescents: results from the Canadian Community Health Survey (CCHS) – Nutrition 2015. American Journal of Clinical Nutrition (Submitted).

Introduction

Nutrition Connections has an ongoing interest in examining the state of healthy eating and food literacy in Ontario. A previous report entitled “Healthy Eating in Ontario: What do We Know?”[1] examined vegetable and fruit consumption, food literacy and food insecurity indicators among Ontarians, but did not include findings on nutrient intake data. The purpose of this present study is to provide information on dietary intakes of Ontarians based on the Canadian Community Health Survey (CCHS) 2015 – Nutrition, specifically on the intakes of key nutrients, and vegetables and fruit across specific age-sex categories for Ontario. Findings on the dietary intakes of Ontarians enclosed in this report have not been previously published for CCHS 2015 data. Examining these specific dietary indicators is important as this information can be used to inform policy and programming in Ontario to promote healthy eating and the prevention of chronic disease.

Dietary choices have never been more important for health and preventing chronic diseases such as heart disease, cancer and diabetes. In 2015, three-quarters of deaths in Ontario were attributable to chronic diseases.[2] The total direct health care costs and indirect costs (e.g., lost productivity due to disability and premature mortality) in Ontario are estimated to be $5.6 billion for unhealthy eating, including $1.8 billion for inadequate vegetable and fruit consumption.[2] Unhealthy eating poses a significant economic burden in Canada, as not meeting healthy eating recommendations was determined to cost CAD$13.8 billion/year, including direct health care (CAD$5.1 billion) and indirect costs (CAD$8.7 billion).[3]

Regular monitoring of eating behaviours and nutritional status is essential for the planning and evaluation of policies and programming meant to improve healthy eating and health outcomes as recommended by a cross sectoral collaboration of researchers and practitioners.[4] The monitoring of food and nutrition status and eating habits is important in order to determine if the population is following dietary guidelines and what impact this has in terms of eating patterns, meeting nutrient requirements, and reducing risk of chronic disease in Ontario. However, accessing critical data on a regular basis is a challenge.

Prior to 2004, there were few studies reporting on the eating habits and nutrient intakes of Canadians, particularly at the provincial level. An Ontario Food Survey was conducted by Mendelson et al. in 1996, however, results are not available online for public review.[5] Health Canada conducted a survey of Canadians and healthy eating as part of the

National Population Health Survey in 1994-95.[6] This study found that Canadians over the age of 12 were concerned about dietary fat (86%) and were taking action to lower their dietary fat intake, however 60% were also concerned about the amount of starch and fibre in their diet and were taking steps to increase their intake of both.[6] In that study, less than half of respondents (46%) rated their eating habits as excellent or very good. In 1994-95, the top sources of nutrition information for adults were pamphlets/ magazines/books, followed by tv/radio/newspapers, family and nutritionists/dietitians, while the top sources of information for children were family followed by pamphlets/ magazines/books, and tv/radio/newspapers.[6]

According to a study conducted by Nutrition Connections with Ipsos, the internet is now the primary source of nutrition information for parents of children and youth.[7] Children are being bombarded with advertising and marketing of unhealthy food and beverages through digital advertising and games via websites and apps they visit on their cell phones, tablets and computers.[8 9] Today's food environment has greatly changed from previous decades with food and beverages available almost everywhere and anytime, from typical venues such as grocery and convenience stores to drug stores, dollar stores, big box stores, gas stations, food trucks and online. It is challenging for consumers to make healthy food choices to meet their dietary needs, especially if highly processed foods are the foods that are easiest to access. Currently, processed foods high in salt, sugar or fat account for over 50% of the calories that Canadians consume.[10 11] In a very competitive and complex food environment, food literacy is paramount to help populations make healthy food choices,[12 13] for which continuous monitoring of eating behaviours and diet quality is essential.

Many examinations of the food and nutrient intakes of Canadians and Ontarians have been based on the Canadian Community Health Survey (CCHS) released by Health Canada in 2004, but much of this information is now dated.[14 15] Results from analysis of CCHS 2004 data for Ontario indicated that some population groups were not achieving recommended levels of intakes for calcium, vitamin D, potassium and fibre, and most population groups exceeded the recommended intakes for sodium.[16] The CCHS 2015 is the first in-depth nutrition survey conducted in Canada since CCHS 2004. Based on the CCHS 2015 survey data, several studies have looked at the differences in food and beverage intakes in the Canadian population between 2004 and 2015 (Tugault-Lafleur et al., 2019; Garriguet 2019),[17 18] vegetable and fruit intakes (Polsky and Garriguet 2020),[19] macronutrient intakes from food (Statistics Canada, 2017),[20] sugar (Langloise et al., 2019, Lui et al.,2020),[21 22] sodium (Health Canada, 2018),[23] and ultra-processed food

consumption in the Canadian population (Moubarac et al., 2017).[10] None of these studies, based on CCHS 2015, present data specific to Ontario.

Our report used the services of Mary R. L'Abbe, CM, PhD, Alena (Praneet) Ng, MSc and Mavra Ahmed, PhD from the L'Abbe Lab, Department of Nutritional Sciences, Faculty of Medicine, University of Toronto to conduct an analysis of CCHS 2015 in more detail for the Ontario population. Detailed results at the national level can be accessed at: Ahmed M, Ng AP, L'Abbe MR. 2020. Nutrient adequacy of Canadian adults: results from the Canadian Community Health Survey (CCHS) – 2015 Public Use Microdata Files. American Journal of Clinical Nutrition (Submitted); Ng AP, Ahmed M, L'Abbe MR. 2020. Nutrient adequacy of Canadian children and adolescents: results from the Canadian Community Health Survey (CCHS) – Nutrition 2015. American Journal of Clinical Nutrition (Submitted).

Methods and Data Sources

1.1 Study population and data collection

Nutrients to be examined and vegetable and fruit intake were selected based on consultation with expert advisors. Data from the 2015 Canadian Community Health Survey-Nutrition Public Use Microdata Files (PUMF) were used for all analyses.[24 25] The CCHS 2015 is a complex, cross-sectional health survey with a multi-stage clustered sampling design, which aimed to provide a representative sample of respondents from the 10 provinces and by age-sex groups. Exclusion criteria for CCHS 2015 included those living in the territories and the institutionalized populations (i.e., Canadian Forces; those living in long-term care facilities, on-reserve, or in correctional facilities). One individual per household was randomly chosen to complete a trained interviewer-assisted general health questionnaire and 24-hour dietary recall; weight and height measurements were also taken with respondent consent. Proxy interviews were performed for those respondents under 6 years, while parent-assisted interviews were performed for children 6-12 years; those 12+ were able to complete their own questionnaires and dietary recall.

For assessment of diet, all respondents were asked to complete a computer- and interviewer-assisted 24-hour dietary recall during their home interviews; a subsample of approximately 30% of those who completed their first recall were then asked to complete a second recall over the phone 7-10 days later. All foods and beverages reported were checked for accuracy by trained dietitians and disaggregated into their respective nutritional content using the Canadian Nutrient File.[26]

The sample size for CCHS 2015 PUMF included 20,487 respondents. The following inclusion criteria were applied to all analyses: respondents ≥2y, non-breastfeeding women, and respondents with no missing values for either measured or self-reported height/weight or physical activity. The final analytical sample was *n*=3,485 for the Ontario sample and *n*=17,485 for the Canadian sample and is representative for Ontario and Canada, respectively. Results for the national sample were provided by Mary R. L'Abbe, CM, PhD, Alena (Praneet) Ng, MSc and Mavra Ahmed, PhD from the L'Abbe Lab, Department of Nutritional Sciences, Faculty of Medicine, University of Toronto.

1.2 Handling of misreporting of energy intakes and weight/height

To account for the misreporting of energy, the methodology of Jessri et al. was used.[27] Briefly, respondents' reported energy intakes (EI) were compared to their estimated

energy requirements (EER) based on their age, sex, height, weight and physical activity levels as previously described.[27] [28] [29] If respondents' EI:EER was <0.7, they were considered under-reporters of energy intake; if their EI:EER was between 0.7-1.42, they were considered plausible reporters of energy intake and if their EI:EER was >1.42, they were considered over-reporters of energy intake. A variable for misreporting status was created using this information and entered into all analyses as a covariate.[27]

1.3 Estimation of mean nutrient intake from food and beverages

To estimate the mean nutrient intake of Ontarians and Canadians from food and beverage intake, the National Cancer Institute (NCI) method for estimating usual intake of dietary components was used.[30] [31] The NCI method requires one day of 24-hour recall and a subsample of second-day recalls to estimate long-term usual intake; therefore, all available recall days from the CCHS 2015 PUMF files were used. This method was chosen over estimating mean intakes from a single day of recall as it provides a better estimate of long-term dietary intake. All results were stratified by Dietary Reference Intake (DRI) age-sex groups. The use of the DRIs for population surveillance (EAR, AI, UL, AMDR) are described in the Reference Guide to Understanding and Using the Data 2015 Canadian Community Health Survey.[32] All NCI models were adjusted for age, sex, dietary misreporting status, day of the week (weekend/weekday) and sequence of dietary recall analyzed (first/second); the only exception was energy, where misreporting was not included as a covariate. Note that while the DRI age-sex group for the youngest children comprises of children 1-3 years, all analyses in this report were conducted on respondents ≥2 years to exclude breastfeeding children, whom have different nutritional requirements. Further methodological details can be found at Ahmed M, Ng AP, L'Abbe MR. 2020. Nutrient adequacy of Canadian adults: results from the Canadian Community Health Survey (CCHS) – 2015 Public Use Microdata Files. American Journal of Clinical Nutrition (Submitted); Ng AP, Ahmed M, L'Abbe MR. 2020. Nutrient adequacy of Canadian children and adolescents: results from the Canadian Community Health Survey (CCHS) – Nutrition 2015. American Journal of Clinical Nutrition (Submitted).

All analyses were bootstrapped with 500 replications to provide accurate standard errors and weighted using a sample survey weight provided by Statistics Canada to ensure population-level estimates. Statistically significant differences across means or percentages were assessed by comparing the 95% confidence intervals (CIs) between two estimates.

Results: What We Found

Part 1: Nutrients, fibre and sugar intake across DRI age-sex groups, for Ontario compared to Canada

This is the first report comparing Ontario to Canadian intakes of key nutrients, vegetables and fruit based on Canadian Community Health Survey (CCHS) 2015 nutrition survey data. Intakes from supplements were not included in this study. Results for Ontario are novel and have not been previously released; results at the national level have been reported from Ahmed M, Ng AP, L'Abbe MR. 2020. Nutrient adequacy of Canadian adults: results from the CCHS 2015 Public Use Microdata Files. American Journal of Clinical Nutrition (Submitted); Ng AP, Ahmed M, L'Abbe MR. 2020. Nutrient adequacy of Canadian children and adolescents: results from the Canadian Community Health Survey (CCHS) – Nutrition 2015. American Journal of Clinical Nutrition (Submitted).

The results in this report provide the mean nutrient intakes as compared to the DRI recommendations and should be interpreted appropriately. While it is entirely possible that proportions of the population at the upper or lower ends of the nutrient intake distributions reached the criteria for inadequacy based on the EAR or for over-consumption based on the UL, what this report provides is a comparison between dietary habits on average among Ontario respondents with the Canadian average and with DRI recommendations. This is appropriate for population-level nutrition surveillance; what this report does not pinpoint is specific groups in the provincial or national population at-risk for nutrition inadequacy or over-consumption.

Sodium

Daily mean sodium intake levels are a concern for all age-sex groups in Ontario, but most particularly for males ages 4-18 years of age where over 89% of the population exceeded the Chronic Disease Risk Reduction Intake (CDRR) as shown in Table 1a. When comparing Ontario to Canada, there were no statistical differences in sodium intake. In Ontario, the age-sex group with the highest mean daily intake of sodium was males 14 to 18 years (3621 mg), who on average consumed about 1,300 mg more sodium than the CDRR for their age (Table1b); this is equivalent to the sodium in approximately three servings of large French fries at a common fast-food chain[33]. Women over 71 years had significantly lower mean daily intakes of sodium (2039 mg) than women 9 to 18 years of age in Ontario. Women also had lower sodium intakes than males across all ages. In general, sodium intake tracks with calorie intake.

A wide range of foods present in the Canadian food supply contribute to sodium intake. Bakery products (e.g., breads, muffins, and cookies), mixed dishes (e.g., pizza, lasagna, frozen entrées), and processed meat products (e.g., sausages, deli meats, chicken wings) account for half of total sodium consumed by Canadians.[23] Intakes of sodium above the CDRR increase the risk of chronic disease in the population.[34] Over 30% of hypertension cases in Canada are due to high intake of dietary sodium.[35] Research has shown that reducing Canadians' daily sodium intake by approximately 1,800 mg would save $1.38 billion annually in health care costs.[36] In 2010, a national strategy to reduce the average intake of sodium among Canadian adults to 2300 mg per day by the end of 2016 was established[36]; from the findings in this report, it is clear this goal has not been met. A number of steps have been taken by Health Canada to aid in the reduction of sodium intakes at the population level, including consumer education, proposed nutrition labelling changes and establishing voluntary sodium reduction targets for processed foods, as recommended by the Sodium Working Group.[36]

Potassium

Table 2 shows that, based on average intake, adults over the age of 19 in Ontario may not be meeting their needs for potassium, although the interpretation of the adequacy of nutrients with an AI is limited. There were no significant differences between Ontario and Canada in regard to mean potassium intake for any age-sex group. Males in general had higher intakes of potassium; however, in Ontario, males 9-13 years old had significantly lower potassium intakes than males 14 to 18 years old (2472 vs. 3076 mg/day, respectively). Females 9 to 13 years old had a low mean daily intake (2185 mg/day), but this was not significantly different compared to other female age groups.

The sodium and potassium intake patterns of children and adults are important as they influence long-term health through complex relationships with dietary intake, blood pressure and cardiovascular health.[34] For example, not consuming enough potassium and consuming too much sodium can contribute to high blood pressure.[37] Vegetables, fruit, dairy products, fish, beans and legumes are sources of potassium, while sodium in the diet comes mostly from processed and convenience foods including bakery products, prepared mixed dishes, and processed meats, as mentioned above.[23]

Vitamin C

Ontarians consumed a mean daily intake of vitamin C well above the EAR (Table 3), and no age-sex groups exceeded the DRI upper limit. Males in general had higher mean intakes of vitamin C (101-137 mg/day for male Ontarians 9 years and older vs. 79-103

mg/day for female Ontarians 9 years and older). Vitamin C is available in a wide range of foods, especially fruit and vegetables and their juices.

Vitamin D

Mean intakes for vitamin D in Ontario were below the EAR of 10 µg/day for all the DRI age-sex groups (Table 4). Males on average consumed more of their vitamin D from food and beverages than females. In Ontario, children 2 to 3 years old consumed an average intake of 5.7 µg/day, and males 9 to 13 years old 5.6 µg/day, while women ages 31 to 70 years averaged 4.1 µg/day. It is important to note that all analyses in this report consider intake from food and beverage sources only; therefore sun-induced skin synthesis and intakes of vitamin D from supplements were not evaluated. Even with fortification of vitamin D in staple foods such as milk and margarine, Canadians may not be meeting recommendations for vitamin D, especially in the winter.[38 39] Results from the 2009-2011 cycle of the Canadian Health Measures Survey – which assessed vitamin D adequacy based on blood levels of 25-hydroxy vitamin D levels found that only 68% of Canadians had sufficient vitamin D levels, and concluded that adequate levels of vitamin D cannot be attained from dietary sources alone.[40] Use of nutritional supplements containing vitamin D increased from 28.5% in 2004 to 33.5% in 2015 and the increase was most apparent for adults aged 31 years of age and older.[41]

Calcium

For calcium, females 9 years and older and males 71 years and older in Ontario consumed a mean intake from foods and beverages below the EAR (Table 5). Children 2 to 8 years old consumed mean intakes above the EAR. None of the age-sex groups exceeded the upper limit. In Ontario, males 14 to 18 years old reported consuming 1077 mg/day of calcium, while females 51 to 70 years reported consuming a mean daily intake of 634 mg/day. Although intakes reported in Table 5 do not account for intake from supplements, Canadian data from 2004 reported that the inclusion of intakes from calcium supplements increased the prevalence of calcium adequacy only among women 50 years and older.[42]

Fibre

Mean estimated daily intake of fibre in children, youth and adults in Ontario were significantly below the AI (Table 6). In Ontario, males 14 to 18 years and males 71 years and older reported a mean daily intake of 19 grams of fibre per day. While females generally had lower intakes of fibre, the only significant differences for this nutrient were observed between females 19 to 30 years old (14g/day) compared to males of the same age (19 g/day). Although the interpretation of the adequacy of nutrients with an AI is

limited, sufficient evidence has supported the benefits of increased intake of dietary fibre, naturally found in whole grains, whole fruit, vegetables and pulses, for maintaining a healthy gut microbiota and lowering the risk for developing coronary heart disease, stroke, hypertension, diabetes, and obesity.[43]

Carbohydrates, Protein and Fat

Mean usual intakes of carbohydrates (Table 7), protein (Table 8) and total fat (Table 9) were not significantly different between Ontario and Canada, with exception of Ontario females 51 to 70 years old who had significantly lower carbohydrate intakes (185 g) compared with females of the same age in the national sample (198 g) (Table 7).

In Ontario, males 9 to 13 years old had higher mean intakes of carbohydrates (275 g) than males 31 years and older (230 – 243 g) (Table 7). Females 9 to 13 years old had higher mean intakes of carbohydrates (217 g) than females 51 to 70 years old (185 g). Ontario males had higher mean daily intakes of carbohydrate compared to females, with males 9 to 13 and 14 to 18 years of age consuming 275 and 273 grams per day, respectively, while females 9 to 13 and 14 to 18 years of age consumed 217 and 212 grams per day, respectively. Children ages 2 to 3 years of age consumed a mean daily intake of 276 grams of carbohydrate and those 4 to 8 years old had an intake of 253 grams per day.

In Ontario, males across all age groups had higher mean daily intakes of protein compared to females in the same age group (Table 8). The mean daily protein intakes of children 2 to 3 years of age (89 g) and 4 to 8 years of age (82 g) in Ontario were not significantly different. Ontario males 9 to 13 years of age consumed 91 grams of protein per day which was higher than intakes of females the same age at 70 grams of protein per day and males 51 to 70 years (82 g/day).

There were no significant differences in total daily fat intakes between men and women across all age groups in Ontario (Table 9). The mean daily total fat intake of children 2 to 3 years of age (83 g) and 4 to 8 years of age (75 g) in Ontario were not significantly different. Fat intakes ranged from 73 grams a day for males 51 to 70 years old up to 83 grams a day for males 9 to 18 years of age in Ontario. Fat intakes in Ontario females ranged from 55 grams a day for females 19 to 50 years of age up to 63 grams per day for females 9 to 13 years of age.

Sugar

Mean total sugar intakes (Table 10) were not significantly different between Ontario and Canada. In Ontario, males had significantly higher intakes of sugar compared to females in the 9 to 18 and 31 to 50 year age categories. There was no significant difference between children 2 to 3 years of age (114 g/day) and children 4 to 8 years old (104 g/day). Mean daily sugar intakes range between 86-110 grams a day for males and between 71-90 grams a day for females, over the age of nine in Ontario, with a decline in intake with increasing age (Table 10). Sugar data in CCHS 2015 included sugar from all sources including: fruit, milk, fruit juice, sweets and confectionaries, and regular soft drinks, with the latter three categories providing primarily free sugars.

The percentage of total daily energy from total sugar is reported in Table 11 and contributed almost 20% of total daily energy intake for both Ontarians and Canadians. Sugars are naturally found in fruit and vegetables, but also added to many foods, like sugary drinks, candy and desserts, and processed foods.[44] The WHO recommends reducing the intake of free sugars to less than 10% of total energy intake for both adults and children.[45] Free sugars include those added to foods by the manufacturer, cook or consumer, as well as the sugars that are naturally present in honey, syrups and fruit juices; however, this does not include sugars found naturally in vegetables and fruit.[45] As the CCHS 2015 does not provide data on the free sugars contents of foods, intakes of free sugars or comparisons to the WHO recommendation are not presented. High intake of sugars can lead to tooth decay and excess consumption of calories, which is a risk factor for chronic diseases such as obesity, type 2 diabetes, and cardiovascular disease.[46]

Part 2: Energy intake and percentage energy intake from carbohydrates, protein, and total fat

Total mean energy intakes are reported in Table 12. There were no significant differences in energy intakes between Ontario and Canada. In Ontario, males consume on average more calories than females; this ranged from 1937-2141 kcal per day for males and 1473-1662 kcal per day for females.

The proportion of daily energy from carbohydrates (Table 13), protein (Table 14) and total fat (Table 15) were within the Acceptable Macronutrient Distribution Ranges (AMDR) for Ontario and Canada, with exception of children between the ages of 2 to 3 years whose daily average intake of protein was well above the AMDR (Table 14). In terms of macronutrient intakes, Ontarians had a significantly larger proportion of their energy coming from protein than the national average (Table 14), however, these intakes in grams were not significantly different (Table 8). The percentage of total daily energy from fat is reported in Table 15 and was around 33% for all age-sex groups. Although daily energy from total fat intake across all age-sex groups in both Ontario and Canada were in the acceptable range (AMDR), the World Health Organization recommends not exceeding fat intakes above 30% of total energy intake to prevent unhealthy weight gain.[47]

Part 3: Vegetable and fruit Intake

Mean daily intake of vegetables and fruit (excluding juices) is reported in Canada's Food Guide (2007) servings in Tables 16 and 17. While the reported number of servings of vegetables and fruit appears to be lower in Ontario for all age groups compared to Canada, differences were not statistically significant. The average daily total intake of vegetables and fruit was 3.6 servings per day across all male age groups and 3.4 servings per day across female age groups in Ontario (Table 16). The mean daily intake of vegetables and fruit was 3.6 servings for males and 3.2 servings for female children 2 to 5 years of age in Ontario. For children 6 to 12 years old the mean intake of vegetables and fruit was 3.5 and 3.3 servings per day for males and females, respectively. For youth 13 to 18 years of age mean intake of vegetables and fruit is 3.5 and 3.2 servings per day for males and females, respectively. The mean daily intake of vegetables and fruit was 3.9 servings per day for males and 3.7 servings per day for females aged 19 and over. Whole vegetables accounted for a greater proportion of intake at 2.2 servings per day than whole fruit at 1.3 servings per day on average across all age/sex groups in Ontario.

This report found that dark green and orange vegetables accounted for less than one serving per day for all age/sex groups in both Ontario and Canada. In 2007, Canada's Food Guide provided a specific recommendation to "eat at least one dark green and one orange vegetable each day"; the results from this report suggest than Ontarians do not meet this target. The new Canada's Food Guide released in 2019 does not provide a specific recommendation for dark green and orange vegetables, but instead encourages half of every meal to be comprised of vegetables and fruit.[48] Consuming adequate amounts of vegetables and fruit (excluding juice) has long been considered a foundation for a healthy diet and is associated with reduced risk of cardiovascular disease and other diet related chronic diseases.[49] [50]

Trends Over Time

There are many similarities when comparing CCHS 2004 to 2015 results, keeping in mind that discrepancies in findings may be due to differences in survey methodology and data analysis across cycles. In 2004, many Ontario and Canadian children, youth and adults had intakes below DRI-recommended levels for vitamin D, calcium, potassium and fibre, while sodium intakes were above recommendations [16] [51] [52] [53] In this report based on CCHS 2015, some nutrients continue to be areas of concern – for example, children had intakes of vitamin D and fibre below DRI-recommended levels, as well as high intake levels of sodium; females over 9 years of age and males over 71 years of age had a mean daily intake of calcium significantly below the EAR. Tugault-Lafleur and Black (2019)[17] found Canadians were consuming fewer daily servings of milk and alternatives in 2015 compared to 2004. This shift could be a concern from a population health perspective if fluid milk is not replaced with other food or beverage choices that provide calcium and vitamin D.[17] Some foods that are good sources of calcium and vitamin D are milk and dairy products, fortified plant-based milk alternatives, and canned salmon. Fibre and potassium are found in vegetables, fruit, legumes, nuts, and seeds, while sodium intakes can be lowered by choosing less processed foods and foods without added salt.

The percentage of total daily energy intake from macronutrients has shifted since 2004, with higher percentages of energy intake from protein and fats and a lower percentage of energy intake from carbohydrates in 2015 compared to 2004.[24] These results are confirmed in our report, with a higher percentage of energy coming from protein in Ontario compared to Canada. Tugault-Lafleur and Black (2019) found Canadians were consuming higher intakes of meat and alternatives in 2015 compared to 2004.[17] In the study by Kirkpatrick et al. (2019) using the 2015 CCHS data, protein foods such as red meat, mixed dishes, and unflavoured milk were among the top food sources of energy reported.[54]

Total sugar consumption overall has decreased from 2004 to 2015 and is attributed to an increase in total sugars from food alone and a decrease in total sugars from beverages.[21] In 2015, the top sources of total sugars reported for children ages 2 to 8 years were fruit, milk, juice, sugars/syrups/confectionary; for 9 to 18 year-olds: fruit, sugars/syrups/confectionary, milk and juice; for adults 19 years and older: fruit, sugars/syrups/confectionary, regular soft drinks, and baked goods.[21] In a study by Liu et al. (2020), also based on CCHS 2015, desserts/sweets and beverages were the two food groups that contributed the most to added, free and total sugar intake in the Canadian

diet.[22] On average, in 2004, Canadians consumed 110 grams of sugar a day – the equivalent of 26 teaspoons, or approximately 20% of their total energy intake.[21] In this present report based on 2015 CCHS data, the Ontario population over the age of two consumed on average 91 grams (22 tsp) of sugar a day and Canadians 95.6 grams (23 tsp) of sugar per day, also amounting to about 20% of total daily energy intake. Continuing to monitor sugar intakes – particularly the intake of sugar sweetened beverages – will be important going forward as dietary choices high in added sugars tend to be less nutritive, and their consumption may displace more nutritious options from the diet.

Vegetable and fruit intakes in Canada have been declining over the years. Polsky and Garriguet (2020) found the average frequency of vegetable and fruit consumption among Canadians over the age of 12 decreased from 5 times a day in 2007 to 4.7 times a day in 2015.[19] In 2015, the average number of total daily vegetable servings consumed by Canadians declined in all age and sex groups except in children younger than 9 years, compared to 2004.[19] Tugault-Lafleur and Black (2019) found that apart from whole fruit, which did not change over time, the estimated average daily intakes of dark green and orange vegetables, “other” vegetables, potatoes, and fruit juice all decreased from 2004 to 2015.[17] In their study, Black and Billette (2013) determined that only 26% of Canadians met the minimum daily servings recommendation for vegetables and fruit for their respective age–sex group as recommended by the 2007 Canada’s Food Guide.[55] Minaker et al. (2016) reported a low frequency of vegetable and fruit consumption among Canadian students in grades 6 to 12 and found only 1 in 10 of these youth were meeting food guide recommendations.[56] Consuming vegetables and fruit five or more times a day is often used as an indicator for healthy eating, but this was achieved by less than one-third of the population in Ontario (27%) and this percentage was significantly lower than for the Canadian population ages 12 and older (29%) in 2017.[57] Health promotion strategies, including policies and programs that encourage and support consuming more vegetables and fruit across all population groups, are required.

While we did not examine the intake of processed foods in the report, understanding the consumption trends of these foods and beverages is relevant to explain the intake of some nutrients, particularly sodium, sugar and fat in the Ontario diet. Ultra-processed foods are commercially prepared foods that are typically high in sodium, sugar, or saturated fat, including fast food, sugary drinks, cookies, chips, etc.[10] In 2004, 48% of calories consumed by Canadians came from ultra-processed foods and consumption was high amongst all socioeconomic groups, and particularly in children and adolescents.[44] In 2015, ultra-processed foods contributed 46% of total daily energy for the overall population in Canada and more than 50% for children and adolescents.[10 58] Additionally,

ultra-processed foods accounted for nearly 52% of the total daily energy intake of children aged two to eight years, over 57% of the total daily energy intake of children aged nine to 13 years, and over 54% of the total daily energy intake of children aged 14 to 18 years in Canada in 2015.[10] It is well understood that healthy eating, including avoiding foods higher in sodium, sugars, and saturated fat and eating plenty of vegetables and fruits, reduces the risk of chronic disease.[59] The present report found that in Ontario, intake of sodium was high for all age-sex groups, while sugar contributed almost 20% of total daily energy intake, and total fat contributed 33% of total daily energy. Researchers commissioned by the Heart and Stroke determined that Canadian adults consuming the highest amounts of ultra-processed foods as a proportion of their energy intake had a "31% higher odds of obesity, 37% higher odds of diabetes and 60% higher odds of high blood pressure, compared to those consuming the least amount. Obesity, diabetes and high blood pressure are all risk factors for heart disease and stroke".[11] Efforts to reduce intakes of highly processed foods as recommended by Canada's new dietary guidelines will continue to be important to help Ontarians and Canadians achieve healthier diets, including the lowering of sodium intakes, which this study pointed out exceeded the Chronic Disease Risk Reduction Intake (CDRR).

The Canadian population in general has not been following Health Canada's recommended dietary guidelines, which may compromise nutritional health. Studies by Jessri et al. (2015, 2016)[60] [61], based on the 2014 Health Canada Surveillance Tool (HCST) using CCHS 2004 data found that Canadian children, youth and adults were not meeting Health Canada's recommended number of food group servings and showed a high prevalence of consuming Tier 4 foods, those at the highest end of the thresholds for sodium, total fat, saturated fat and sugars. A more recent study by Hack et al. (2020)[62] used the 2015 CCHS Nutrition survey data to categorize prevalence of intakes according to the same surveillance tool (HCST) tier system, where Tier 1 and Tier 2 represented "recommended foods", Tier 3 represents foods to "choose less often", and Tier 4 represented foods "not recommended".[59] This study found that consumption of foods from Tier 4 and "other foods" such as high fat/sugary foods, sugar-sweetened beverages, and alcohol, represented 24–26% and 21–23% of total daily energy, for adult males and females respectively.[62] Hack et al. (2020) also found that adults with the highest intakes of Tier 4 and "other foods" had lower intakes of macronutrients and increased body mass index.[62]

Lieffers et al. (2018)[3] investigated the cost of not following nutrition recommendations based on chronic disease risk estimates for intakes of both "protective" (defined as vegetables, fruit, whole grains, milk, nuts and seeds) and "harmful" (defined as processed

meat, red meat, sugar-sweetened beverages) foods from the Global Burden of Disease Study, and food intakes from the 2004 CCHS. These authors determined that not following recommendations for nuts and seeds and whole grains were the top contributors to direct and indirect health care costs, rather than vegetables and fruit.[3] Their findings suggest that unhealthy eating constitutes a tremendous economic burden to Canada that is similar in magnitude to the burden of smoking and larger than that of physical inactivity, which were estimated using similar approaches.[3] Their study emphasizes the importance of monitoring dietary behaviours and developing healthy eating prevention strategies that consider all important constituents of the diet, not just vegetables and fruit.

Strengths and Limitations

The analyses conducted in this report have many strengths. The use of the most-recent CCHS 2015 data permits national and provincial analyses, allowing for the examination of detailed population-level dietary and nutritional trends and for comparisons between Ontario and Canada. With the use of the NCI method, the long-term dietary intake of Ontarians and Canadians can be estimated and compared, offering more accurate insight into provincial and national-level dietary habits than if only a single day of 24-hour dietary recall was used. Systematic energy misreporting, bias in weight and height self-reporting, and confounders were also accounted for.

Despite these strengths in methodological design, as with all research studies, some limitations exist. CCHS 2015 is cross-sectional, and therefore represents dietary information from only one “snapshot” in time. Additionally, comparisons between Ontario and Canada, and between age-sex groups, were made by comparing mean estimates and 95% confidence intervals; in the absence of Bonferroni corrections, significant findings should be interpreted with caution. However, CCHS 2015 remains the best source for comprehensive nutritional data, and steps to examine long-term intake, such as using the NCI method, were taken.

This study looked at key nutrients of concern to population health as well as vegetables and fruit intakes. Other dietary factors are also associated with reducing chronic disease, including nuts and seeds, and whole grains, and these should be included as indicators in future studies.

Policy Actions

These findings point to some health promotion and policy actions needed in Ontario and Canada to make healthy food the easiest and preferred choice for the general population. Systematic large-scale efforts and population-based strategies and policies to address unhealthy eating challenges have the potential to have greater impact that individual decision-making.[63]

- Conduct more regular nutrition monitoring and surveillance and releases of data at the provincial and local-regional level regarding dietary intakes and eating patterns to track changes and effectiveness of interventions to improve eating behaviours and reduce non-communicable disease risk factors.[4 64 65]
- Develop publicly stated population-level targets for sodium, saturated fat, free sugar, and vegetables and fruit and monitor progress over time.[64]
- Increase focus on strategies targeted to food producers and food service providers to reformulate food products and menu offerings, with aims to reduce sodium in particular, and monitor progress on achieving sodium targets.[64 66]
- Increase access to public information about healthy eating through retailers and food service.[67 68]
- Mandate the inclusion of sodium on menus in food service premises as part of the Healthy Choices Menu Act legislation, and increase education about the nutrients that increase risk for adverse health, specifically sodium, sugar, and saturated/trans fats. [64 69 70]
- Continue promotion and education on the use of food labels and nutrition labelling to enable consumers to make healthy food choices[64 67 68 71 80], including decisions surrounding nutrients of concern (sodium, potassium, calcium, vitamin D, fibre, sugar, and fat).
- Continue efforts to increase intakes of vitamin D rich foods such as unsweetened dairy and fortified plant-based beverages, margarine, eggs and fatty fish such as salmon, trout and age-appropriate supplemental intakes of vitamin D.[72]
- Reduce marketing of unhealthy food and beverages for children.[64 67 68 80]
- Provide government sanctioned healthy eating campaigns targeted to children and the general public to improve eating behaviours.[67 68 80]
- Increase efforts to promote Canada's Food Guide[48] and Canada's Dietary Guidelines[59] to all population groups to increase vegetable, fruit and whole grain food consumption; choose more plant-based protein foods; and limit intakes of processed foods high in fat, salt and sugar.

- Include food literacy as a mandatory component of school curriculum at every grade level, including in the training of child care providers and educators.[67 68 73]
- Enact policies and actions federally, provincially and locally throughout all facets of the food system, including agriculture, business, trade, finance, health, research and education to promote healthier diets for all.[67 80]

Conclusions

Our findings based on CCHS 2015 indicate that there are some nutrients of concern for all population groups in Ontario including sodium, where intakes are too high; and fibre and vitamin D intakes, where intakes are below recommended DRIs. Consuming enough calcium is a concern for females nine years of age and older and males over 71 years of age. Adults over the age of 19 years may not be consuming adequate amounts of potassium based on their average intake levels. Mean intakes of vegetables and fruit, measured in the 2007 Canada's Food Guide servings[74], are reported at under four servings per day, with whole vegetables accounting for more servings per day than fruit across all age/sex groups. Clearly there is room for improvement.

This report paints only a partial picture of the dietary intakes of the Ontario population, which in most cases is not much different compared to the national average. A more fulsome analysis in the future should investigate intakes of other important food categories beyond vegetables and fruit such as nuts and seeds, whole grains, plant-based foods, and beverage consumption.[3] Additionally, going forward it will be important to monitor and assess how the Canadian population is responding to and following the 2019 Canada's Food Guide[48] and Canada's Dietary Guidelines[59] and whether nutrient needs are being met. The new food guide is a shift away from previous food guides, which focused on *food guide servings*,[75] and instead promotes the selection of foods, based on the proportion of a plate (e.g. half a plate of vegetables and fruit, one-quarter protein foods, one-quarter whole grain foods), and provides guidelines to choose more plant-based foods and reduce intake of processed foods.[48] The 2019 food guide is not as focused on satisfying nutrient intakes and meeting food guide servings, as were former food guides, but rather recommends pattern of healthy eating to follow.[74]

The information in this report is useful for planning evidence-based policies and programs at the provincial level to improve population dietary behaviours that are important for promoting health and reducing the burden of chronic disease to society, and the cost to the health care system and economy. While the federal government is involved in nutrition monitoring and surveillance to assess the eating habits and nutrient intakes of the population, this information is available infrequently; for example, complete nutrition surveys as part of CCHS have only been done in 2004 and 2015. Furthermore, reports are slow to be released and information is not readily available at the provincial, regional or local level to be used for more targeted planning and evaluation efforts. The need for more regular monitoring of dietary patterns and nutrient intakes has been recommended

by many over the past 30 or more years.[4 64 67 76 77 78 79] Ideally, the eating habits and nutritional status of the child and adult population in Canada and in the provinces should be carried out regularly with collection of data taking place at least every five years, as recommended by the International Network for Food and Obesity/Non-communicable disease Research, Monitoring and Action Support (INFORMAS).[65] More focused efforts should be made by governments and communities to enact policies and actions to orient all facets of the food system towards healthier diets for all as outlined by Hawkes et al (2020).[80]

Results Tables

Table 1a: Mean estimated usual daily sodium intake and the proportion of the population exceeding the Chronic Disease Risk Reduction Intake (CDRR) value for sodium, from food and beverage sources only, Ontario and Canada

DRI Age-Sex Group	Ontario				Canada[1]			
	Mean daily sodium intake (mg)	95% Confidence Intervals	**Percentage of the population exceeding the CDRR (%)**	95% Confidence Intervals	**Mean daily sodiun intake (mg)**	95% Confidence Intervals	**Percentage of the population exceeding the CDRR (%)[2]**	95% Confidence Intervals
Both Ages								
2-3 years	1690	(1275, 2106)	73	(50, 96)	1732	(1548, 1916)	83	(72, 93)
4-8 years	2236	(2049, 2423)	89	(80, 97)	2309	(2188, 2430)	89	(85, 94)
Males								
9-13 years	3045	(2788, 3302)	92	(86, 99)	2946	(2785, 3106)	90	(85, 95)
14-18 years	3621	(3314, 3928)	89	(80, 99)	3737	(3572, 3903)	89	(86, 92)
19-30 years	3240	(2897, 3583)	84	(64, 100)	3350	(3202, 3498)	82	(77, 87)
31-50 years	3067	(2821, 3314)	73	(64, 82)	3200	(3084, 3315)	78	(73, 82)
51-70 years	2787	(2521, 3054)	63	(50, 77)	2972	(2822, 3123)	69	(63, 75)
71+ years	2734	(2384, 3085)	64	(48, 80)	2831	(2584, 3077)	66	(56, 76)
Females								
9-13 years	2511	(2272, 2750)	75	(66, 85)	2605	(2488, 2722)	82	(77, 87)
14-18 years	2693	(2445, 2941)	63	(54, 71)	2776	(2646, 2906)	66	(61, 71)
19-30 years	2399	(2156, 2642)	53	(42, 64)	2393	(2200, 2587)	51	(43, 58)
31-50 years	2223	(2029, 2417)	45	(38, 52)	2352	(2263, 2442)	49	(45, 54)
51-70 years	2119	(2007, 2231)	40	(35, 45)	2279	(2214, 2343)	46	(43 ,50)
71+ years	2039	(1883, 2195)	34	(27, 41)	2155	(2062, 2249)	40	(36, 44)

[1]Detailed results for Canadian data were extracted from: Ahmed M, Ng AP, L'Abbe MR. 2020. AJCN (Submitted) and Ng AP, Ahmed M. L'Abbe MR. 2020. AJCN (Submitted)

[2]The CDRR (Chronic Disease Risk Reduction Intakes) represent the intake levels of sodium over which a reduction in intake is expected to reduce the risk of chronic disease within an apparently healthy population.

Table 1b: Chronic Disease Risk Reduction Intake (CDRR) by Age Group

Nutrient	Population Group	Recommendation
Sodium	Children, 1–3 years	Reduce intakes if above 1,200 mg/day[a]
	Children, 4–8 years	Reduce intakes if above 1,500 mg/day[a]
	Adolescents, 9–13 years	Reduce intakes if above 1,800 mg/day[a]
	Adolescents, 14–18 years	Reduce intakes if above 2,300 mg/day[a]
	Adults, ≥ 19 years	Reduce intakes if above 2,300 mg/day

a. Extrapolated from the adult CDRR based on sedentary Estimated Energy Requirements.

From: Sodium: Dietary Reference Intakes Based on Chronic Disease
Dietary Reference Intakes for Sodium and Potassium. National Academies of Sciences, Engineering, and Medicine; Health and Medicine Division; Food and Nutrition Board; Committee to Review the Dietary Reference Intakes for Sodium and Potassium; Oria M, Harrison M, Stallings VA, editors. Washington (DC): National Academies Press (US); 2019 Mar 5. Copyright 2019 by the National Academy of Sciences. All rights reserved. NCBI Bookshelf. A service of the National Library of Medicine, National Institutes of Health. Available from: https://www.ncbi.nlm.nih.gov/books/NBK545453/table/tab_10_14/?report=objectonly

Table 2: Mean usual daily potassium intake, from food and beverage sources only, Ontario and Canada

DRI Age-Sex Group	Ontario		Canada[1]		Adequate Intake[2] (mg)
	Mean daily potassium intake (mg)	95% Confidence Intervals	**Mean daily potassium intake (mg)**	95% Confidence Intervals	
Both ages					
2-3 years	1986	(1640, 2332)	2056	(1875, 2237)	2000
4-8 years	2170	(1985, 2355)	2316	(2228, 2404)	2300
Males					
9-13 years	2472	(2293, 2651)	2552	(2443, 2661)	2500
14-18 years	3076	(2668, 3483)	3043	(2853, 3233)	3000
19-30 years	2883	(2597, 3169)	3073	(2944, 3202)	3400
31-50 years	2895	(2701, 3089)	3028	(2937, 3120)	3400
51-70 years	2847	(2557, 3137)	2927	(2791, 3064)	3400
71+ years	2972	(2552, 3393)	2877	(2667, 3088)	3400
Females					
9-13 years	2185	(2009, 2360)	2248	(2160, 2337)	2300
14-18 years	2299	(2102, 2495)	2300	(2203, 2396)	2300
19-30 years	2309	(2126, 2492)	2386	(2212, 2559)	2600
31-50 years	2292	(2171, 2413)	2423	(2343, 2503)	2600
51-70 years	2328	(2201, 2455)	2434	(2358, 2511)	2600
71+ years	2388	(2207, 2569)	2395	(2286, 2503)	2600

[1]Detailed results for Canadian data were extracted from: Ahmed M, Ng AP, L'Abbe MR. 2020. AJCN (Submitted) and Ng AP, Ahmed M. L'Abbe MR. 2020. AJCN (Submitted)
[2]The AI (Adequate Intake) is the recommended average daily intake level based on observed or experimentally-derived estimates of nutrient intake by groups of healthy individuals that is assumed to be adequate. The AI is used when the EAR cannot be determined.

Table 3: Mean usual daily vitamin C intake, from food and beverage sources only, Ontario and Canada

DRI Age-Sex Group	Ontario		Canada[1]		Estimated Average Requirement (EAR)[2]	Upper Limit[3] (mg)
	Mean daily vitamin C intake (mg)	95% Confidence Intervals	Mean daily vitamin C intake (mg)	95% Confidence Intervals		
Both ages						
2-3 years	92	(77, 107)	100	(91, 109)	13	400
4-8 years	101	(81, 121)	121	(110, 132)	22	650
Males						
9-13 years	109	(93, 124)	113	(104, 122)	39	1200
14-18 years	137	(107, 168)	133	(118, 149)	63	1800
19-30 years	103	(84, 122)	105	(95, 106)	75	2000
31-50 years	103	(90, 116)	103	(96, 115)	75	2000
51-70 years	101	(92, 111)	98	(95, 110)	75	2000
71+ years	104	(90, 118)	94	(87, 101)	75	2000
Females						
9-13 years	103	(83, 122)	118	(106, 130)	38	1200
14-18 years	98	(81, 114)	97	(87, 106)	56	1800
19-30 years	79	(65, 93)	95	(90, 98)	60	2000
31-50 years	82	(69, 95)	95	(88, 102)	60	2000
51-70 years	87	(78, 96)	94	(90, 100)	60	2000
71+ years	94	(81, 106)	90	(83, 96)	60	2000

[1] Detailed results for Canadian data were extracted from: Ahmed M, Ng AP, L'Abbe MR. 2020. AJCN (Submitted) and Ng AP, Ahmed M. L'Abbe MR. 2020. AJCN (Submitted)
[2] The EAR (Estimated Average Requirement) is the average daily intake level that is estimated to meet the nutritional requirements of 50% of healthy individuals in a DRI age-sex group.
[3] The UL (Upper Tolerable Intake Level) is the highest average daily intake level that is likely to pose no risk or adverse health effects to almost all individuals in the general population.

Table 4: Mean usual daily vitamin D intake, from food and beverage sources only, Ontario and Canada

DRI Age-Sex Group	Ontario		Canada[1]		Estimated Average Requirement (EAR) (µg)[2]	Upper Limit[3] (µg)
	Mean daily vitamin D intake (µg)	95% Confidence Intervals	Mean daily vitamin D intake (µg)	95% Confidence Intervals		
Both ages						
2-3 years	5.7	(4.2, 7.1)	5.8	(4.9, 6.7)	10	63
4-8 years	5.3	(4.3, 6.3)	5.5	(4.9, 6.2)	10	75
Males						
9-13 years	5.6	(4.8, 6.4)	5.7	(5.1, 6.3)	10	100
14-18 years	5.5	(4.8, 6.3)	5.6	(5.1, 6.1)	10	100
19-30 years	5.1	(4.6, 5.6)	5.1	(4.8, 5.5)	10	100
31-50 years	5.0	(4.5, 5.5)	5.1	(4.8, 5.4)	10	100
51-70 years	4.8	(4.3, 5.4)	5.0	(4.8, 5.3)	10	100
71+ years	5.0	(4.0, 6.0)	5.0	(4.5, 5.4)	10	100
Females						
9-13 years	4.6	(4.2, 5.1)	4.7	(4.3, 5.2)	10	100
14-18 years	4.5	(4.0, 5.1)	4.6	(4.0, 5.2)	10	100
19-30 years	4.2	(3.8, 4.6)	4.1	(3.6, 4.7)	10	100
31-50 years	4.1	(3.9, 4.4)	4.2	(3.9, 4.6)	10	100
51-70 years	4.1	(3.7, 4.6)	4.3	(4.1, 4.5)	10	100
71+ years	4.2	(3.6, 4.9)	4.3	(4.1, 4.5)	10	100

[1] Detailed results for Canadian data were extracted from: Ahmed M, Ng AP, L'Abbe MR. 2020. AJCN (Submitted) and Ng AP, Ahmed M. L'Abbe MR. 2020. AJCN (Submitted)
[2] The EAR (Estimated Average Requirement) is the average daily intake level that is estimated to meet the nutritional requirements of 50% of healthy individuals in a DRI age-sex group.
[3] The UL (Upper Tolerable Intake Level) is the highest average daily intake level that is likely to pose no risk or adverse health effects to almost all individuals in the general population.

Table 5: Mean usual daily calcium intake, from food and beverage sources only, Ontario and Canada

DRI Age-Sex Group	Ontario		Canada[1]		Estimated Average Requirement (EAR)[2]	Upper Limit[3] (mg)
	Mean daily calcium intake (mg)	95% Confidence Intervals	Mean daily calcium intake (mg)	95% Confidence Intervals		
Both ages						
2-3 years	908	(696, 1120)	933	(808, 1058)	500	2500
4-8 years	968	(834, 1102)	1028	(973, 1083)	800	2500
Males						
9-13 years	1056	(935, 1178)	1058	(987, 1130)	1100	3000
14-18 years	1077	(939, 1215)	1078	(1011, 1145)	1100	3000
19-30 years	882	(778, 986)	901	(859, 943)	800	2500
31-50 years	849	(753, 946)	868	(830, 907)	800	2500
51-70 years	781	(629, 934)	813	(755, 871)	800	2000
71+ years	744	(625, 863)	722	(637, 807)	1000	2000
Females						
9-13 years	877	(791, 963)	882	(839, 925)	1100	3000
14-18 years	877	(772, 981)	888	(837, 939)	1100	3000
19-30 years	733	(655, 810)	746	(701, 792)	800	2500
31-50 years	692	(624, 760)	741	(710, 771)	800	2500
51-70 years	634	(569, 699)	686	(656, 715)	1000	2000
71+ years	668	(570, 766)	670	(621, 719)	1000	2000

[1] Detailed results for Canadian data were extracted from: Ahmed M, Ng AP, L'Abbe MR. 2020. AJCN (Submitted) and Ng AP, Ahmed M. L'Abbe MR. 2020. AJCN (Submitted)
[2] The EAR (Estimated Average Requirement) is the average daily intake level that is estimated to meet the nutritional requirements of 50% of healthy individuals in a DRI age-sex group.
[3] The UL (Upper Tolerable Intake Level) is the highest average daily intake level that is likely to pose no risk or adverse health effects to almost all individuals in the general population.

Table 6: Mean usual daily total fibre intake, from food and beverage sources only, Ontario and Canada

DRI Age-Sex Group	Ontario		Canada[1]		Adequate Intake (g)[2]
	Mean daily total fibre intake (g)	95% Confidence Intervals	Mean daily total fibre intake (g)	95% Confidence Intervals	
Both ages					
2-3 years	11	(10, 13)	12	(11, 13)	19
4-8 years	15	(13, 16)	16	(15, 16)	25
Males					
9-13 years	17	(15, 18)	17	(16, 18)	31
14-18 years	19	(16, 22)	19	(18, 20)	38
19-30 years	18	(16, 20)	18	(17, 19)	38
31-50 years	18	(16, 20)	19	(18, 20)	38
51-70 years	18	(17, 20)	18	(17, 19)	30
71+ years	19	(18, 20)	18	(17, 19)	30
Females					
9-13 years	14	(13, 16)	15	(14, 16)	26
14-18 years	15	(13, 17)	15	(14, 16)	26
19-30 years	14	(13, 15)	14	(13, 16)	25
31-50 years	15	(13, 17)	16	(15, 17)	25
51-70 years	17	(16, 18)	17	(16, 17)	21
71+ years	16	(14, 17)	16	(15, 16)	21

[1] Detailed results for Canadian data were extracted from: Ahmed M, Ng AP, L'Abbe MR. 2020. AJCN (Submitted) and Ng AP, Ahmed M. L'Abbe MR. 2020. AJCN (Submitted)
[2] The AI (Adequate Intake) is the recommended average daily intake level based on observed or experimentally-derived estimates of nutrient intake by groups of healthy individuals that is assumed to be adequate. The AI is used when the EAR cannot be determined.

Table 7: Mean usual daily total carbohydrate intake, from food and beverage sources only, Ontario and Canada

DRI Age-Sex Group	Ontario		Canada[1]	
	Mean daily total carbohydrate intake (g)	95% Confidence Intervals	**Mean daily total carbohydrate intake (g)**	95% Confidence Intervals
Both ages				
2-3 years	276	(236, 315)	281	(262, 299)
4-8 years	253	(229, 277)	268	(259, 277)
Males				
9-13 years	275	(261, 289)	281	(270, 292)
14-18 years	273	(255, 291)	276	(266, 286)
19-30 years	249	(224, 273)	252	(243, 262)
31-50 years	243	(229, 258)	248	(241, 256)
51-70 years	230	(214, 246)	240	(233, 247)
71+ years	235	(213, 257)	237	(227, 248)
Females				
9-13 years	217	(200, 234)	226	(218, 233)
14-18 years	212	(193, 231)	218	(209, 228)
19-30 years	192	(177, 208)	192	(177, 206)
31-50 years	186	(172, 201)	196	(188, 204)
51-70 years	185	(177, 192)	198	(194, 202)
71+ years	186	(172, 200)	195	(188, 203)

[1] Detailed results for Canadian data were extracted from: Ahmed M, Ng AP, L'Abbe MR. 2020. AJCN (Submitted) and Ng AP, Ahmed M. L'Abbe MR. 2020. AJCN (Submitted)

Table 8: Mean usual daily total protein intake, from food and beverage sources only, Ontario and Canada

DRI Age-Sex Group	Ontario		Canada[1]	
	Mean daily total protein intake (g)	95% Confidence Intervals	**Mean daily total protein intake (g)**	95% Confidence Intervals
Both ages				
2-3 years	89	(78, 100)	90	(84, 95)
4-8 years	82	(76, 88)	86	(83, 89)
Males				
9-13 years	91	(86, 96)	94	(91, 97)
14-18 years	90	(84, 97)	93	(89, 96)
19-30 years	84	(76, 93)	86	(83, 89)
31-50 years	85	(79, 90)	87	(84, 90)
51-70 years	82	(77, 88)	87	(83, 90)
71+ years	86	(79, 94)	88	(84, 93)
Females				
9-13 years	70	(63, 78)	71	(68, 73)
14-18 years	69	(64, 74)	69	(66, 72)
19-30 years	64	(59, 70)	62	(58, 67)
31-50 years	64	(61, 67)	65	(63, 68)
51-70 years	65	(62, 69)	68	(66, 70)
71+ years	68	(63, 73)	69	(66, 72)

[1] Detailed results for Canadian data were extracted from: Ahmed M, Ng AP, L'Abbe MR. 2020. AJCN (Submitted) and Ng AP, Ahmed M. L'Abbe MR. 2020. AJCN (Submitted)

Table 9: Mean usual daily total fat intake, from food and beverage sources only, Ontario and Canada

DRI Age-Sex Group	Ontario		Canada[1]	
	Mean daily total fat intake (g)	95% Confidence Intervals	**Mean daily total fat intake (g)**	95% Confidence Intervals
Both ages				
2-3 years	83	(73, 94)	84	(78, 89)
4-8 years	75	(69, 80)	79	(77, 82)
Males				
9-13 years	83	(77, 89)	84	(81, 87)
14-18 years	83	(74, 92)	83	(79, 87)
19-30 years	75	(62, 87)	75	(71, 79)
31-50 years	75	(66, 85)	76	(73, 80)
51-70 years	73	(60, 85)	76	(70, 82)
71+ years	78	(61, 94)	78	(69, 86)
Females				
9-13 years	63	(54, 72)	65	(61, 68)
14-18 years	61	(54, 68)	63	(60, 66)
19-30 years	55	(48, 61)	55	(51, 59)
31-50 years	55	(51, 59)	58	(56, 60)
51-70 years	57	(50, 63)	61	(58, 65)
71+ years	60	(52, 70)	63	(59, 67)

[1] Detailed results for Canadian data were extracted from: Ahmed M, Ng AP, L'Abbe MR. 2020. AJCN (Submitted) and Ng AP, Ahmed M. L'Abbe MR. 2020. AJCN (Submitted)

Table 10: Mean usual daily total sugar intake, from food and beverage sources only, Ontario and Canada

DRI Age-Sex Group	Ontario		Canada[1]	
	Mean daily total sugar intake (g)	95% Confidence Intervals	**Mean daily total sugar intake (g)**	95% Confidence Intervals
Both ages				
2-3 years	114	(96, 131)	119	(108, 129)
4-8 years	104	(92, 116)	113	(107, 119)
Males				
9-13 years	110	(103, 116)	115	(109, 121)
14-18 years	107	(99, 115)	111	(106, 116)
19-30 years	98	(86, 110)	100	(96, 105)
31-50 years	93	(85, 101)	96	(93, 99)
51-70 years	86	(73, 99)	90	(86, 94)
71+ years	86	(68, 103)	86	(79, 92)
Females				
9-13 years	90	(83, 97)	97	(94, 101)
14-18 years	88	(79, 97)	94	(89, 99)
19-30 years	79	(73, 86)	82	(76, 88)
31-50 years	75	(70, 79)	81	(78, 84)
51-70 years	72	(67, 77)	79	(76, 81)
71+ years	71	(63, 78)	75	(71, 78)

[1] Detailed results for Canadian data were extracted from: Ahmed M, Ng AP, L'Abbe MR. 2020. AJCN (Submitted) and Ng AP, Ahmed M. L'Abbe MR. 2020. AJCN (Submitted)

Table 11: Percentage of total daily energy from sugar, from food and beverage sources only, Ontario and Canada

Dietary Reference Intake (DRI) groups	Ontario		Canada[1]	
	Percentage of total daily energy from total sugar (%)	95% Confidence Intervals	Percentage of total daily energy from total sugar (%)	95% Confidence Intervals
Both ages				
2-3 years	19.88	(19.87, 19.89)	19.68	(19.53, 19.83)
4-8 years	19.84	(19.83, 19.85)	19.70	(19.56, 19.84)
Males				
9-13 years	19.95	(19.94, 19.96)	19.76	(19.62, 19.90)
14-18 years	19.89	(19.88, 19.90)	19.74	(19.59, 19.89)
19-30 years	19.85	(19.84, 19.86)	19.74	(19.59, 19.89)
31-50 years	19.82	(19.81, 19.83)	19.73	(19.59, 19.87)
51-70 years	19.90	(19.89, 19.91)	19.67	(19.59, 19.81)
71+ years	19.89	(19.88, 19.90)	19.68	(19.54, 19.82)
Females				
9-13 years	19.76	(19.75, 19.77)	19.75	(19.60, 19.90)
14-18 years	19.90	(19.89, 19.91)	19.71	(19.57, 19.86)
19-30 years	19.85	(19.84, 19.86)	19.65	(19.51, 19.80)
31-50 years	19.84	(19.83, 19.85)	19.71	(19.57, 19.85)
51-70 years	19.89	(19.88, 19.90)	19.67	(19.52, 19.82)
71+ years	19.98	(19.97, 19.99)	19.72	(19.57, 19.87)

[1] Detailed results for Canadian data were extracted from: Ahmed M, Ng AP, L'Abbe MR. 2020. AJCN (Submitted) and Ng AP, Ahmed M. L'Abbe MR. 2020. AJCN (Submitted)

Table 12: Mean total energy intake, from food and beverage sources only, Ontario and Canada[1]

Dietary Reference Intake (DRI) groups	Ontario		Canada[2]	
	Mean total energy intake (kcal)	95% Confidence Intervals	**Mean total energy intake (kcal)**	95% Confidence Intervals
Both ages				
2-3 years	1927	(1816, 2039)	1967	(1888, 2046)
4-8 years	1863	(1776, 1949)	1946	(1895, 1997)
Males				
9-13 years	2141	(2047, 2235)	2193	(2145, 2241)
14-18 years	2132	(2030, 2234)	2181	(2137, 2224)
19-30 years	2113	(1991, 2234)	2155	(2113, 2198)
31-50 years	2048	(1911, 2185)	2123	(2060, 2186)
51-70 years	1986	(1811, 2161)	2072	(1991, 2153)
71+ years	1937	(1710, 2164)	2030	(1914, 2145)
Females				
9-13 years	1662	(1574, 1751)	1702	(1629, 1775)
14-18 years	1640	(1555, 1725)	1693	(1631, 1756)
19-30 years	1623	(1560, 1687)	1680	(1638, 1721)
31-50 years	1576	(1526, 1625)	1641	(1614, 1669)
51-70 years	1526	(1457, 1596)	1605	(1570, 1641)
71+ years	1473	(1367, 1578)	1563	(1506, 1619)

[1] For the estimation of usual intake from energy, age and sex were adjusted for in the NCI macros (without adjustment for misreporting)
[2] Detailed results for Canadian data were extracted from: Ahmed M, Ng AP, L'Abbe MR. 2020. AJCN (Submitted) and Ng AP, Ahmed M. L'Abbe MR. 2020. AJCN (Submitted)

Table 13: Proportion of total daily energy from carbohydrates, from food and beverage sources only, Ontario and Canada

Dietary Reference Intake (DRI) groups	Ontario		Canada[1]		Acceptable Macronutrient Distribution Range (AMDR)[2]
	Percentage of total daily energy from carbohydrates (%)	95% Confidence Intervals	Percentage of total daily energy from carbohydrates (%)	95% Confidence Intervals	
Both ages					
2-3 years	49.47	(49.45, 49.49)	49.31	(48.86, 49.76)	45-65
4-8 years	49.53	(49.51, 49.55)	49.32	(48.87, 49.77)	45-65
Males					
9-13 years	49.52	(49.50, 49.54)	49.34	(48.89, 49.79)	45-65
14-18 years	49.61	(49.59, 49.63)	49.32	(48.87, 49.77)	45-65
19-30 years	49.66	(49.64, 49.68)	49.44	(48.99, 49.89)	45-65
31-50 years	49.59	(49.57, 49.61)	49.32	(48.88, 49.76)	45-65
51-70 years	49.57	(49.55, 49.59)	49.33	(48.89, 49.77)	45-65
71+ years	49.63	(49.61, 49.65)	49.36	(48.92, 49.80)	45-65
Females					
9-13 years	49.49	(49.47, 49.51)	49.34	(48.89, 49.79)	45-65
14-18 years	49.58	(49.56, 49.60)	49.34	(48.89, 49.79)	45-65
19-30 years	49.61	(49.59, 49.63)	49.37	(48.92, 49.82)	45-65
31-50 years	49.70	(49.68, 49.72)	49.36	(48.92, 49.80)	45-65
51-70 years	49.51	(49.49, 49.53)	49.35	(48.91, 49.79)	45-65
71+ years	49.56	(49.54, 49.58)	49.32	(48.88, 49.76)	45-65

[1] Detailed results for Canadian data were extracted from: Ahmed M, Ng AP, L'Abbe MR. 2020. AJCN (Submitted) and Ng AP, Ahmed M. L'Abbe MR. 2020. AJCN (Submitted)

[2] The AMDR (Acceptable Macronutrient Distribution Range) are the ranges of acceptable macronutrient intake expressed as a percentage of total energy and are associated with both a reduced risk of chronic disease while providing the adequate intakes of select essential macronutrients.

Table 14: Percentage of total daily energy from protein, from food and beverage sources only, Ontario and Canada

Dietary Reference Intake (DRI) groups	Ontario		Canada[1]		Acceptable Macronutrient Distribution Range (AMDR)[2]
	Percentage of total daily energy from protein (%)	95% Confidence Intervals	Percentage of total daily energy from protein (%)	95% Confidence Intervals	
Both ages					
2-3 years	16.71	(16.70, 16.72)	16.19	(15.98, 16.40)	5-20
4-8 years	16.68	(16.67, .16.69)	16.20	(15.99, 16.41)	10-30
Males					
9-13 years	16.69	(16.68, .16.70)	16.18	(15.97, 16.39)	10-30
14-18 years	16.65	(16.64, .16.66)	16.20	(15.99, 16.41)	10-30
19-30 years	16.63	(16.62, .16.64)	16.20	(15.99, 16.41)	10-35
31-50 years	16.65	(16.64, .16.66)	16.19	(15.98, 16.40)	10-35
51-70 years	16.70	(16.69, .16.71)	16.22	(16.01, 16.43)	10-35
71+ years	16.67	(16.66, .16.68)	16.18	(15.97, 16.39)	10-35
Females					
9-13 years	16.71	(16.70, .16.72)	16.20	(15.99, 16.41)	10-30
14-18 years	16.72	(16.71, .16.73)	16.20	(15.99, 16.41)	10-30
19-30 years	16.70	(16.69, .16.71)	16.22	(16.01, 16.43)	10-35
31-50 years	16.66	(16.65, .16.67)	16.21	(16.00, 16.42)	10-35
51-70 years	16.70	(16.69, .16.71)	16.21	(15.99, 16.41)	10-35
71+ years	16.68	(16.67, .16.69)	16.20	(15.99, 16.41)	10-35

[1] Detailed results for Canadian data were extracted from: Ahmed M, Ng AP, L'Abbe MR. 2020. AJCN (Submitted) and Ng AP, Ahmed M. L'Abbe MR. 2020. AJCN (Submitted)

[2] The AMDR (Acceptable Macronutrient Distribution Range) are the ranges of acceptable macronutrient intake expressed as a percentage of total energy and are associated with both a reduced risk of chronic disease while providing the adequate intakes of select essential macronutrients.

Table 15: Percentage of total daily energy from total fat, from food and beverage sources only, Ontario and Canada

Dietary Reference Intake (DRI) groups	Ontario		Canada[1]		Acceptable Macronutrient Distribution Range (AMDR)[2]
	Percentage of total daily energy from total fat (%)	95% Confidence Intervals	Percentage of total daily energy from total fat (%)	95% Confidence Intervals	
Both ages					
2-3 years	33.47	(33.46, 33.48)	33.51	(33.18, 33.84)	30-40
4-8 years	33.43	(33.42, 33.44)	33.39	(33.06, 33.72)	25-35
Males					
9-13 years	33.47	(33.46, 33.48)	33.36	(33.03, 33.69)	25-35
14-18 years	33.38	(33.37, 33.39)	33.35	(33.02, 33.68)	25-35
19-30 years	33.42	(33.41, 33.43)	33.37	(33.04, 33.70)	20-35
31-50 years	33.39	(33.38, 33.40)	33.43	(33.10, 33.76)	20-35
51-70 years	33.38	(33.37, 33.39)	33.40	(33.07, 33.73)	20-35
71+ years	33.39	(33.38, 33.40)	33.36	(33.03, 33.69)	20-35
Females					
9-13 years	33.31	(33.30, 33.32)	33.35	(33.02, 33.68)	25-35
14-18 years	33.38	(33.37, 33.39)	33.41	(33.08, 33.74)	25-35
19-30 years	33.33	(33.32, 33.34)	32.44	(32.11, 32.77)	20-35
31-50 years	33.41	(33.40, 33.42)	33.39	(33.06, 33.72)	20-35
51-70 years	33.39	(33.38, 33.40)	33.36	(33.03, 33.69)	20-35
71+ years	33.36	(33.35, 33.37)	33.38	(33.05, 33.71)	20-35

[1] Detailed results for Canadian data were extracted from: Ahmed M, Ng AP, L'Abbe MR. 2020. AJCN (Submitted) and Ng AP, Ahmed M. L'Abbe MR. 2020. AJCN (Submitted)

[2] The AMDR (Acceptable Macronutrient Distribution Range) are the ranges of acceptable macronutrient intake expressed as a percentage of total energy and are associated with both a reduced risk of chronic disease while providing the adequate intakes of select essential macronutrients.

Table 16: Mean daily intake of vegetables and fruit in Canada's Food Guide servings (servings/day), Ontario[1]

	Ontario							
	Total vegetable and fruit intake	95% Confidence Intervals	**Whole fruit intake**	95% Confidence Intervals	**Whole vegetable intake**	95% Confidence Intervals	**Dark green and orange vegetable intake**	95% Confidence Intervals
Males								
2-5 years	3.6	(3.2, 4.0)	1.4	(1.2, 1.6)	2.2	(1.8, 2.5)	0.5	(0.4, 0.6)
6-12 years	3.5	(3.1, 3.8)	1.3	(1.1, 1.5)	2.1	(1.8, 2.4)	0.5	(0.4, 0.6)
13-18 years	3.5	(3.2, 3.9)	1.3	(1.1, 1.5)	2.2	(1.9, 2.5)	0.6	(0.5, 0.7)
19+ years	3.9	(3.7, 4.2)	1.3	(1.2, 1.4)	2.6	(2.4, 2.8)	0.8	(0.7, 0.9)
Females								
2-5 years	3.2	(2.5, 3.8)	1.3	(1.1, 1.5)	1.9	(1.5, 2.4)	0.5	(0.4, 0.7)
6-12 years	3.3	(3.0, 3.5)	1.3	(1.1, 1.4)	2.0	(1.8, 2.2)	0.6	(0.5, 0.7)
13-18 years	3.2	(2.9, 3.5)	1.2	(1.1, 1.4)	2.0	(1.8, 2.2)	0.6	(0.5, 0.7)
19+ years	3.7	(3.4, 4.0)	1.3	(1.1, 1.4)	2.5	(2.3, 2.7)	0.8	(0.7, 0.9)

[1]Excludes intakes from vegetable and fruit juices.

Table 17: Mean daily intake of vegetables and fruit in Canada's Food Guide servings (servings/day), Canada[1]

	Canada							
	Total vegetable and fruit intake	95% Confidence Intervals	**Whole fruit intake**	95% Confidence Intervals	**Whole vegetable intake**	95% Confidence Intervals	**Dark green and orange vegetable intake**	95% Confidence Intervals
Males								
2-5 years	3.7	(3.5, 3.9)	1.4	(1.3, 1.5)	2.3	(2.1, 2.5)	0.6	(0.5, 0.6)
6-12 years	3.7	(3.5, 3.9)	1.4	(1.3, 1.5)	2.3	(2.1, 2.5)	0.6	(0.5, 0.6)
13-18 years	3.6	(3.5, 3.8)	1.3	(1.2, 1.4)	2.3	(2.1, 2.5)	0.6	(0.5, 0.7)
19+ years	3.9	(3.8, 4.1)	1.3	(1.2, 1.3)	2.6	(2.5, 2.8)	0.7	(0.6, 0.8)
Females								
2-5 years	3.5	(3.3, 3.8)	1.4	(1.4, 1.5)	2.1	(1.9, 2.3)	0.6	(0.5, 0.7)
6-12 years	3.6	(3.4, 3.7)	1.4	(1.3, 1.5)	2.1	(2.0, 2.2)	0.6	(0.6, 0.7)
13-18 years	3.5	(3.4, 3.7)	1.4	(1.3, 1.5)	2.1	(2.0, 2.2)	0.6	(0.6, 0.7)
19+ years	3.9	(3.8, 4.0)	1.4	(1.3, 1.4)	2.6	(2.5, 2.7)	0.8	(0.7, 0.8)

[1]Excludes intakes from vegetable and fruit juices.

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