

# HEALTH SURVEILLANCE INDICATORS: VEGETABLE AND FRUIT CONSUMPTION



## Public Health Relevance

Vegetables and fruit have important nutrients such as vitamins, minerals, and fibre. They are usually low in fat and calories. A diet rich in vegetables and fruit may help to reduce the risk of cardiovascular diseases, certain types of cancer, and other chronic diseases like type 2 diabetes. Eating vegetables and fruit is also associated with decreased risk of obesity.

Eating Well with Canada's Food Guide recommends that females aged 19-50 years consume seven to eight servings of vegetables and fruit per day, males aged 19-50 years consume eight to ten servings of vegetables and fruit per day, and all adults aged 51 years or older consume seven servings of vegetables and fruit per day.

## Highlights

1. Daily consumption of vegetables and fruit remained fairly stable amongst adults in Toronto from 2007 to 2014.
2. Daily consumption of vegetables and fruit by adults in Toronto was not significantly different than the rest of Ontario and the rest of the GTA.
3. Socio-demographic factors such as age and sex were associated with significant differences in daily vegetables and fruit consumption amongst adults in Toronto.

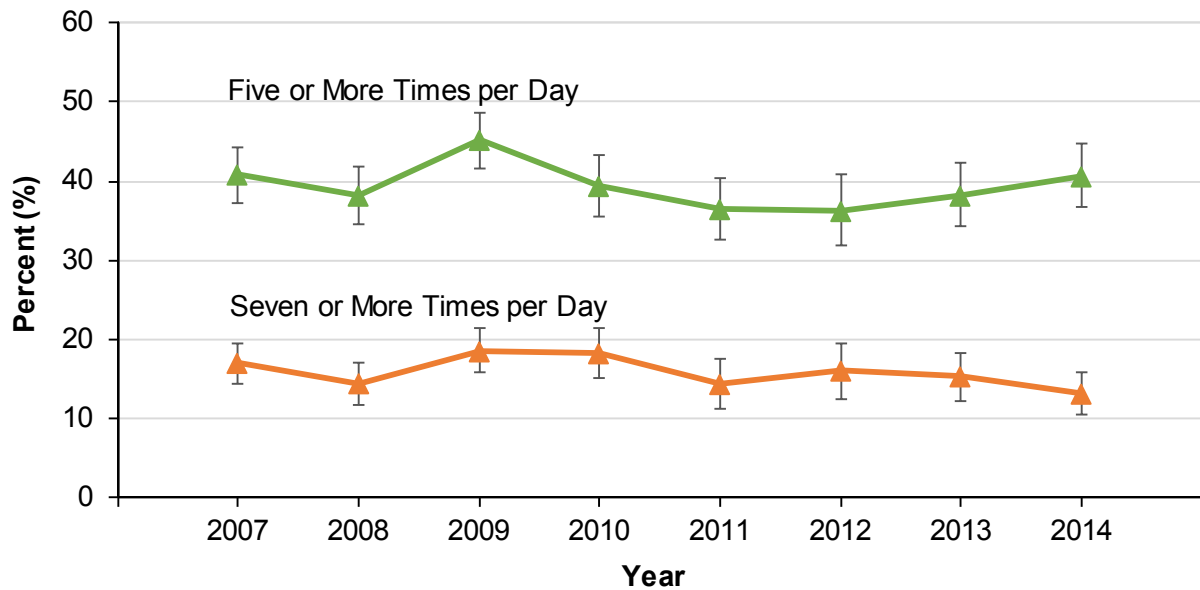
## Trends Over Time

Daily consumption of vegetables and fruit remained fairly stable amongst adults in Toronto from 2007 to 2014.

Figure 1 shows the percent of adults that consumed vegetables and fruit five or more times per day and seven or more times per day in Toronto from 2007 to 2014.

The percent of adults that consumed vegetables and fruit five or more times daily remained fairly stable from 2007 (40.8%) to 2014 (40.7%), as did the percent of adults that consumed vegetables and fruit seven or more times daily (17.0% in 2007 versus 13.2% in 2014).

**Figure 1: Percent Consuming Vegetables and Fruit Daily, Adults Aged 20 Years and Older, 2007 to 2014.**



Error bars ( $\bar{I}$ ) represent the 95% confidence intervals.

Data Source: see Data Notes.

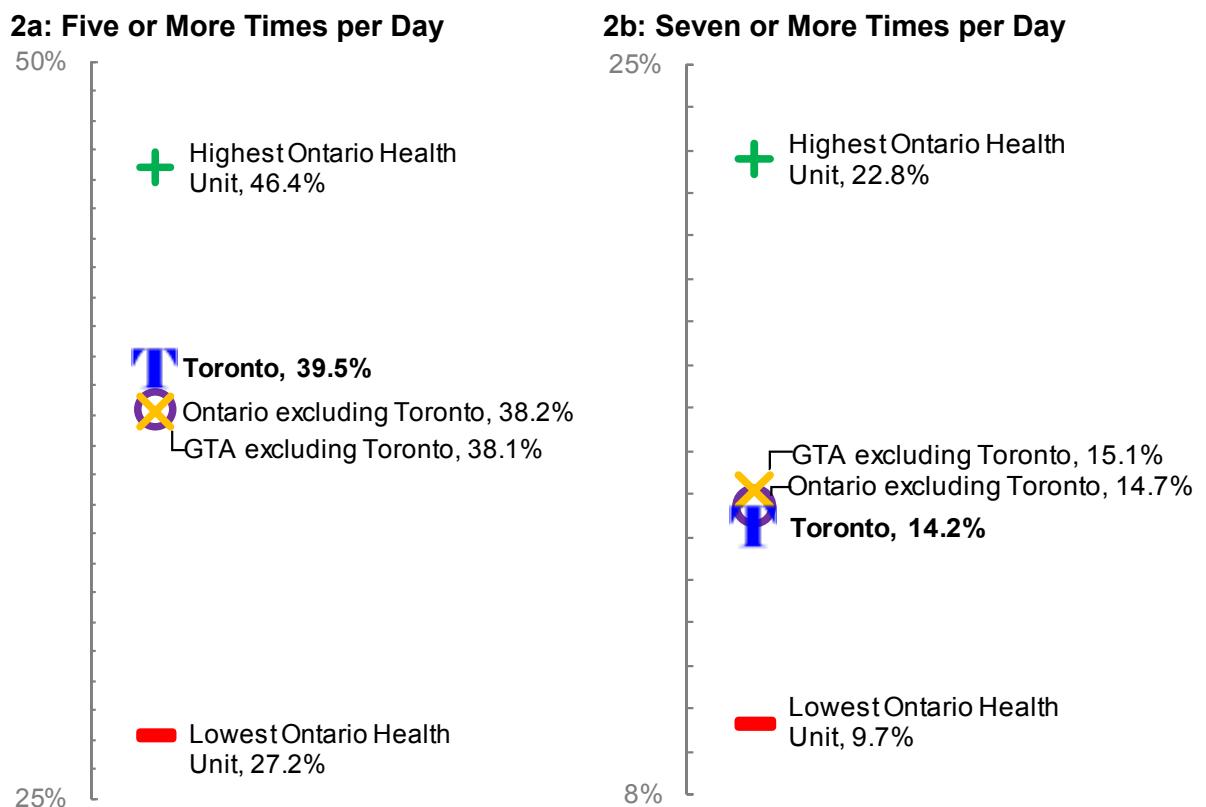
## Regional Comparisons

Daily consumption of vegetables and fruit by adults in Toronto was not significantly different than the rest of Ontario and the rest of the GTA.

Figures 2a and 2b show the percent of adults that consumed vegetables and fruit five or more times per day and seven or more times per day in Toronto compared to the rest of Ontario (Ontario without Toronto), the rest of the Greater Toronto Area (GTA without Toronto), and the health units (HUs) in Ontario with the highest and lowest percent in 2013/2014.

There were no significant differences in the daily consumption of vegetables and fruit by adults in Toronto compared to the rest of Ontario and the rest of the GTA. The consumption of vegetables and fruit seven or more times daily was significantly lower in Toronto compared to the HU with the highest percent.

**Figure 2: Percent Consuming Vegetables and Fruit Daily, Adults Aged 20 Years and Older, Selected Regions in Ontario, 2013/2014**



Data Source: see Data Notes.

## Toronto Neighbourhood Comparisons

There were no significant differences in the daily consumption of vegetables and fruit between any of the Toronto Public Health's Service Delivery Areas and Toronto as a whole.

Table 1 shows the percent of adults that consumed vegetables and fruit five or more times per day and seven or more times per day in Toronto Public Health's Service Delivery Areas (SDAs) for Chronic Disease and Injury Prevention in 2013/2014.

There were no significant differences in the percent of adults that consumed vegetables and fruit five or more times daily between any of the SDAs and Toronto as a whole.

The estimates for the percent of adults that consumed vegetables and fruit seven or more times daily by SDA were suppressed due to high sampling variability.

**Table 1: Percent Consuming Vegetables and Fruit Five or More Times per Day by Service Delivery Area\*, Adults Aged 20 Years and Older, Toronto, 2013/2014**

<b>CDIP Service Delivery Area</b>	<b>(%)</b>
Danforth East York	36.8
East Scarborough	39.1
Humber Downsview	36.9
Rexdale Etobicoke	43.9
Toronto Centre	44.7
West Scarborough	33.8
Willowdale Don Mills	32.1
York South Humber	48.2
<b>Toronto</b>	<b>39.5</b>

\* Toronto Public Health's Service Delivery Areas for Chronic Disease and Injury Prevention (CDIP).

## Socio-demographics

Socio-demographic factors such as sex, age, and ethno-racial identity were associated with significant differences in daily vegetable and fruit consumption amongst adults in Toronto.

Table 2 shows the percent of adults that consumed vegetables and fruit five or more times per day and seven or more times per day by sex in Toronto in 2013/2014.

Females were significantly more likely to consume vegetables and fruit five or more times daily compared to males.

**Table 2: Percent Consuming Vegetables and Fruit Daily by Sex, Adults Aged 20 Years and Older, Toronto, 2013/2014**

Sex	Five or More Times per Day (%)	Seven or More Times per Day (%)
Male	35.5 <sup>L</sup>	12.5
Female	43.3	15.8

<sup>L</sup> Significantly lower than the other sex indicating an unfavourable result for this group.

Data Source: see Data Notes.

Table 3 shows the percent of adults that consumed vegetables and fruit five or more times per day and seven or more times per day by age group in Toronto in 2013/2014.

Adults in the 19 to 39 years age group were significantly less likely to consume vegetables and fruit five or more times daily compared to the 65 years and older age group.

**Table 3: Percent Consuming Vegetables and Fruit Daily by Age Group, Adults Aged 20 Years and Older, Toronto, 2013/2014**

Age Group	Five or More Times per Day (%)	Seven or More Times per Day (%)
20 to 39 Years	35.8 <sup>L</sup>	13.2
40 to 64 Years	40.5	14.9
65 Years and Older	46.0	15.2

<sup>L</sup> Significantly lower than the age group with the highest percent, thus, indicating an unfavourable result for this group.

Data Source: see Data Notes.

Table 4 shows the percent of adults that consumed vegetables and fruit five or more times per day and seven or more times per day by education level in Toronto in 2013/2014.

There were no significant differences in the daily consumption of vegetables and fruit by education level.

**Table 4: Percent Consuming Vegetables and Fruit Daily by Education Level, Adults Aged 20 Years and Older, Toronto, 2013/2014**

Education Level	Five or More Times per Day (%)	Seven or More Times per Day (%)
Less than High School	31.8	S
High School Graduate	37.0	11.5 <sup>c</sup>
Post-Secondary Education	41.7	16.0

<sup>c</sup> Moderately high sampling variability, interpret with caution.

S Extremely high sampling variability. Estimate suppressed.

Data Source: see Data Notes.

Table 5 shows the percent of adults that consumed vegetables and fruit five or more times per day and seven or more times per day by immigrant status in Toronto in 2013/2014.

There were no significant differences in the daily consumption of vegetables and fruit by immigrant status.

**Table 5: Percent Consuming Vegetables and Fruit Daily by Immigrant Status, Adults Aged 20 Years and Older, Toronto, 2013/2014**

Immigrant Status	Five or More Times per Day (%)	Seven or More Times per Day (%)
Recent Immigrant	32.0	11.2 <sup>c</sup>
Longer-term Immigrant	41.6	12.6
Canadian-born	41.4	17.1

<sup>c</sup> Moderately high sampling variability, interpret with caution.

Data Source: see Data Notes.

Table 6 shows the percent of adults that consumed vegetables and fruit five or more times per day and seven or more times per day by income level in Toronto in 2013/2014.

There were no significant differences in the daily consumption of vegetables and fruit by income level.

**Table 6: Percent Consuming Vegetables and Fruit Daily by Income Level, Adults Aged 20 Years and Older, Toronto, 2013/2014**

<b>Income Level</b>	<b>Five or More Times per Day (%)</b>	<b>Seven or More Times per Day (%)</b>
Low Income	36.4	11.3
Middle Income	40.0	15.8
High Income	41.8	15.3

Data Source: see Data Notes.

Table 7 shows the percent of adults that consumed vegetables and fruit five or more times per day by ethno-racial identity in Toronto in 2013/2014.

There were no significant differences in the consumption of vegetables and fruit five or more times per day by ethno-racial identity. The estimates for the percent of adults that consumed vegetables and fruit seven or more times daily by ethno-racial identity were suppressed due to high sampling variability.

**Table 7: Percent Consuming Vegetables and Fruit Daily by Ethno-racial Identity, Adults Aged 20 Years and Older, Toronto, 2013/2014**

<b>Ethno-racial Identity</b>	<b>Five or More Times per Day (%)</b>
White	42.6
Black	32.6 <sup>c</sup>
South Asian/West Asian/Arab	37.0
East Asian/Southeast Asian	32.1
Other Racialized Group	48.8

<sup>c</sup> Moderately high sampling variability, interpret with caution.

Data Source: see Data Notes.

# Data Notes

## Notes

- Significant differences were estimated using overlapping confidence intervals. Although this method is conservative ( $\alpha \sim < 0.01$ ) and most appropriate when comparing mutually exclusive groups, it was chosen as an objective means of drawing conclusions on population-based data. Multiple comparisons performed in the analyses were not taken into consideration when choosing the level of significance to test.
- Toronto is compared to the rest of Ontario (Ontario with Toronto removed) as opposed to the Ontario total because Toronto comprises a large proportion of the Ontario population. Toronto is also compared to the rest of the GTA (Greater Toronto Area) for the same reason.
- Data used for the regional comparisons normally shows the percentage for the Ontario health units with the highest and the lowest percentage. The purpose of these comparisons is to show the percent for Toronto relative to other areas in Ontario.
- The estimates in this indicator page are from self-reported data from the Canadian Community Health Survey (CCHS). Self-reported data have a number of limitations. People do not always remember their behaviours, and may under-report or over-report certain behaviours or characteristics based on their perceived social desirability. For example, people may report higher consumption of vegetables and fruit because they perceive this to be a "better" response. In addition, surveys do not always provide a representative picture of the whole population. The CCHS under-represents people of low income, people with low education, and new immigrants.
- Time trend analysis is based on the most recent 8 years of data. This is because the CCHS changed from a two-year release cycle to an annual release cycle starting in 2007.

## Definitions

**95% Confidence Interval** is the range within which the true value lies, 19 times out of 20.

**Ethno-racial Identity** is based on respondents identifying their cultural and/or racial background. South Asian includes ethnicities such as Indian and Pakistani; West Asian includes those such as Afghan and Persian; Arab includes those such as Egyptian and Saudi Arabian; East Asian includes those such as Chinese and Japanese; and Southeast Asian includes those such as Vietnamese and Filipino. The 'other' group includes people who defined themselves as Latin American, and of multiple ethnic groups. The sample size for these groups were too small to analyze them separately. Aboriginal respondents are not included in this category because of their unique identity, history, and experiences. They are excluded from the analysis by ethno-racial identity.

**Immigrants** are those respondents whose country of birth is outside of Canada.

**Income Level** is derived as three equally divided parts of the weighted population based on the respondents' adjusted household income ratios. A respondent's adjusted household income ratio is calculated using the total household income, Statistics Canada's 2013-2014 low



income cut offs (LICO), and the CCHS income adjustment factor. Approximately 30% of survey respondents included in this analysis had their income level imputed based on other socio-demographic characteristics.

**Longer-term Immigrants** refers to individuals that arrived within the ten year period prior to data collection.

**Low Vegetable and Fruit Consumption** is defined as consuming vegetables and fruit less than five or seven times per day on average. Survey respondents are asked how many times per day, week, or month they consume each of six vegetable and fruit categories: fruit juice, fruit, green salad, carrots, potatoes (excluding French fries, fried potatoes, and potato chips) and other vegetables. Daily vegetable and fruit consumption is calculated from answers to these questions. This variable does not take into consideration portion size. Survey respondents who did not provide a response to one or more questions needed to calculate this indicator are excluded from this analysis. In some sub-populations, these individuals comprise a considerable proportion of the total population. This should be considered when interpreting the results.

**Recent immigrants** or "Newcomers" are respondents that had arrived in Canada in the ten years prior to the data collection.

**Sex** defines people based on their biological characteristics, whereas gender is a socially constructed concept. From a social determinants of health perspective, certain health conditions can be associated with gender, and from a biological perspective, health conditions can be associated with sex. Although reporting based on both concepts would be preferable, the data source used here only collects information on sex, and not gender.

## Sources

**Canadian Community Health Survey:** Canadian Community Health Survey (CCHS), 2007 to 2014. Statistics Canada, Share File, Knowledge Management and Reporting Branch, Ontario Ministry of Health and Long-Term Care.

Used in:

- Figures 1 and 2
- Tables 1-7

Health Surveillance Indicator: Vegetable and Fruit Consumption

Category: Chronic Disease

Prepared: July, 2017

This indicator report is part of a series that informs the ongoing assessment of Toronto's health status. For a full list of the indicators, please go to: [www.toronto.ca/health](http://www.toronto.ca/health)