



# INSIGHT ON CANCER

news and information on *nutrition and cancer prevention*

## HIGHLIGHTS

- Results of a survey of 3,183 Ontario adults aged 18–64 years provide a rich picture of diet-related cancer risk factors in Ontario and its regions
- To reduce cancer risk, health agencies recommend:
  - 5 or more servings of vegetables and fruit every day
    - 40% of Ontario adults aged 18–64 do not meet this guideline
  - A healthy body weight
    - 48% of Ontarians aged 18–64 are overweight or obese
  - At least 30–45 minutes of moderate to vigorous physical activity on most days
    - 48% of Ontario adults get <3 hours per week moderate to vigorous physical activity
- Only 14% of Ontario men and 22% of Ontario women aged 18–64 meet all three of these recommendations
- Up to 30% of cancers could be prevented if Ontario adults increased their vegetable and fruit intake, were more physically active and maintained a healthy body weight



*Insight on Cancer* is a series of joint Cancer Care Ontario and Canadian Cancer Society (Ontario Division) publications designed to provide up-to-date information for health professionals and policy-makers about cancer and cancer risk factors in the province.

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### Disclaimer

The tables and figures in this report contain information from the Ontario Nutrition and Cancer Prevention Survey. Cancer Care Ontario made efforts to ensure the accuracy of this information at the time of writing this report. However, errors may be discovered as data analysis continues. Results in future reports may therefore differ slightly from those presented here.

## SETTING THE CONTEXT

Unhealthy eating, overweight and physical inactivity may be responsible for 30% of cancers in the developed world.<sup>1</sup> 16,000 cancers in Ontarians could be prevented annually by avoiding these risks. This is comparable to the number preventable by removing manufactured tobacco products.

A diet rich in vegetables and fruit can reduce the risk of colorectal, lung, and a number of other cancers.<sup>2</sup>

A healthy body weight reduces the risk of several cancers, including post-menopausal breast cancer.<sup>2</sup>

Further, recent research suggests that obesity or overweight may be related to 14% of all male and 20% of all female cancer deaths.<sup>3</sup> Obesity prevalence in Canada increased from 5.6% in 1985 to 14.8% in 1998.<sup>4</sup> Approximately 2.8 million Canadians are obese.<sup>5</sup>

Regular physical activity decreases the risk of some cancers.<sup>2,6</sup> Some benefit results from its role in maintaining healthy body weight, for which moderate intensity is sufficient. Additional cancer-risk reduction may require vigorous activity.<sup>7</sup> Physical activity is beneficial whether done “at home, at work, at school, at play or on the way.”<sup>8</sup>

Less alcohol would reduce the risk of mouth and throat, esophagus, colorectal, liver, larynx and breast cancers.<sup>2</sup> Other dietary factors may also reduce risk, but more evidence is needed before making definitive recommendations.

### Cancers with convincing or probable evidence for prevention by vegetable and fruit consumption, healthy body weight, and physical activity

Cancer	Vegetables and Fruit	Healthy Body Weight	Physical Activity
Mouth, throat	✓		
Esophagus	✓	✓	
Stomach	✓		
Colon, rectum	✓	✓	✓
Pancreas	✓		
Larynx	✓		
Lung	✓		
Breast		✓	✓
Endometrium*		✓	✓
Prostate			✓
Kidney		✓	
Bladder	✓		

\* Uterus, excluding cervix  
Sources: Institute of Medicine, 2003<sup>2</sup>  
Friedenreich, 2001<sup>6</sup>

### Recommendations to reduce cancer risk

	Recommendation
Vegetable and fruit consumption <sup>9</sup>	5–10 servings daily*
Body weight <sup>10,11</sup>	Body mass index (BMI) <25 kg/m <sup>2</sup> **
Physical activity <sup>12</sup>	At least 30–45 minutes of moderate to vigorous activity on most days of the week

\*Canada's Food Guide to Healthy Eating describes a serving as 1 medium size vegetable or fruit, 1/2 cup of fresh, frozen or canned vegetables or fruit, 1 cup of salad or 1/2 cup of 100% fruit or vegetable juice<sup>9</sup>

\*\*See Glossary for Body mass index

Although there is no evidence that a very low BMI (<18.5) increases the risk of cancer, it is associated with increased risk of other health problems<sup>3</sup> and so is not recommended.

# THE ONTARIO NUTRITION AND CANCER PREVENTION SURVEY (ONCPS)

## The Ontario Nutrition and Cancer Prevention Survey (ONCPS) questions

### Vegetable and fruit intake

Please think about the foods you have eaten over the past month including foods and beverages that were part of meals and snacks, at home and away from home.

Over the past month, how many times per day, per week, or per month did you eat/drink:

- french fries, hash browns or poutine?
- other potatoes, such as baked potatoes, boiled potatoes, mashed potatoes or potato salad?
- lettuce salads with or without other vegetables in them?
- 100% vegetable juices like tomato or V-8?
- other vegetables including raw, cooked, canned or frozen?
- soups made mostly with vegetables?
- tomato sauces with foods such as spaghetti or pasta?
- fresh, frozen or canned fruit?
- 100% fruit juices?

*For each food item consumed:*

If one portion of [ *food item* ] is about 1/2 cup, each time you ate [ *food item* ] how many portions did you usually eat?

### Knowledge (vegetables and fruit)

How many servings of fruits and vegetables do you think government and health agencies recommend that adults eat every day?

### Attitude (vegetables and fruit)

For yourself, how many servings of fruits and vegetables do you think you need to eat every day to stay healthy?

### Physical activity

Please think about physical activities or exercises that you do during your normal day, including at work, at school, doing chores and in your leisure time.

On how many days, in a usual week, do you exercise or participate for 10 minutes or more in activities that increase your breathing or make your heart beat faster?

For how long do you do these types of activities in a typical day?

### Body measurements

How tall are you without shoes?

How much do you weigh?

In 2001–2002, Cancer Care Ontario, in partnership with other agencies, surveyed over 3,000 Ontario adults. Preliminary results presented here are about vegetable and fruit intake, knowledge and attitudes; height and weight; and physical activity. Future reports will include more detail and additional topics.

## Methods

A random sample of Ontarians aged 18–64 were telephoned and invited to participate.

Stratified sampling ensured at least 375 participants in each of six geographic areas corresponding to the eight cancer planning regions. (South and Southwest regions were combined, as were East and Southeast regions.) Toronto Public Health provided financial support for an enlarged Toronto sample within Central East region.

The 20–25 minute telephone survey was conducted by York University's Institute for Social Research. Approximately 265 interviews were completed monthly between June 2001 and May 2002. The final sample size was 3,183 (63% of eligible invited adults).

## Calibration of vegetable and fruit intake

A validation study comparing ONCPS questions to 24-hour total diet recalls found that survey questions slightly overestimated daily servings of vegetables and fruit.<sup>13</sup> As a result, ONCPS estimates of population proportions not meeting the recommended daily vegetable and fruit intake are conservative.

Source: Cancer Care Ontario, Ontario Nutrition and Cancer Prevention Survey, 2003

## VEGETABLES AND FRUIT

*Canada's Food Guide to Healthy Eating*<sup>9</sup> recommends five to ten servings of vegetables and fruit daily. **About 40% of Ontarians surveyed (ages 18–64) failed to meet this recommendation:** 45% of men and 36% of women ate fewer than five servings per day. **Women ate significantly more vegetables and fruit than men:** their median number of daily servings was 6.3, compared to men's 5.4.

10% of men and 5% of women ate two or fewer servings of vegetables and fruit daily. Consumption this low may double the risk of cancer.<sup>14</sup>

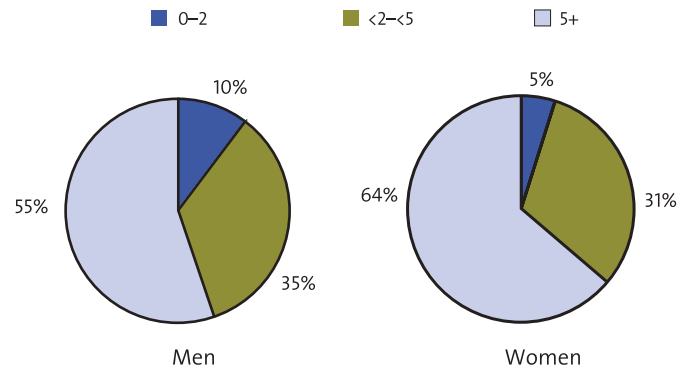
Those who ate fewer than five servings per day consumed proportionally less juice and fruit, and more potatoes, than those eating recommended amounts. They also ate more fried potato products.

Since ONCPS slightly overestimates daily servings<sup>13</sup>, the proportions eating fewer than the recommended servings are higher than reported here.

The per capita amount of vegetables and fruit consumed by Canadians increased by more than 30% over the past 40 years.<sup>5</sup>

The Canadian Community Health Survey reported that 68% of Ontario males and 57% of females aged 12+ ate vegetables and fruit less than five times a day.<sup>15</sup> ONCPS data for times per day were very similar to these: 75% of men and 64% of women ate vegetables and fruit less than five times a day.

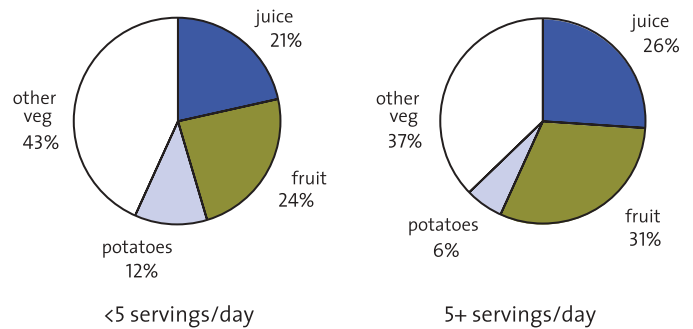
Daily servings of vegetables and fruit\*



\* See Glossary for *Vegetable and fruit servings per day*

Source: Cancer Care Ontario, Ontario Nutrition and Cancer Prevention Survey, 2003

Major types of vegetables and fruit consumed\*



\* Juice: 100% vegetable juices and 100% fruit juices

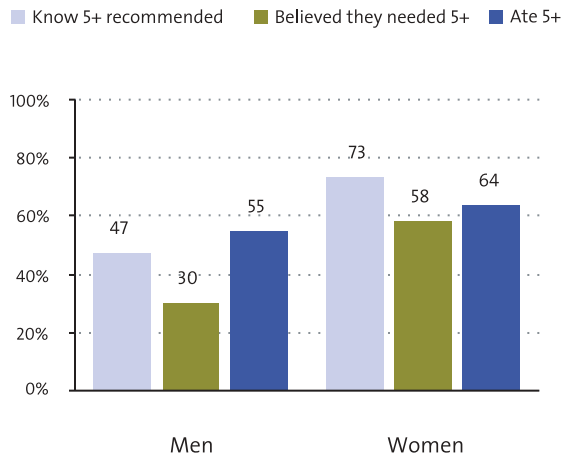
Potatoes excludes fried potato products

Other vegetables: all other vegetables, including tomato sauce, soup and salad

Source: Cancer Care Ontario, Ontario Nutrition and Cancer Prevention Survey, 2003

About 40% of Ontarians surveyed (ages 18 to 64) failed to meet *Canada's Food Guide* recommendations.

## Knowledge, attitudes and behaviour related to eating vegetables and fruit: proportion 5+ servings/day



Source: Cancer Care Ontario, Ontario Nutrition and Cancer Prevention Survey, 2003

## Knowledge, attitudes and behaviour

Nearly 40% of Ontario adults did not know that health agencies recommend eating at least five servings of vegetables and fruit each day. Fewer men (47%) than women (73%) knew the recommendation.

Although 61% knew that five daily servings were recommended, fewer believed that this recommendation applied to them personally: 58% of women and 30% of men believed that they needed to eat five or more servings of vegetables and fruit daily.

Behaviour was similar to knowledge: 55% of men and 64% of women actually ate the recommended number of servings of vegetables and fruit. Actual vegetable and fruit intake is likely lower than these percentages would suggest, because ONCPS slightly overestimated intake.<sup>13</sup>

These findings indicate the need to increase awareness, particularly among men, about the number of daily servings of vegetables and fruit required for all adults to maintain good health and reduce the risk of cancer.

**Nearly 40% of Ontario adults did not know of the recommendation to eat at least 5 servings of vegetables and fruit each day.**

# VEGETABLES AND FRUIT

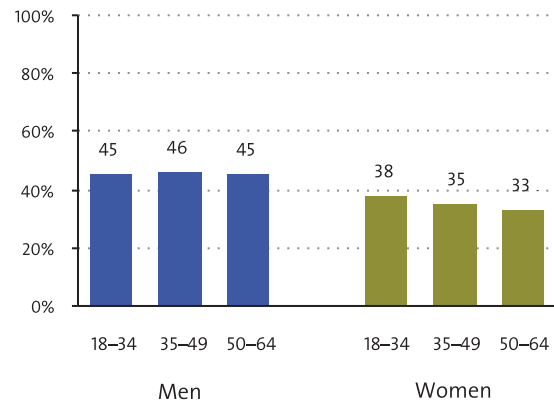
## Age groups

The proportion of men consuming fewer than five servings of vegetables and fruit a day was similar in all age groups (45%–46%).

**Slightly more younger than older women ate fewer than the recommended number of daily servings of vegetables and fruit:** 38% of women aged 18–34 ate fewer than five servings per day, compared to 33% of those 50–64.

**In every age group, men ate less vegetables and fruit than women.**

Vegetable and fruit intake by age group and sex: proportion eating <5 servings/day



Source: Cancer Care Ontario, Ontario Nutrition and Cancer Prevention Survey, 2003

## Education

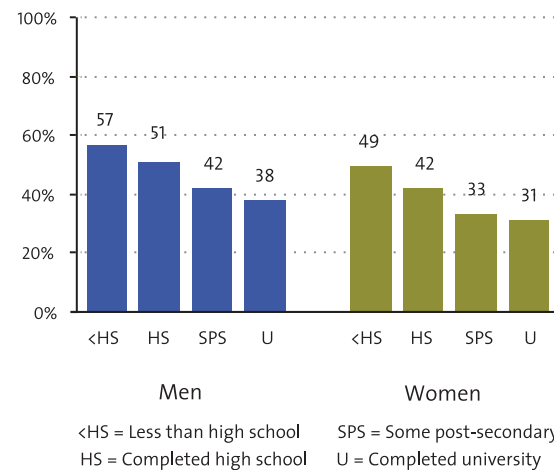
For both men and women, the proportions eating fewer than five daily servings of vegetables and fruit varied significantly across educational attainment levels.

**Ontario adults with the lowest educational levels were the least likely to meet the recommendation to eat at least five servings of vegetables and fruit per day.** This was true for both sexes. The proportion eating fewer than five servings per day (that is, not meeting the recommendation) declined gradually from 57% of men who did not complete high school to 38% of those with university education, and from 49% to 31% of women.

A similar pattern of vegetable and fruit intake according to level of education has been reported elsewhere.<sup>16–18</sup>

Future analyses will explore further the relationship between education, income and vegetable and fruit intake.

Vegetable and fruit intake by level of education and sex: proportion eating <5 servings/day



Source: Cancer Care Ontario, Ontario Nutrition and Cancer Prevention Survey, 2003

## Body weight classification

Classification	BMI (kg/m <sup>2</sup> )
Underweight	<18.5
Healthy Weight	18.5–24.9
Overweight	25.0–29.9
Obese	
class I	30.0–34.9
class II	35.0–39.9
class III	≥40.0

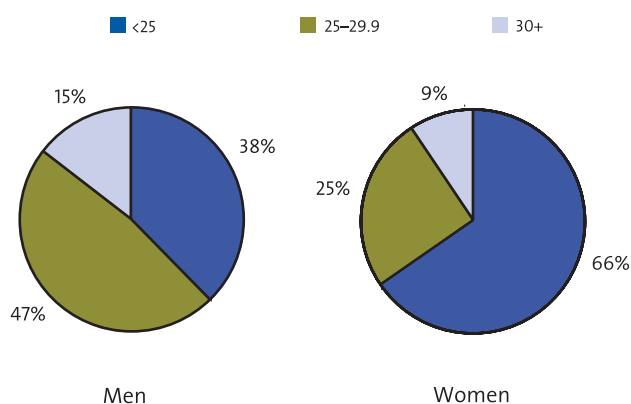
Sources: Health Canada, 2003<sup>10</sup>  
World Health Organization, 2000<sup>11</sup>

A body mass index (BMI) of less than 25 kg/m<sup>2</sup> is recommended to reduce cancer risk.<sup>2</sup> Although obesity (BMI≥30) increases risk substantially, any excess weight (BMI≥25) results in higher risk. A very low BMI (<18.5) increases the risk of other health problems and is not recommended.<sup>10, 11</sup>

**Almost half (48%) of Ontario adults aged 18-64 years were above the healthy weight range: 36% were overweight and 12% obese.** Significantly more men than women were overweight or obese: 47% of men and 25% of women were overweight, and 15% of men and 9% of women were obese.

The Canadian Community Health Survey had similar findings in Ontario.<sup>19</sup>

## Body weight (BMI in kg/m<sup>2</sup>)



Source: Cancer Care Ontario, Ontario Nutrition and Cancer Prevention Survey, 2003

The International Agency for Research on Cancer recommends physical activity for energy balance and weight control.<sup>7</sup> The Agency suggests continuous moderate-intensity activity, such as walking for an hour on most days, particularly among adults with sedentary jobs, to help maintain a healthy body weight.

Body height and weight were reported, not measured directly. Since people tend to report taller than actual height and lower than actual weight, especially at higher weights, ONCPS data likely underestimate the prevalence of overweight and obesity.<sup>20</sup>

Body shape affects cancer risk independently of BMI: a high waist-to-hip ratio increases risk.<sup>7</sup>

**48% of adults 18 to 64 years of age were above the healthy weight range.**



# BODY WEIGHT

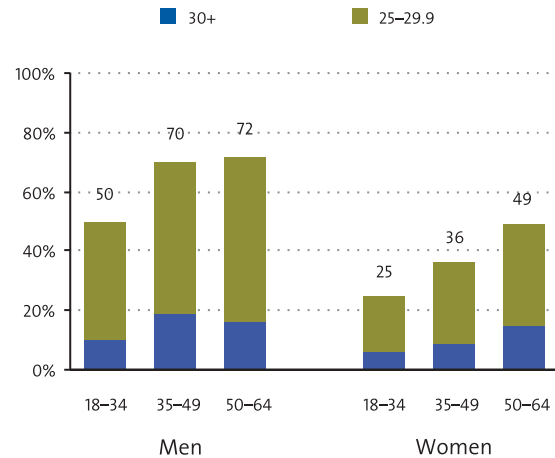
## Age groups

The proportion of adults who were overweight or obese increased with age, and differed significantly across age groups. While 50% of men aged 18–34 years were overweight or obese, this rose to 70% of men aged 34–49 and 72% of men aged 50–64.

Similarly, 25% of women aged 18–34 years were overweight or obese compared to 36% of women aged 35–49 and 49% of women aged 50–64.

The proportion of adults who were overweight or obese increased with age.

Body weight by age group and sex: proportion overweight or obese (BMI in kg/m<sup>2</sup>)



Source: Cancer Care Ontario, Ontario Nutrition and Cancer Prevention Survey, 2003

## Education

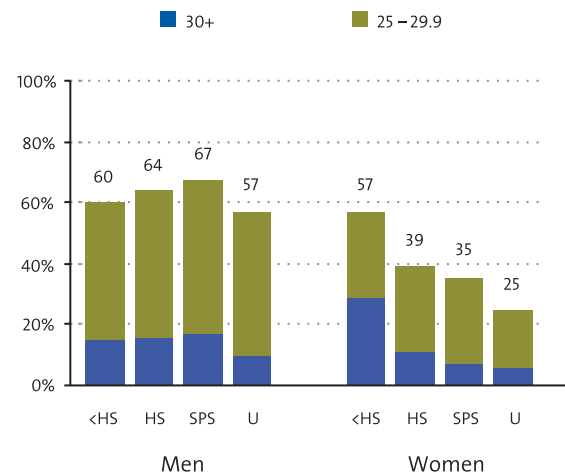
The proportion of individuals who were overweight or obese differed significantly across levels of educational attainment for both men and women.

Although university-educated men were the least likely to be overweight or obese (57%), no consistent trend was evident. Differences among men with varying levels of educational attainment were much smaller than for women.

The proportion of overweight or obese women was greatest among those with the least education, dropping from 57% in those who did not complete high school, to 25% in those who reported graduating from university. Obesity showed the same trend.

The prevalence of overweight and obesity may be highest in the lowest education category in part because it includes a disproportionate number of older people, who tend to have a higher BMI, and in part due to a relationship with income level.

Body weight by level of education and sex: proportion overweight or obese (BMI in kg/m<sup>2</sup>)

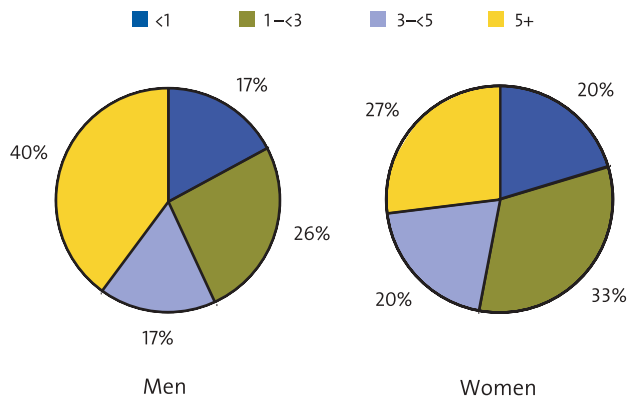


<HS = Less than high school    SPS = Some post-secondary  
 HS = Completed high school    U = Completed university

Source: Cancer Care Ontario, Ontario Nutrition and Cancer Prevention Survey, 2003

## PHYSICAL ACTIVITY

Weekly hours of physical activity\*



\* See Glossary for *Physical activity hours per week*  
Source: Cancer Care Ontario, Ontario Nutrition and Cancer Prevention Survey, 2003

At least 30 to 45 minutes of moderate to vigorous physical activity on most days of the week is recommended to reduce cancer risk.<sup>6,12</sup> This represents three hours per week minimally and five hours optimally.

**43% of men and 53% of women aged 18–64 did not meet the minimum recommendation**, with less than three hours of moderate to vigorous physical activity per week; **60% of men and 73% of women did not meet the optimal recommendation** of five hours per week. Nearly 20% were active for less than one hour per week.

Although men and women were active for at least 10 minutes on similar numbers of days per week (median=5), men were active for significantly more hours per week (median=3.3) than women (median=2.7).

The Canadian Community Health Survey reported similar levels of inactivity.<sup>5</sup> The prevalence of inactivity in adult Canadians has declined since 1994.<sup>5</sup>

The International Agency for Research on Cancer recommends an hour per day of moderate-intensity physical activity for weight control; however, vigorous activity, such as fast walking, several times per week may be needed for additional cancer-risk reduction.<sup>7</sup>

*Canada's Physical Activity Guide to Healthy Active Living* recommends that activities be performed in periods of at least 10 minutes each.<sup>8</sup> Whether more sustained activity is required for cancer-risk reduction is unknown.

**4 out of 10 men and over 5 out of 10 women did not meet the minimum physical activity recommendation.**

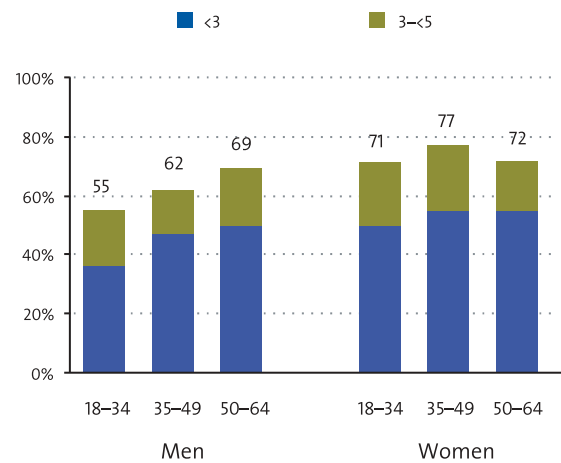
# PHYSICAL ACTIVITY

## Age groups

The proportion who were inactive (<3 hours of physical activity/week) varied significantly with age for men but not for women.

**Physical inactivity (<3 hours per week) increased with age for men**, ranging from 36% of those aged 18–34 to 50% of men 50–64; the same was true for those reporting less than 5 hours of weekly activity, which rose from 55% of younger (18–34) men to 69% of older (50–64) men. **Among women, there was little difference by age:** 50%–55% in all age groups were active for less than three hours per week and 71%–77% for less than five.

Physical activity by age group and sex: proportion physically active <3 or 3–<5 hours/week



Source: Cancer Care Ontario, Ontario Nutrition and Cancer Prevention Survey, 2003

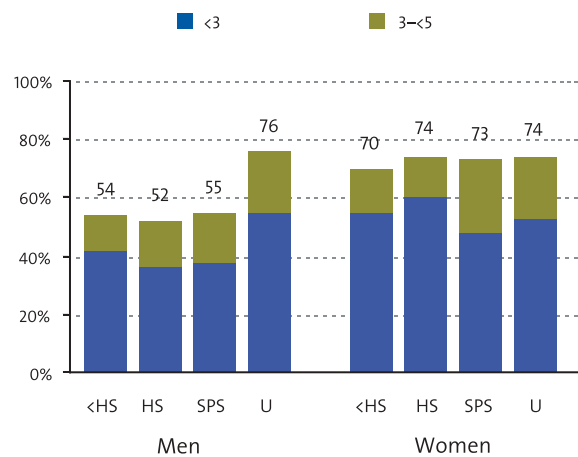
## Education

The proportion who were inactive (<3 hours of physical activity/week) varied significantly with level of education for men but not women.

**Among men, university graduates were the least active**, with 55% having less than three hours of physical activity per week and 76% less than five. There were no differences in the proportion of physically inactive men across other levels of education.

In women, there were no differences for the proportion active less than five hours per week, but **women with some post-secondary education or a university degree were somewhat more likely to be active for at least three hours per week.**

Physical activity by level of education and sex: proportion physically active <3 or 3–<5 hours/week

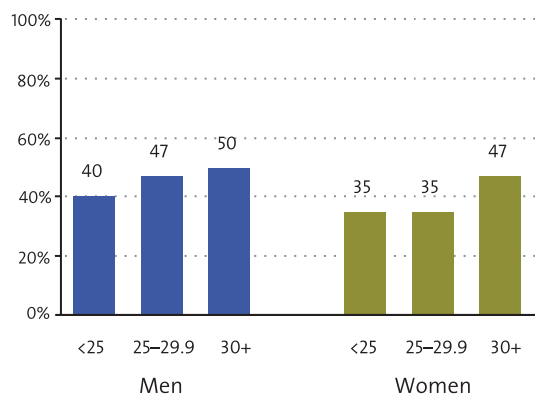


<HS = Less than high school    SPS = Some post-secondary  
 HS = Completed high school    U = Completed university

Source: Cancer Care Ontario, Ontario Nutrition and Cancer Prevention Survey, 2003

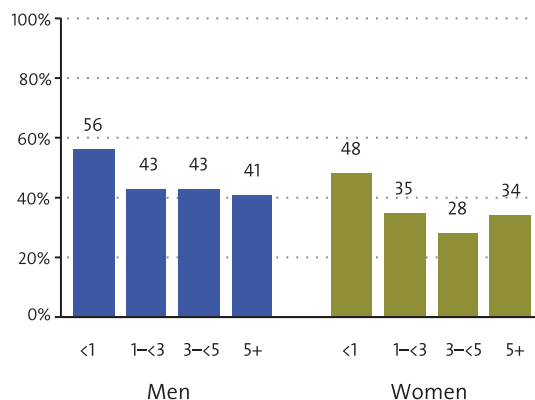
# LOW VEGETABLE AND FRUIT INTAKE BY WEIGHT AND PHYSICAL ACTIVITY

**Vegetable and fruit intake by body weight\*:  
proportion eating <5 servings/day**



\* Categories represent BMI kg/m<sup>2</sup>  
Source: Cancer Care Ontario, Ontario Nutrition and Cancer Prevention Survey, 2003

**Vegetable and fruit intake by level of physical activity\*:  
proportion eating <5 servings/day**



\* Categories represent hours/week of physical activity  
Source: Cancer Care Ontario, Ontario Nutrition and Cancer Prevention Survey, 2003

## Body weight and low vegetable and fruit intake

Ontarians who were obese were most likely to eat fewer than the recommended servings of vegetables and fruit. Nearly 50% of obese men and women ate less than five servings of vegetables and fruit per day, compared to 47% of overweight men and 35% of overweight women, and 40% of men and 35% of women with a healthy body weight. These differences were statistically significant for both men and women.

**Ontarians who were obese were most likely to eat fewer than the recommended servings of vegetables and fruit.**

## Physical activity and low vegetable and fruit intake

Ontario adults who were the least active (<1 hour/week) were the most likely to have lower-than-recommended vegetable and fruit intake. Over 50% of men and 48% of women reporting less than one hour per week of physical activity ate fewer than five daily servings of vegetables and fruit, compared with 41%–43% of men and 28%–35% of women in categories representing more physical activity. These differences were statistically significant for both men and women.

Diet, physical activity and body weight are inter-related, since excess body weight is usually the result of an imbalance between energy intake (diet) and output (physical activity). Physical activity appears to offer additional cancer risk reduction benefits beyond helping to maintain healthy body weight.<sup>7</sup>

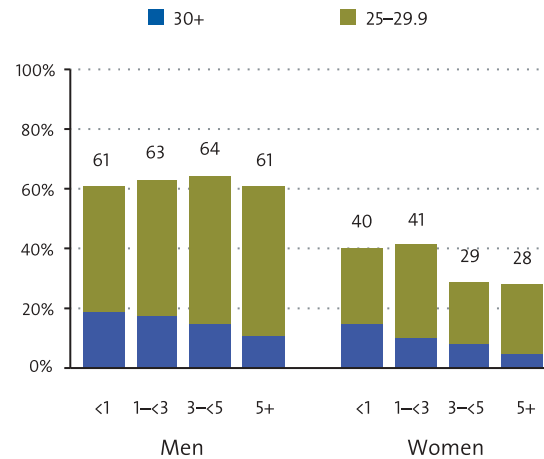


## WEIGHT AND PHYSICAL ACTIVITY

The proportion of men who were overweight or obese was similar for all levels of physical activity. However, **the least active men were more likely to be obese** (BMI $\geq$ 30): 19% of men reporting less than one hour of physical activity per week were obese compared to 11% of those who were active five or more hours a week.

**Women who were less active were more likely to be overweight or obese than those who were more active:** 40%–41% of those active for less than one or 1–<3 hours per week were overweight or obese compared to 28%–29% of women in the higher physical activity categories. These differences were statistically significant. The prevalence of obesity declined consistently with increasing amount of activity, from 15% in the least active women to 5% in the most active.

Body weight by level of physical activity\*: proportion overweight or obese (BMI in kg/m<sup>2</sup>)

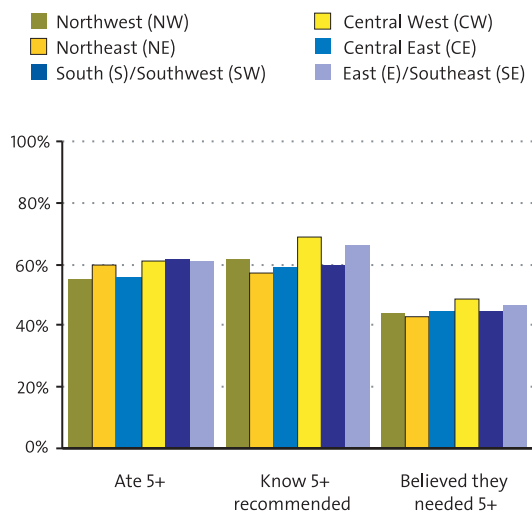


\* Categories represent hours/week of physical activity

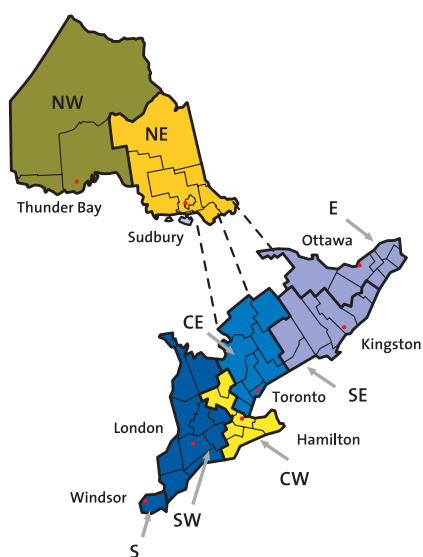
Source: Cancer Care Ontario, Ontario Nutrition and Cancer Prevention Survey, 2003

## REGIONAL VARIATION

### Knowledge, attitudes and behaviour related to eating vegetables and fruit by region: proportion 5+ servings/day



### Key map of Ontario regions



Sources: Cancer Care Ontario, Ontario Nutrition and Cancer Prevention Survey, 2003  
SAS, 1999-2001<sup>23</sup>

### Knowledge, attitudes and behaviour about eating vegetables and fruit

There was limited variation from region to region of Ontario in the proportion of adults eating five or more servings of vegetables and fruit per day. It ranged from a low of 55% in the Northwest region to 62% in Central East. Differences in median servings per day (ranging from 5.5 in the Northwest to 6.2 in Central East) were of borderline significance.

Knowledge and attitudes about the recommended or needed number of daily servings of vegetables and fruits generally varied with behaviour: regions with the highest proportions of adults eating the recommended servings were generally those with the highest levels of knowledge and belief. The exception was Central East region, which had the highest per cent eating five or more daily servings, but ranked fourth (out of six) with respect to knowledge and tied for third with respect to beliefs.

Central East region has a large population of immigrants from countries where diet differs from that of North Americans or Europeans.<sup>21</sup> This may partly explain the relatively high proportion of adults in Central East who were eating five or more daily servings of vegetables and fruit.

More limited access to fresh, high-quality vegetables and fruit in the Northwest region<sup>22</sup> may explain the lower intake.

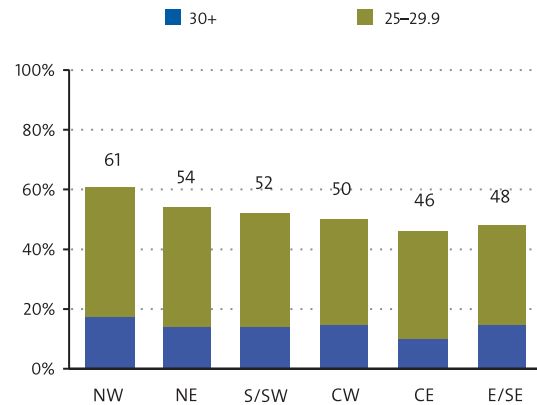
## REGIONAL VARIATION

### Body weight

The proportion of adults who were overweight or obese varied significantly between regions, ranging from 46% in Central East to 61% in the Northwest. The prevalence of obesity varied in a similar manner.

The highest proportion of overweight or obese adults was found in Northern Ontario.

Body weight by region\*: proportion overweight or obese (BMI in kg/m<sup>2</sup>)



\* NW=Northwest S/SW=South/Southwest CE=Central East  
NE=Northeast CW=Central West E/SE=East/Southeast

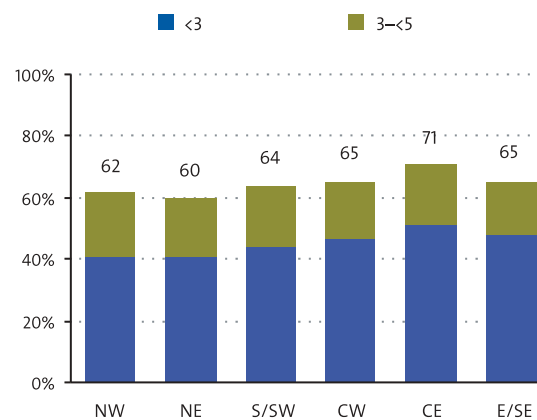
Source: Cancer Care Ontario, Ontario Nutrition and Cancer Prevention Survey, 2003

### Physical activity

Regions differed significantly in the proportion of adults who were physically inactive (that is, <3 hours of physical activity per week). Those in the Northeast and Northwest regions of the province had the lowest levels of physical inactivity (41% who reported <3 hours/week of physical activity) while Central East (which includes Toronto) had the highest (51% of adults were inactive). The pattern was similar for less than five hours of activity per week, which was reported by 71% in Central East, 62% in the Northwest and 60% in the Northeast.

The median hours of physical activity per week ranged from 2.5 hours per week in Central East to 3.5 in the Northeast and Northwest regions.

Physical activity by region\*: proportion physically active <3 or 3-5 hours/week

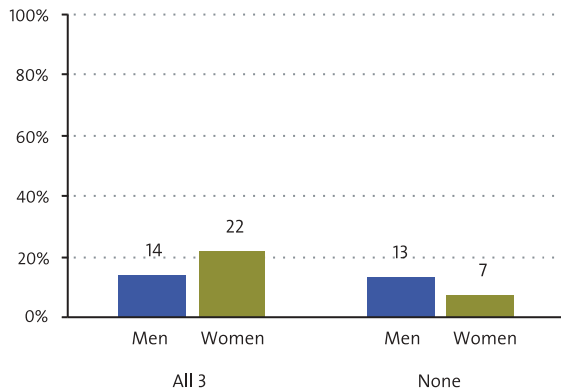


\* NW=Northwest S/SW=South/Southwest CE=Central East  
NE=Northeast CW=Central West E/SE=East/Southeast

Source: Cancer Care Ontario, Ontario Nutrition and Cancer Prevention Survey, 2003

## CONCLUSIONS AND ACTIONS

### Proportion following recommendations for vegetable and fruit intake, body weight and physical activity\* by sex



\* 5+ servings of vegetables and fruit daily, BMI < 25 kg/m<sup>2</sup>, and physically active 3+ hours per week.  
Source: Cancer Care Ontario, Ontario Nutrition and Cancer Prevention Survey, 2003

Only 14% of Ontario men aged 18–64 and 22% of women meet minimum recommendations for vegetable and fruit intake (five or more servings daily), body weight (BMI < 25 kg/m<sup>2</sup>) and physical activity (at least three hours weekly). 13% of men and 7% of women meet none of the three recommendations and are at increased risk of cancer as a result.

**13% of men and 7% of women met none of the minimum recommendations for vegetable and fruit intake, body weight and physical activity.**

### Ontario cancer prevention targets for diet, weight, physical activity and alcohol

	Vegetable and Fruit Intake	Obesity	Physical Activity	Alcohol Consumption
<b>Measure</b>	% consuming 5+ servings of vegetables and fruit daily	% obese (BMI ≥ 30)	% participating in moderate to vigorous activity on most days of the week	% following the low-risk drinking guidelines*
<b>Cancer 2020 Target</b>	90%	10%	90%	98%

\* As set out by the CAMH<sup>26</sup>  
Source: Cancer 2020 Steering Committee<sup>25</sup>

### Call to action!

Cancer is the leading cause of preventable death in Canada, responsible for 31% of potential years of life lost.<sup>24</sup> Unless action is taken to reduce the incidence of cancer, its burden on society and the health care system will continue to escalate.

Cancer Care Ontario, in consultation with its stakeholders, has set cancer prevention targets for the year 2020.<sup>25</sup> Intensive and sustained programs, policies and media messages will be needed to achieve the large changes in population behaviours required by these targets. These changes will also reduce the incidence of heart disease, diabetes, stroke, osteoporosis, and other chronic diseases.

It is critical that all stakeholders involved in cancer control take action.



## GLOSSARY OF TERMS, DATA SOURCES AND METHODS

### Body mass index (BMI)

A measure of body weight adjusted for height, calculated as weight in kilograms/(height in metres)<sup>2</sup>. Generally categorized as underweight, healthy, overweight or obese.

### Educational level

*Less than high school* includes anyone who did not graduate from high school. *Completed high school* refers to high school graduates, without any post-secondary training. *Some post-secondary* includes individuals who had some community college, technical school or university, or had completed community college or technical school. *Completed university* refers to people holding at least a bachelor's degree.

### Median

The value of a variable for which 50% of the respondents have a lower value and 50% a higher value.

### Physical activity hours per week

The product of the number of days per week respondents did 10 minutes or more of physical activity that increased breathing or made the heart beat faster and the amount of time per day. Those with no days on which they did at least 10 minutes of activity were classified in the <1 hour/week group. Activity that increases breathing or heart rates is considered to be of moderate to vigorous intensity.

### Potential years of life lost (PYLL)

A measure of the relative impact of various diseases resulting from premature death. It is calculated by summing, over all persons dying from a given disease, the years that these persons would have lived had they experienced normal life expectation.

### Regions

Cancer planning regions that correspond to aggregations of census divisions, and are to some extent defined by the locations of specialized cancer treatment centres.

### Statistical significance of differences in medians

Evaluated using the median test, which is a special application of the chi-square test (with fixed marginal totals) designed to examine whether several samples come from populations with the same median.<sup>27</sup> The test was conducted using PROC NPARIWAY in SAS.<sup>23</sup>

### Statistical significance of differences in proportions

Evaluated using overlap of 95% confidence intervals around pairs of proportions being compared. Confidence intervals were constructed using the normal distribution. Differences among three or more proportions were evaluated using chi-square tests of independence.

### 24-hour total diet recall

A method of determining a recent day's food intake. Often used as a "gold standard" for evaluating other methods of assessing food intake, it consists of an interview wherein a list of all food and beverage items, and their amounts, eaten over a recent 24-hour period is elicited by a registered dietitian.

### Vegetable and fruit servings per day

The sum of the number of servings of each food item consumed each day (see ONCPS vegetable and fruit intake question). Fried potato products were excluded. A serving is 1/2 cup of potatoes, other vegetables, soups, fruit or juices or 1 cup of salad or tomato sauce.

## GLOSSARY OF TERMS, DATA SOURCES AND METHODS

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## HEALTHY EATING RESOURCES

### Canada's Food Guide to Healthy Eating

*Canada's Food Guide to Healthy Eating* recommends a diet comprised of food from the following four food groups: vegetables and fruit, grain products, milk products, meat and alternatives. Of course, the daily amount of food intake depends on age, body weight, activity level, gender, pregnancy and breastfeeding. The numbers of servings listed in *Canada's Food Guide* vary to accommodate individual differences throughout the lifecycle.

### Canadian Cancer Society healthy eating programs and services

The Canadian Cancer Society's risk reduction message follows *Canada's Food Guide* recommendations, and also encourages Canadians to eat plenty of fruits and vegetables through its 5 to 10 a day program ([www.5to10aday.com](http://www.5to10aday.com)).

The Society is also active in Eat Smart! Ontario's Healthy Restaurant Program. Eat Smart! recognizes food establishments that meet exceptional standards in nutrition, food safety and non-smoking seating ([www.eatsmart.web.net](http://www.eatsmart.web.net))

In addition to eating well, the Canadian Cancer Society encourages Canadians to maintain a healthy body weight through regular physical exercise. For more information, visit *Canada's Physical Activity Guide to Healthy Living* ([www.hc-sc.gc.ca/hppb/paguide/main.html](http://www.hc-sc.gc.ca/hppb/paguide/main.html))

The Canadian Cancer Society offers a variety of general risk reduction and nutritional information including:

Cancer Facts for Men; Cancer Facts for Women  
Seven Steps to Health  
5 to 10 a Day  
Fit Scoreboard; Fat Scoreboard

We also have nutritional information for people living with cancer which can be obtained at Canadian Cancer Society offices across Ontario, at regional cancer centres, over the telephone at 1 888 939-3333 or online at [www.cancer.ca](http://www.cancer.ca)

Source: *Canada's Food Guide to Healthy Eating* and *Canada's Physical Activity Guide*, Health Canada, December 2003. Reproduced with the permission of the Minister of Public Works and Government Services Canada, 2003.





# INSIGHT ON CANCER

news and information on **nutrition and cancer prevention**



Cancer Care Ontario is dedicated to improving the quality of care and safety for cancer patients by creating a seamless journey for them as they access the highest quality programs in cancer prevention, early detection, treatment, supportive care, palliative care and research. Working with partners, including the Cancer Quality Council of Ontario, CCO will measure, evaluate and report on quality improvement in the cancer system. Cancer Care Ontario is a policy, planning and research organization that advises government on all aspects of provincial cancer care.

To order additional copies, contact the Canadian Cancer Society's *Cancer Information Service* at 1 888 939-3333 or through the webmaster at [webmaster@ccsont.org](mailto:webmaster@ccsont.org).

Insight on Cancer can be found on both the Canadian Cancer Society's and Cancer Care Ontario's websites. Please visit the "library section" of the Ontario pages of the Canadian Cancer Society's website located at [www.cancer.ca](http://www.cancer.ca), or visit [www.cancercare.on.ca](http://www.cancercare.on.ca).



The Canadian Cancer Society is a national, community-based organization of volunteers whose mission is the eradication of cancer and the enhancement of the quality of life of people living with cancer.

The Canadian Cancer Society, in partnership with the National Cancer Institute of Canada, achieves its mission through research, education, patient services and advocacy for healthy public policy. These efforts are supported by volunteers and staff and funds raised in communities across Canada.