



INSIGHT ON CANCER: SUN EXPOSURE AND PROTECTIVE BEHAVIOURS IN ONTARIO

An ONTARIO Report based on the 2006 Second National Sun Survey

HIGHLIGHTS

- ▶ Males, particularly young males, spend the most leisure time in the sun.
- ▶ Young females are the most likely to try to get a suntan and are the most likely to use tanning equipment.
- ▶ Older children spend the most time in the sun of any age group and often are not protected from the sun.
- ▶ Outdoor workers spend more time in the sun during both work and leisure time than other adults.
- ▶ Adults on a winter vacation to a sunny climate spend more time in the sun than they do during leisure summer time.



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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INTRODUCTION

In 1996, the First National Sun Survey (NSS1) was carried out. This survey provided critical insights into the sun protection behaviors of Canadians, as well as documenting the amount of time Canadians spent in the sun during different activities¹. It became obvious that many Canadians had not adopted skin cancer prevention behaviors, such as seeking shade, wearing protective clothing and hats and using sunscreen.

This report provides the results of the Ontario-specific data collected by the 2006 Second National Sun Survey (NSS2). Given the prevalence of ultraviolet radiation (UVR)-related cancers (skin cancer and ocular melanoma) and other types of UVR damage (e.g. cataracts), most Ontarians are advised to reduce their UVR exposure. It is clear from this report that some subgroups of the Ontario population tend to have high UVR exposure and are less likely to protect themselves from the sun.

This report recommends a number of actions for reducing exposure and enhancing use of protection, in these subgroups and in the population as a whole. These are organized around the five health promotion action areas outlined in the Ottawa Charter for Health Promotion that was adopted at an International Conference on Health Promotion in Ottawa, Canada in 1986². In addition, all recommendations fit into one of the four strategic directions identified in *Strategic directions for the primary prevention of skin cancer in Canada*³.

This report provides a more up-to-date picture of the amount of time Ontarians spend outdoors, during leisure time, on vacation, and at work. It also provides information about the number of Ontarians who actively seek a tan and the occurrence of sunburn during outdoor activities, and who have adopted skin cancer preventive behaviours.

The onus for reducing UVR exposure falls on both the individual (in the case of children, on their parents) and society. Many sectors of society – governments, public health organizations, cancer agencies, schools, workplaces, physicians, to name a few – have a responsibility and role to play in improving sun safety knowledge and behaviour, and in providing sun-safe environments (e.g. the provision of shade at outdoor events, enabling the adoption of protective behaviours). To succeed, a comprehensive strategy, and collaboration across sectors will be required.

It is our hope that this report will provide information to allow health authorities, schools and municipalities to assess the current situation of UVR exposure across the province in order to develop programs to reach Ontarians of different ages with messages that will increase their adoption of skin cancer preventive measures. It is also our hope that these authorities will work to develop guidelines or policies to further enable the adoption of these important skin cancer prevention measures.

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- 1 Lovato et al., *Canadian National Survey on Sun Exposure & Protective Behaviours: methods*. *Cancer Prev Control*. 1998. 2(3):105-9; Shoveller et al., *Canadian National Survey on Sun Exposure & Protective Behaviours: adults at leisure*. *Cancer Prev Control*. 1998. 2(3): 111-6; Lovato et al., *Canadian National Survey on Sun Exposure & Protective Behaviours: youth at leisure*. *Cancer Prev Control*. 1998. 2(3): 117-22; Lovato et al., *Canadian National Survey on Sun Exposure & Protective Behaviours: parents' reports on children*. *Cancer Prev Control*. 1998. 2(3): 123-8; Shoveller et al., *Canadian National Survey on Sun Exposure & Protective Behaviours: outdoor workers*. *Can J Public Health*. 2000. 91(1):34-5.
 - 2 The charter can be accessed online: <http://www.who.int/healthpromotion/conferences/previous/ottawa/en/>
 - 3 *Strategic Directions for the Primary Prevention of Skin Cancer in Canada* (2006) Canadian Strategy for Cancer Control.

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SUMMARY OF FINDINGS

The Second National Sun Survey demonstrates that many Ontarians are exposed to ultraviolet radiation (UVR) in amounts that are considered to increase their risk for skin cancer and other UVR-related conditions. The survey identifies specific sub-groups of Ontarians that tend to have greater UVR exposure and that are least likely to protect themselves from the sun.

Males, particularly young males (ages 16–24):

- spend the most leisure time in the sun
- are the least likely to use sun protection
- are the most likely to get a sunburn
- are the most likely to have a job that requires being outdoors

Young females (ages 16–24):

- are the most likely to try to get a suntan
- are the most likely to use tanning equipment

Older children (ages 6–12 years):

- spend the most time in the sun of any age group
- often are not protected from the sun (25% do not use any form of sun protection)

Outdoor workers:

- spend more time in the sun during both work and leisure time than other adults

Adults on a winter vacation to a sunny climate:

- spend more time in the sun than they do during leisure summer time

Adults taking part in outdoor recreational activities:

- are at risk of getting their worst summer sunburn

Users of tanning equipment:

- are most likely to be young females (ages 16–24)
- may use it more often than once per month (25% of users)
- most often say they use it either to look or feel better or to tan without burning

During the decade 1996 – 2006, Ontarians have increased their exposure to sunlight without increasing actions to protect themselves from its potentially harmful effects.



RECOMMENDATIONS

A. **Develop personal skills** by improving knowledge, attitudes and behaviours of Ontarians concerning skin cancer and solar and non-solar UVR protection.

- 1) Review the core Canadian sun safety messaging and recommendations and revise them to reflect current scientific understanding and to address gaps, such as indoor tanning equipment, vitamin D and the UV Index.
- 2) Develop a comprehensive UVR-safety educational/marketing strategy based on the revised sun safety messaging and recommendations and aimed at the general population in order to:
 - a. increase awareness of the importance of sun safety and skin cancer prevention
 - b. promote greater understanding and use of the UV Index and its associated hierarchy of sun protection actions
- 3) Tie sun safety messaging to the promotion of outdoor physical activity and recreational activities.
- 4) Use the Canadian Dermatology Association's 'Sun Awareness Week' in June as a platform for promoting sun safety in various settings, such as day care centres, workplaces and recreation centres.
- 5) Develop strategies that de-normalize tanning (i.e. encourage individuals to reject the message from peers, society, advertising and the media that a tan is healthy and "normal", and to appreciate their natural skin colour).
- 6) Develop comprehensive UVR-safety educational resources and programs targeted to identified at-risk populations and settings.
- 7) Develop national or provincial educational campaigns aimed at adolescents and young adults on the risks from using tanning equipment.

B. **Build healthy public policy** to reduce overexposure to UVR.

- 1) Promote the development and passage of legislation limiting the use of tanning equipment, including a ban on use by persons younger than 18 years of age.
- 2) Promote the development of shade policies in municipalities (parks, outdoor sports and recreation centres) and schools. These should take advantage of synergies with other health-related reasons for increasing shade, such as air quality, reduction of urban heat islands and climate change.
- 3) Promote the development of sun-safe policies for outdoor workers.

C. **Strengthen community actions** to enhance skin cancer prevention.

- 1) Engage local secondary school communities, including students, in developing strategies to discourage the use of tanning equipment.
- 2) Work with local schools and sport and recreation associations and facilities to develop sun safe policies and practices.

D. **Create supportive environments** to enable good sun-safety behaviours.

- 1) Provide both natural and built shade in outdoor spaces.
- 2) Develop comprehensive sun-safe school programs that link UV protection strategies with curriculum and policy (in particular, the quality daily physical activity policy) within the Ministry of Education.
- 3) Include UVR protection policies in workplace health and safety programs.

E. **Re-orient health services** towards skin cancer prevention through enhanced education, training and professional development around the need for comprehensive programs and strategies.

- 1) The Ontario Sun Safety Working Group (OSSWG) should continue to facilitate *the skin cancer prevention community of practice*⁴ for Ontario, by:
 - a. providing access to experts in skin cancer prevention
 - b. providing opportunities for capacity-building and ongoing training and development for health professionals working in skin cancer prevention
 - c. facilitating the sharing of local skin cancer prevention programs and resources amongst health professionals working in this area
- 2) Educate policy makers about the health-related dangers of UVR and the economic burden of skin cancer.
- 3) Educate health professionals about providing skin cancer prevention information to their patients, particularly those in at-risk groups.
- 4) Exchange knowledge and expertise amongst OSSWG, government and decision-makers in the planning of skin cancer prevention strategies.

F. **Generate evidence** through ongoing surveillance, evaluation and research to support skin cancer prevention.

- 1) Identify effective health promotion strategies targeted to skin cancer risk groups of youth,

children aged 6-12 and young women and men, that would enable/encourage them to use protection and to avoid tanning equipment.

- 2) Monitor scientific literature for new evidence about vitamin D that is relevant to sun safety messaging.
- 3) Investigate the relatively low level of understanding of the UV Index values and the marked inter-regional differences found on this survey (Environment Canada and its partners).
- 4) Incorporate evaluation into the development cycle of new messaging (including new dissemination strategies), programs and policies.
- 5) Estimate the number of basal and squamous cell carcinomas diagnosed each year in Ontario (the numbers of melanoma are readily available) in order to support the case for enhanced investment in skin cancer prevention, education, environmental supports and policy development.
- 6) Determine the economic burden of skin cancer (basal and squamous cell carcinoma and melanoma) in Ontario.
- 7) Conduct ongoing surveillance of UVR exposure and protection behaviours in the population to monitor behaviour change.
- 8) Conduct research to determine knowledge, attitudes, beliefs and behaviours of adolescents in relation to solar and non-solar UVR.

4 A Community of Practice is a group of people who share a concern or passion for something they do, and learn how to do it better as they interact regularly. Three characteristics cultivate and distinguish the community from others:

- **Domain:** A shared commitment to a domain of interest; an evolving shared competence, recognized expertise and community identity.
- **Community:** Members learn from and support each other through sharing and joint activities, yet, do not necessarily work together on a daily basis.
- **Practice:** A shared repertoire of resources is developed by and underpins the practice of the community members.

Adapted from "Communities of Practice" Etienne Wenger <http://www.ewenger.com/theory> (last accessed December 8, 2009).



BACKGROUND

This report provides an overview of sun exposure, tanning, protective behaviours and sunburning among Ontario residents based on the results of the 2006 National Sun Survey. Up-to-date information on the sun exposure habits of Ontarians is essential for the development of effective programs and policies aimed at minimizing harmful exposure to ultraviolet radiation (UVR).

Why is this report important?

- *Exposure to ultraviolet radiation causes skin cancer*

Sun exposure is harmful to the skin. This is because the sun's rays include ultraviolet radiation (UVR), which is a recognized carcinogen and the major cause of skin cancer. Tanning equipment, like the sun, also emits UVR.

- *Skin cancer is an important health issue in Ontario*

Skin cancer is the most common form of cancer in Ontarians: about 1 in 7 will be diagnosed with skin cancer during their lifetime. Melanoma is responsible for the majority of skin cancer deaths, and is one of the most common cancers occurring in adolescents and young adults aged 15–29.

- *Skin cancer is largely preventable*

Skin cancer is largely preventable through decreasing sun exposure and increasing use of protection. UVR exposure can be avoided by not using tanning equipment and by minimizing time in the sun or seeking shade when the UVR is strongest. When avoiding the sun is not possible, wearing a hat, sunglasses and protective clothing or using sunscreen will provide some protection.

- *Ultraviolet radiation has other health effects too*

Too much exposure to UVR, whether from the sun or artificial sources, can also cause other types of skin damage, such as sunburn, suntan and premature aging, including wrinkling of the skin, as well as cataracts.

- *Diet and supplements are safer than exposure to ultraviolet radiation for maintaining adequate vitamin D levels*

Adequate levels of vitamin D are essential to good health. While exposure to ultraviolet B radiation enables the production of vitamin D in the skin, adequate levels in the body can be more safely maintained through diet and use of a supplement. It is not known whether a 'safe' level of sun exposure that will provide benefit without increasing risk of skin cancer exists.

- *Information on actual sun behaviour is essential*

In order to advise Canadians on how to enjoy the sun safely, information on their sun exposure habits is needed. Such information can support health groups and policy makers in developing effective programs and policies to minimize harmful exposure to UVR.

The Survey⁵

Results in this report are drawn from the 2006 Second National Sun Survey (NSS2). This survey is the first, comprehensive Canada-wide survey of sun-related behaviours since the First National Sun Survey (NSS1) was carried out in 1996. The NSS2 questionnaire was administered to 7,121 Canadians aged 16 years or older, of which 1,375 were Ontario residents. Of those who took part in the survey, 1,437 adults (306 from Ontario) also reported on the sun exposure and protective behaviour of one of their children aged 1 to 12 years old.

The primary objectives of the NSS2 were to estimate current levels of:

- sun exposure, protective behaviours and use of tanning equipment in adults 16+ by age, sex and region
- sun exposure and protective behaviours in children aged 1–12 for Canada as a whole
- knowledge, attitudes and beliefs about sun safety in adults 16+ by age, sex and region

Content

Questionnaire content was determined by members of the National Skin Cancer Prevention Committee of the Canadian Strategy for Cancer Control (now the National Sun Safety Committee of Canadian Partnership Against Cancer) and specific question wording was developed by the study investigators in consultation with David Northrup, survey specialist at the Institute for Social Research (ISR) at York University, Toronto. While much of the content was the same as in NSS1, some improvements to question wording and response

categories were made, some sections were dropped or shortened, and new question modules for Knowledge, Attitudes and Beliefs were developed. New content was evaluated by pilot and focus group testing.

Sample Design

The NSS2 target population consisted of all adults living in Canada excluding: residents of the Yukon, the Northwest Territories and Nunavut; full-time residents of institutions; residents not fluent in English or French; and those with neither a land phone line nor a cell phone.

Sample size was determined on the basis of study power, precision and the need for regional information. Sampling was conducted within each of six regions to permit basic region-specific analyses: Atlantic Canada (Newfoundland and Labrador, Prince Edward Island, Nova Scotia, New Brunswick); Quebec; Ontario; Manitoba and Saskatchewan combined; Alberta; and British Columbia.

Sampling employed a two-stage process of household selection followed by respondent selection. In the first stage, households were selected using a modified form of random digit dialing. In the second stage, one adult aged 16 or over was randomly selected from the household to be the survey respondent. Any survey respondent who was the parent/guardian of a child aged 1–12 years was also asked to report on the sun exposure and protective behaviours of the child with the next birthday.

5 Marrett LD, Northrup DA, Pichora EC, Spinks MT, Rosen CF. 2010. **The Second National Sun Survey (NSS2): Overview and Methods.** Canadian Journal of Public Health. Special Insert Publication: Skin Cancer Prevention in Canada. 101(4):I10-I13.



BACKGROUND CONTINUED

Data Collection

Data were collected using Computer Assisted Telephone Interviewing (CATI) between August 2nd and November 22nd 2006. The Institute of Social Research (ISR) conducted the majority of the interviews. Joliecoeur & Associates (Montreal, Quebec) carried out 1298 interviews (18% of national sample) in three provinces (Quebec, Ontario and New Brunswick).

Response Rate and Sample Size

In total, 15,425 telephone numbers were dialed during the household selection process and 11,360 corresponded to eligible households. The national response rate was 63%. Ontario had the lowest response rate of any region at 57%.

The numbers of participants by region are shown in Table 1 for adults and in Table 2 for children.

Table 1: Interview Distribution by NSS2 Region

NSS2 Regions	Sample size	%
Atlantic Canada* (ATL)	1,321	18.6
Quebec (QC)	1,296	18.2
Ontario (ON)	1,375	19.3
Manitoba/Saskatchewan (MB/SK)	1,008	14.2
Alberta (AB)	1,054	14.8
British Columbia (BC)	1,067	15.0
Canada	7,121	100

*Atlantic Canada: Newfoundland and Labrador, Prince Edward Island, Nova Scotia, New Brunswick

Table 2: Distribution of child sample by NSS2 region

NSS2 Regions	Child Sample Size	%
Atlantic Canada* (ATL)	235	16.4
Quebec (QC)	268	18.6
Ontario (ON)	306	21.3
Manitoba/Saskatchewan (MB/SK)	188	13.1
Alberta (AB)	236	16.4
British Columbia (BC)	204	14.2
Canada	1,437	100

*Atlantic Canada: Newfoundland and Labrador, Prince Edward Island, Nova Scotia, New Brunswick

Weighting and Estimation

Survey responses are weighted because each person in the sample represents additional persons not included in the survey. Weighted responses generally add to the population total and adjust somewhat for people who are under-represented in the survey sample. For the NSS2, weighting was based on a number of factors: the number of households in a sampling region, the response rate, the number of telephone lines per household, and the number of adults per household. Weights were also adjusted to match the regional, sex and age distribution of the target population (i.e. post-stratification).

Age-Standardization

Sun exposure and the ways people protect themselves from the sun vary significantly by age group. To compare subgroups with different age-structures, such as provinces or outdoor workers versus non-outdoor workers, some estimates have been age-standardized to the 2001 Canadian population.

Data Quality

Some estimates generated with the NSS2 data are based on a small number of survey participants and/or a group of participants with highly variable responses. Throughout the report, such estimates have either been suppressed or have been flagged to be interpreted with caution. The amount of variation in survey responses for a given estimate is assessed by a statistical measure called the coefficient of variation (defined as the standard error divided by the estimate itself and expressed as a percentage). As a rule, estimates based on fewer than 10 participants or with very high coefficients of variation (> 33.3%) were suppressed and estimates based on at least 10 participants but with high coefficients of variation (16.6%–33.3%) were flagged to be interpreted with caution.

Measures of Ambient Ultraviolet Radiation

Estimates of actual summer ambient UV radiation in UV Index units were produced post-data collection for each NSS2 respondent's place of residence. To do so, the Postal Code Conversion File software from Statistics Canada (PCCF+, Version 4H) was used to assign latitude and longitude coordinates to places of residence based on postal code information, and UVR measures were estimated by Environment Canada for these coordinates. To estimate UVR measures, Environment Canada used ozone and reflectivity data from a satellite to retrieve UV irradiance. Ground-based spectrophotometer data were used to remove bias in satellite retrievals and for data validation. For each place of residence, mean UV Index values around solar noon (11:00 – 13:00 solar time) were generated for the entire summer period.

Ontario Sample Characteristics

Table 3 compares the characteristics of Ontario respondents with respondents from the rest of Canada. Respondents from Ontario differ from respondents from the rest of Canada in some important respects. Ontario respondents:

- are less likely to be Caucasian/white, with a larger proportion having black hair and a smaller proportion light brown hair
- are more likely to have been born outside Canada
- have somewhat higher levels of education and income
- are less likely to work outdoors during the summer
- are less likely to take a summer vacation but are more likely to go to a sunny climate during the winter



BACKGROUND CONTINUED

Table 3: Characteristics of the NSS2 Participants - Ontario versus the rest of Canada

Characteristic	Ontario %	95% CI	Rest of Canada %	95% CI
Age				
16-24	15.1	12.9 – 17.4	14.8	13.5 – 16.1
25-44	36.9	34.0 – 39.9	34.8	33.3 – 36.4
45-64	31.9	29.2 – 34.6	33.7	32.2 – 35.2
65+	16.0	14.0 – 18.0	16.6	15.5 – 17.8
Sex				
Male	48.9	45.9 – 51.8	49.1	47.5 – 50.7
Hair Colour				
Red	3.5	2.4 – 4.5	3.4	2.9 – 4.0
Blonde	17.4	15.2 – 19.5	15.8	14.6 – 16.9
Light Brown	23.5	21.0 – 25.9	32.3	30.8 – 33.9
Dark Brown	37.0	34.1 – 39.8	35.3	33.8 – 36.9
Black	18.6	16.1 – 21.2	13.1	11.9 – 14.2
Ethnicity				
Caucasian/white	82.1	79.7 – 84.6	91.2	90.3 – 92.2
Birthplace				
Canada	76.5	73.9 – 79.1	87.0	85.9 – 88.2
Education				
Less than high school	15.2	13.1 – 17.3	17.3	16.1 – 18.5
Completed high school	23.6	21.1 – 26.1	26.4	24.9 – 27.8
Some post-secondary or post-secondary certificate/diploma	32.5	29.7 – 35.2	30.7	29.2 – 32.2
University degree	28.6	25.9 – 31.2	25.6	24.2 – 26.9

Table 3: Characteristics of the NSS2 Participants - Ontario versus the rest of Canada (continued)

Characteristic	Ontario %	95% CI	Rest of Canada %	95% CI
Household Income**				
less than 20,000	6.5	4.9 – 8.1	8.2	7.4 – 9.0
20,000-39,999	13.4	11.5 – 15.4	15.3	14.2 – 16.4
40,000-59,999	13.0	11.2 – 14.9	16.2	15.0 – 17.4
60,000-79,999	15.5	13.3 – 17.7	13.2	12.1 – 14.3
80,000-99,999	10.7	8.9 – 12.5	9.3	8.3 – 10.2
100,000-139,999	13.0	10.9 – 15.1	10.1	9.1 – 11.1
140,000+	8.8	7.1 – 10.5	6.5	5.7 – 7.4
Outdoor workers				
Respondents who worked outdoors	19.9	17.5 – 22.4	24.1	22.7 – 25.5
Summer Vacation				
Respondents who took a summer vacation	51.1	48.2 – 54.0	56.8	55.2 – 58.3
Winter Vacation				
Respondents who traveled to a sunny climate during the winter	20.8	18.4 – 23.1	16.8	15.6 – 17.9
Parent/Guardian of Child Aged 1-12 years				
Respondents who reported on a child's sun exposure and protective behaviours	24.6	22.3 – 26.9	21.7	20.5 – 22.9
Children by age				
1-5 years	35.8	29.7 – 41.9	35.9	32.5 – 39.3
6-12 years	64.2	58.1 – 70.3	64.1	60.7 – 67.5
Children by sex				
Boys	56.1	49.8 – 62.5	50.4	46.8 – 54.0

CI: confidence interval

Estimates age-standardized to the 2001 Canadian population, with the exception of "age", "children by age" and "children by sex"

Respondents who did not know or refused to respond were excluded from all proportion calculations. Unless otherwise indicated, % missing was <2%.

**19% of Ontarians and 21% those living in the rest of Canada did not provide household income information.



SUN EXPOSURE

Adults on a typical summer day

On a typical summer day, 25% of adults in Ontario spend two or more hours in the sun. This percentage is smaller than for the rest of Canada (30%).

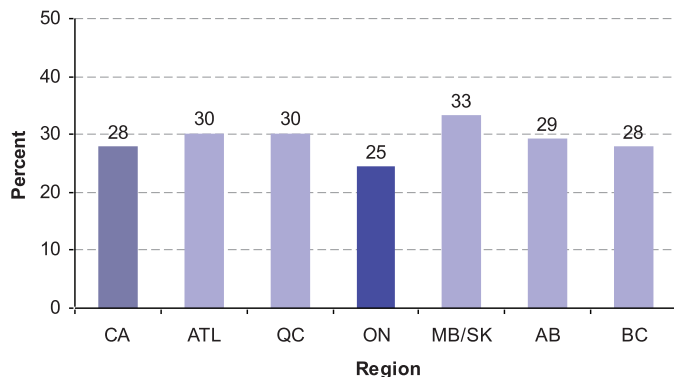
Across all age groups, men in Ontario are more likely than women to spend at least two hours in the sun.

Time spent in the sun is greatest in the young and decreases with increasing age. An increase in the percentage of men who spend more than two hours in the sun after age 65 may reflect increasing leisure time with retirement.

Until retirement age, adults in Ontario are more than twice as likely to spend at least two hours in the sun on weekends as on weekdays, with over half (55%) of 16–24-year-olds spending at least two hours in the sun on a typical weekend day. The percentage of adults in Ontario aged 65+ who spend at least two hours in the sun is similar for both weekend days (21%) and weekdays (22%).

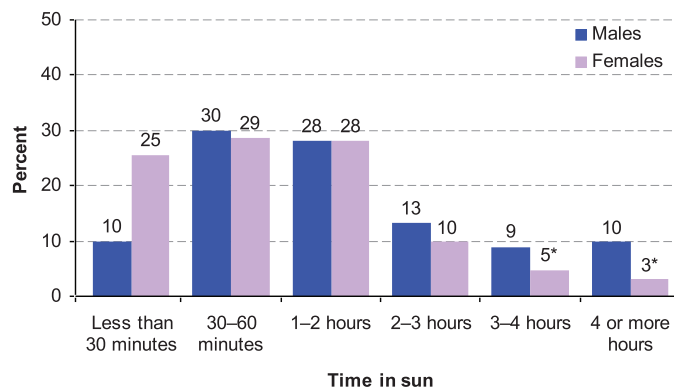
On a typical summer day, **one quarter of adults in Ontario spend at least two hours in the sun.** Young men are the most likely to spend prolonged time in the sun.

Canadian adults spending at least 2 hours in the sun on a typical summer day, by region



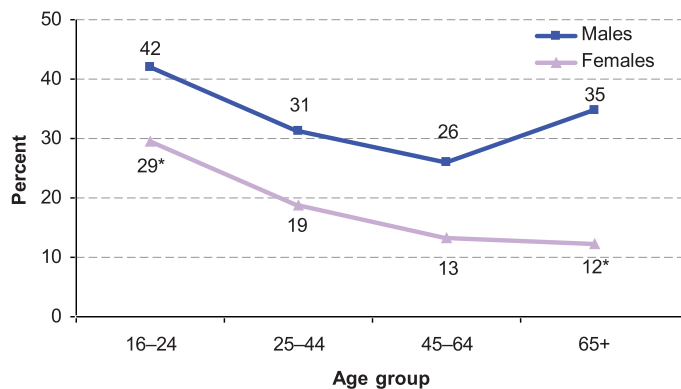
Age-standardized to the 2001 Canadian population.

Time spent in the sun by Ontario adults on a typical summer day, by sex



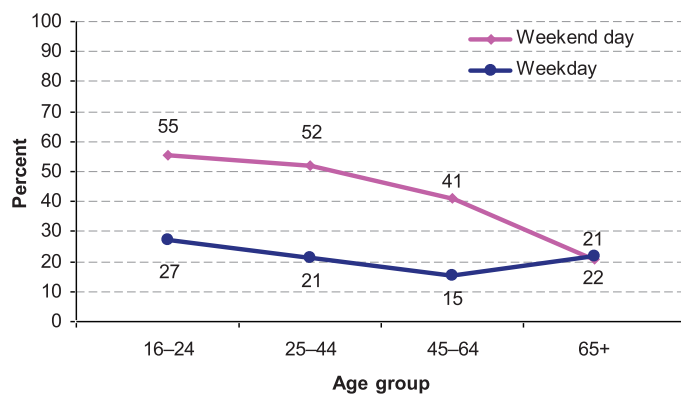
*Figures should be interpreted with caution: N≥10 but coefficient of variation 16.6% – 33.3%.

Ontario adults spending at least 2 hours in the sun on a typical summer day, by age and sex



*Figures should be interpreted with caution: N≥10 but coefficient of variation 16.6% – 33.3%.

Ontario adults spending at least 2 hours in the sun on a typical weekday and weekend day, by age





SUN EXPOSURE CONTINUED

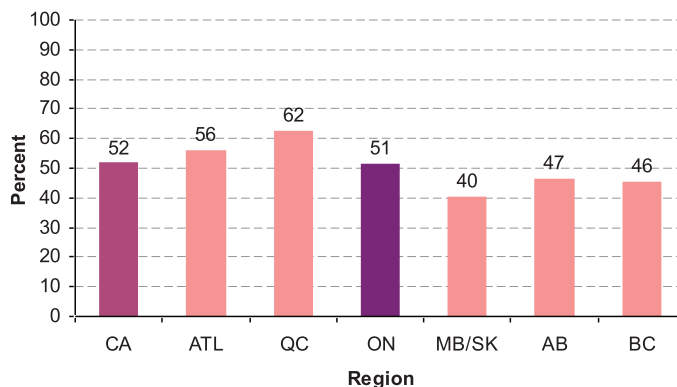
Children

In Ontario, children are twice as likely as adults to spend at least two hours in the sun on a typical summer day. Slightly over half (51%) of children in Ontario spend this much time in the sun.

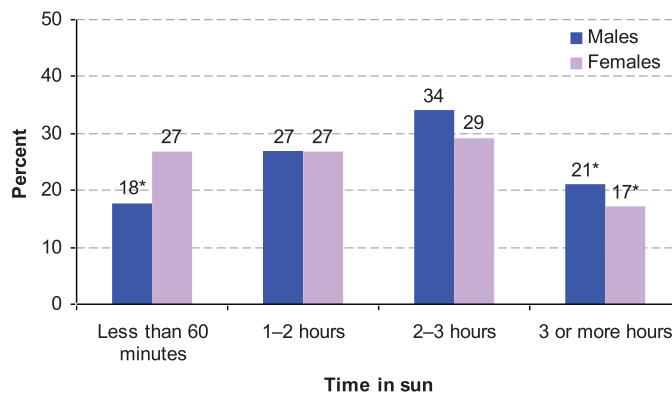
Older children (ages 6–12) are more than twice as likely as younger children to be exposed to at least two hours of sunlight on a typical summer day.

Sun exposure is greater for children than for adults, with over half of Ontario children spending at least two hours in the sun on a typical summer day. Sun exposure is greater for older than younger children.

Canadian children spending at least 2 hours in the sun on a typical summer day, by region

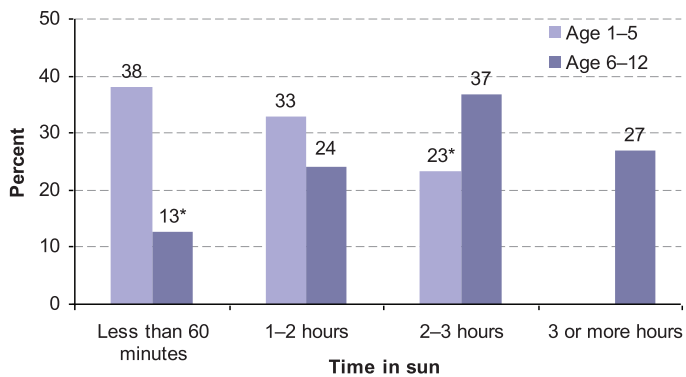


Time spent in the sun by Ontario children on a typical summer day, by sex



*Figures should be interpreted with caution: $N \geq 10$ but coefficient of variation 16.6% – 33.3%.

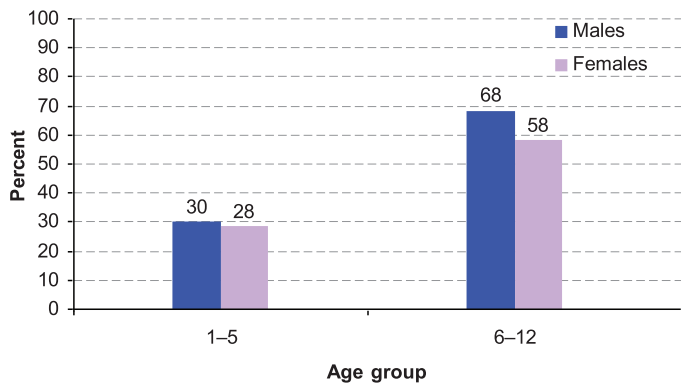
Time spent in the sun by Ontario children on a typical summer day, by age†



*Figures should be interpreted with caution: N≥10 but coefficient of variation 16.6% – 33.3%.

†For Age 1-5, '3 or more hours' estimate suppressed: N<10 or coefficient of variation > 33.3%.

Ontario children spending at least 2 hours in the sun on a typical summer day, by age and sex





SUN EXPOSURE CONTINUED

Outdoor workers

Data for outdoor workers are restricted to the age group 16–64. Within this age group, the age distribution of outdoor workers is similar to the age distribution of persons who are not outdoor workers. Most outdoor workers in Ontario (46%) are 25 to 44 years old.

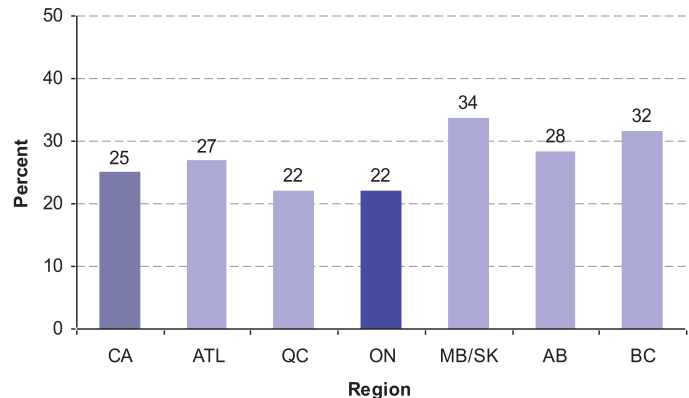
Seventy-two per cent of outdoor workers in Ontario are male.

Outdoor workers represent a smaller proportion of the population in Ontario than in Atlantic Canada and the western provinces.

On the job, 73% of male and 38% of female outdoor workers in Ontario spend at least two hours per day in the sun during peak sun hours. Male outdoor workers are more than three times as likely as female outdoor workers to spend at least four hours in the sun during work hours (48% and 14% respectively). Outdoor workers aged 16 to 24 are more likely to spend at least four work hours in the sun per day than outdoor workers aged 45 to 64 (44% and 35% respectively).

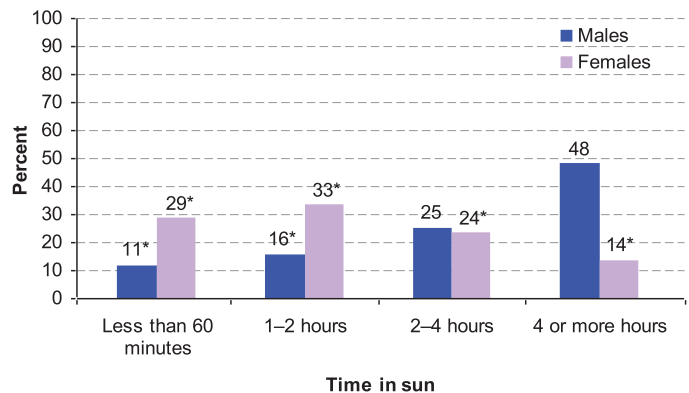
During leisure (non-work) time, both male and female outdoor workers are considerably more likely to spend prolonged time in the sun than other adults.

Canadians, ages 16-64, who are summer outdoor workers, by region



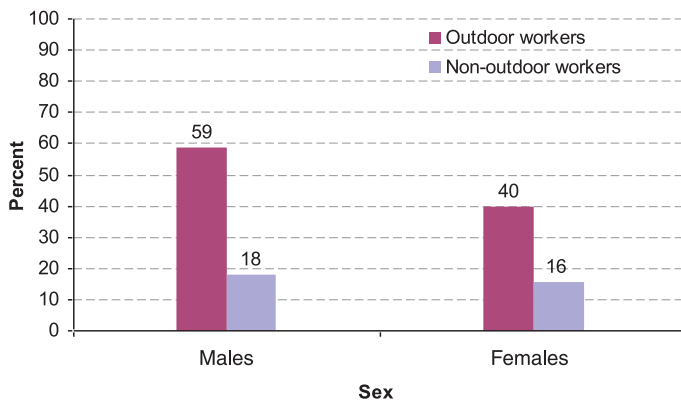
Age-standardized to the 2001 Canadian population.

Time spent in the sun during work time by Ontario outdoor workers, ages 16-64, by sex



*Figures should be interpreted with caution: N≥10 but coefficient of variation 16.6% – 33.3%.

Ontario outdoor and non-outdoor workers, ages 16-64, spending 2 or more leisure-time hours in the sun, by sex



Age-standardized to the 2001 Canadian population.

During both work and leisure time, **outdoor workers in Ontario have much greater sun exposure** than the average Ontario adult aged 16-64 years.



SUN EXPOSURE CONTINUED

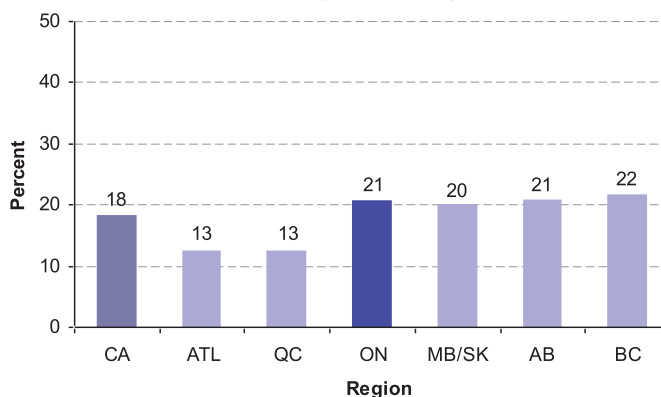
Adults on vacation

Winter vacation

Twenty-one per cent of adults in Ontario take a winter vacation in a sunny climate. Fifty-eight per cent of winter vacationers are women and 60% are older than 44 years of age. Most winter vacations are for one to two weeks.

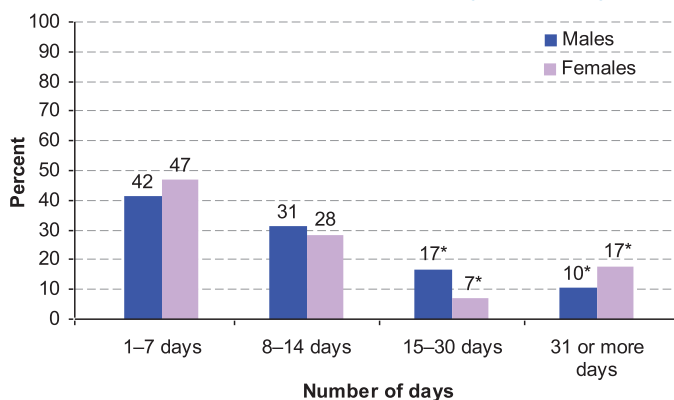
Over half of winter vacationers to a sunny climate spend, on average, three or more hours per day in the sun. The percentage of vacationers spending this much time in the sun is highest among young adults aged 16 to 24 years (81%) and decreases to 25% in the 65+ age group.

Canadian adults taking a winter vacation in a sunny climate, by region



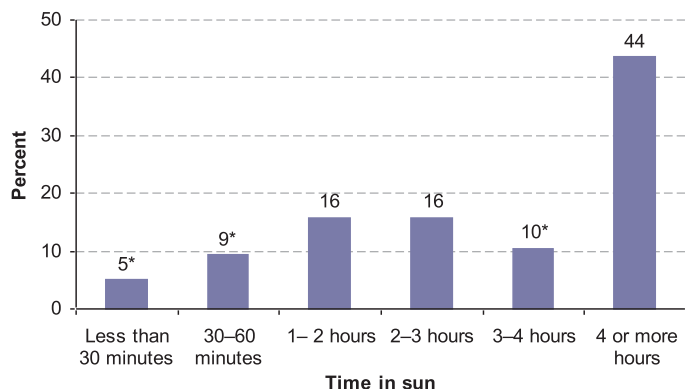
Age-standardized to the 2001 Canadian population.

Number of vacation days for Ontario adults taking a winter vacation in a sunny climate, by sex



*Figures should be interpreted with caution: N \geq 10 but coefficient of variation 16.6% – 33.3%.

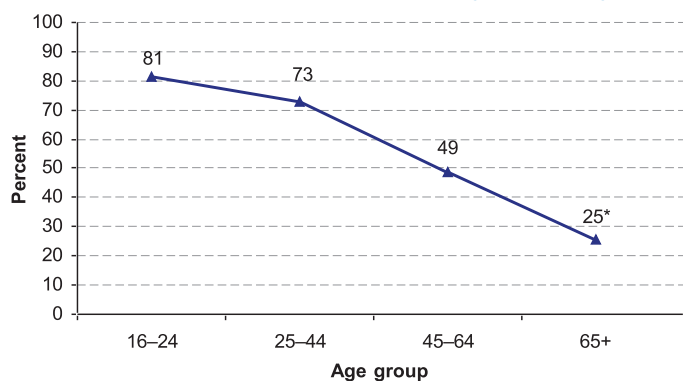
Time spent in the sun by Ontario adults on a winter vacation in a sunny climate



*Figures should be interpreted with caution: N≥10 but coefficient of variation 16.6% – 33.3%.

Over half of winter vacationers to a sunny climate spend, on average, at least three hours per day in the sun. Young adults are more likely to spend prolonged time in the sun than older adults. Winter vacationers to a sunny climate are more likely to spend at least three hours in the sun than summer vacationers.

Ontario adults spending 3 or more hours in the sun per day while on winter vacation in a sunny climate, by age



*Figures should be interpreted with caution: N≥10 but coefficient of variation 16.6% – 33.3%.



SUN EXPOSURE CONTINUED

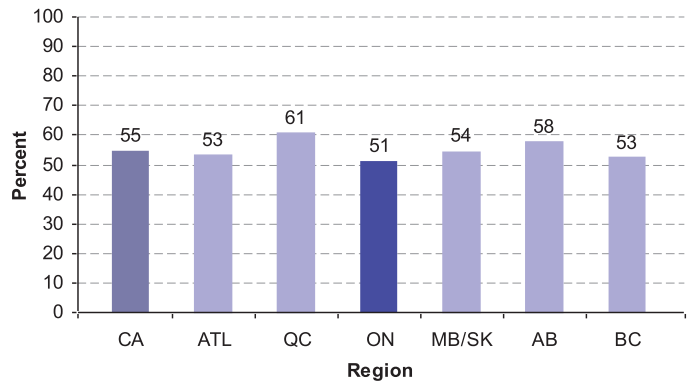
Summer vacation

Fifty-one per cent of adults in Ontario take a summer vacation – the lowest percentage of all regions. Most summer vacations are for one to two weeks.

Adults who take a summer vacation tend to be younger than those who do not, possibly because they schedule their holidays when their children are out of school. Fifty-seven per cent of vacationers are under age 45, compared to 47% of those who do not take a summer vacation.

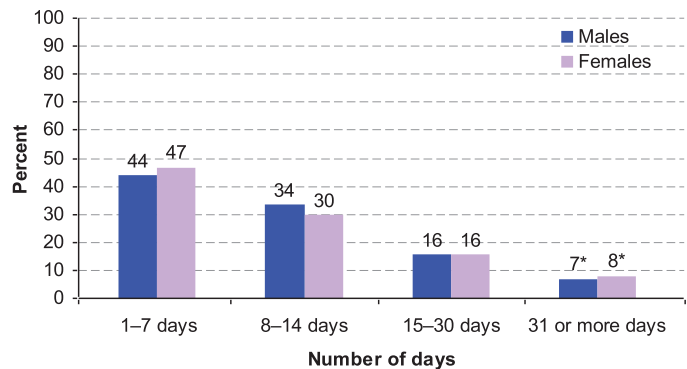
Forty per cent of vacationers from Ontario spend three or more hours in the sun per day on a summer vacation. This percentage is highest (63%) in young adults aged 16 to 24 and declines to 14% among those 65 and older.

Canadian adults taking a summer vacation, by region



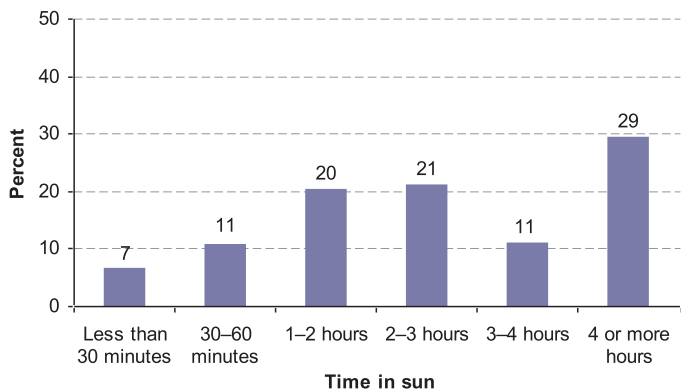
Age-standardized to the 2001 Canadian population.

Number of vacation days for Ontario adults taking a summer vacation, by sex



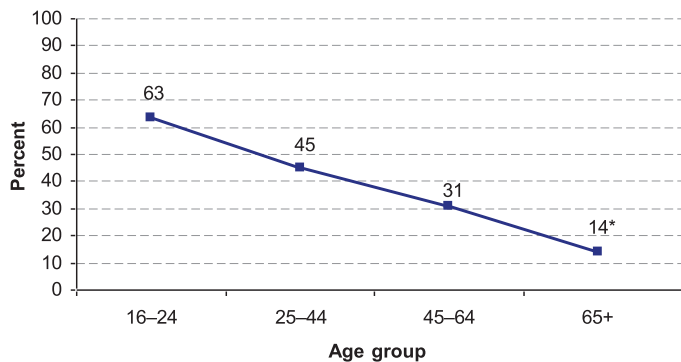
*Figures should be interpreted with caution: N≥10 but coefficient of variation 16.6% – 33.3%.

Time spent in the sun by Ontario adults on summer vacation



Forty per cent of Ontario vacationers spend three or more hours in the sun per day on a summer vacation. Young adults are more likely than older adults to spend prolonged time in the sun during summer vacation.

Ontario adults spending 3 or more hours in the sun per day while on a summer vacation, by age



*Figures should be interpreted with caution: N≥10 but coefficient of variation 16.6% – 33.3%.

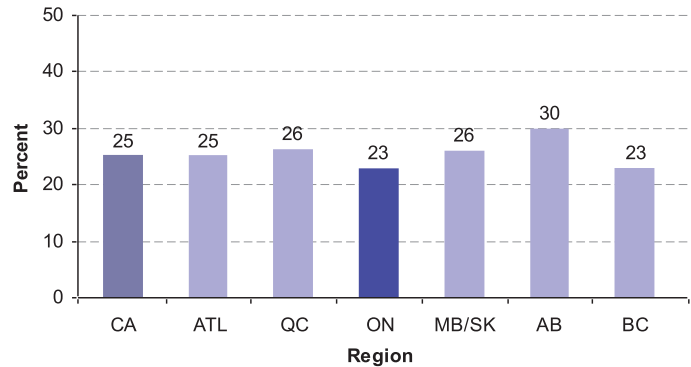


TANNING

Twenty-three per cent of adults in Ontario try to get a tan, either from the sun or by using tanning equipment. Women are more likely than men to seek a tan, with 27% of women seeking a tan versus 19% of men.

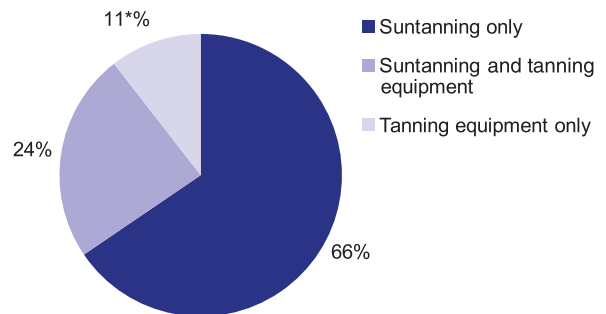
Almost one quarter of Ontario adults try to get a tan, either from the sun or by using tanning equipment, with women more likely than men to try to get a tan.

Canadian adults seeking a tan either from the sun or by using tanning equipment over a one-year period, by region



Age-standardized to the 2001 Canadian population.

Type of tanning among Ontario adults who try to get a tan



*Figures should be interpreted with caution: N≥10 but coefficient of variation 16.6% – 33.3%.

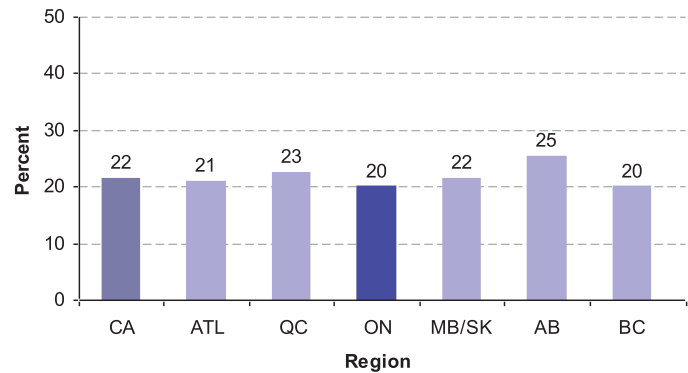
Sunbathing

Twenty per cent of adults in Ontario try to get a tan from the sun.

Forty-nine per cent of young women (ages 16–24) and 23% of young men try to get a suntan. The percentage falls with increasing age.

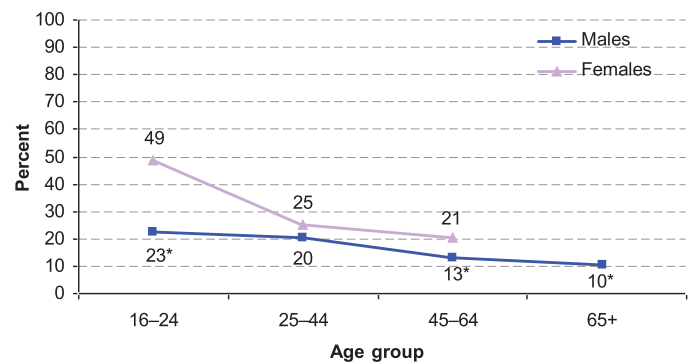
One fifth of Ontario adults try to get a tan from the sun, with **young women being most likely to try to get a suntan.**

Canadian adults seeking a tan from the sun over a one-year period, by region



Age-standardized to the 2001 Canadian population.

Ontario adults seeking a tan from the sun over a one-year period, by age and sex†



*Figures should be interpreted with caution: N≥10 but coefficient of variation 16.6% – 33.3%.

†For Females aged '65+' estimate is suppressed: N<10 or coefficient of variation > 33.3%.



TANNING CONTINUED

Using tanning equipment

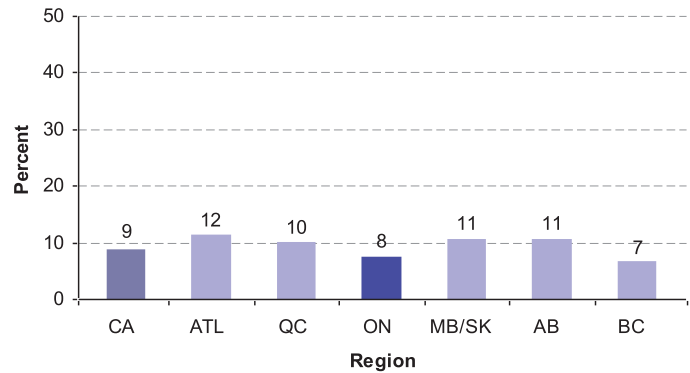
Eight per cent of adults in Ontario, or one third of tan seekers, use tanning equipment in their attempt to get a tan.

Women are more likely than men to use tanning equipment (11% and 3% respectively). Use of tanning equipment is most common in young women and declines with age. Twenty-six per cent of young women (ages 16–24) use tanning equipment, compared to 7% of women aged 45–64.

Slightly over one quarter of adults (27%) who use tanning equipment use it more than 12 times per year.

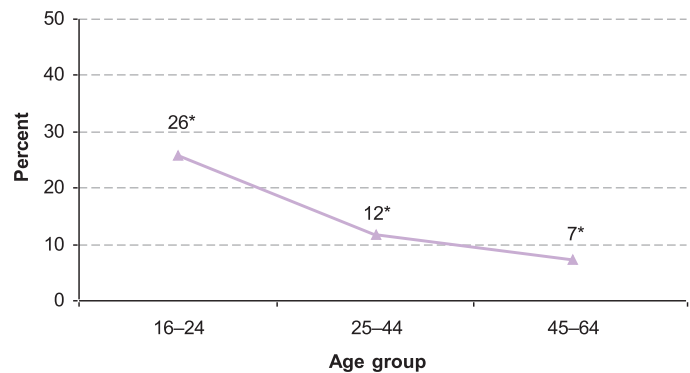
Among users, the reasons most commonly given for using tanning equipment are to tan without burning (79%), to relax or feel better (78%) and to look better (78%).

Canadian adults seeking a tan using tanning equipment over a one-year period, by region



Age-standardized to the 2001 Canadian population.

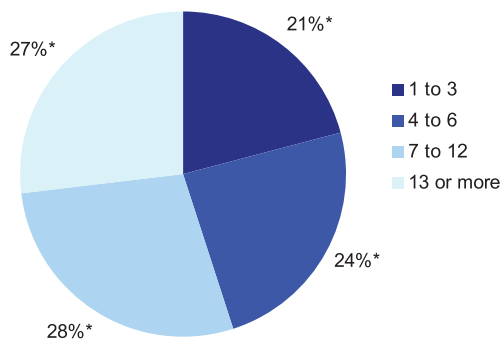
Ontario female adults using tanning equipment over a one-year period, by age[†]



*Figures should be interpreted with caution: N≥10 but coefficient of variation 16.6% – 33.3%.

†For Age '65+' estimate is suppressed: N<10 or coefficient of variation > 33.3%.

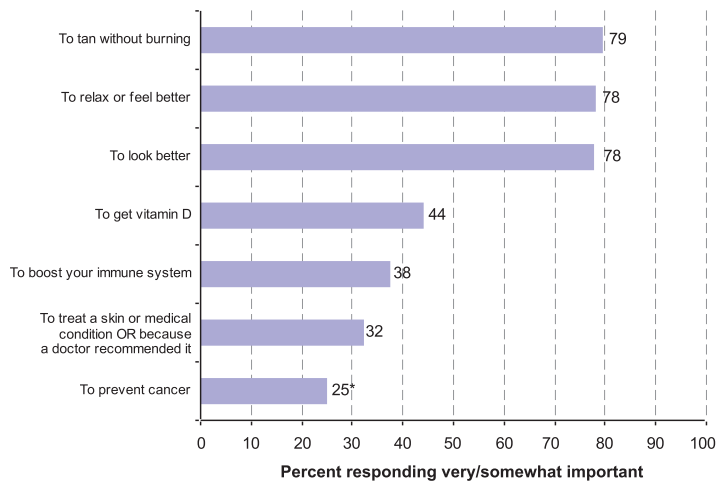
Number of times Ontario adults who use tanning equipment use it over a one-year period



*Figures should be interpreted with caution: N≥10 but coefficient of variation 16.6% – 33.3%.

About one quarter of young women in Ontario use tanning equipment. About one quarter of the adults who use tanning equipment use it more than 12 times per year. **The most common reasons those who use tanning equipment give for using it are to tan without burning, to relax or feel better, or to look better.**

Reasons why Ontario adults use tanning equipment



*Figures should be interpreted with caution: N≥10 but coefficient of variation 16.6% – 33.3%.



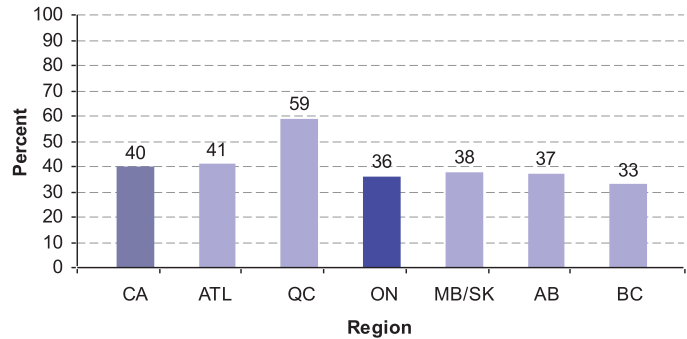
TANNING CONTINUED

Tanning while on vacation

Adults in Ontario are more likely to try to get a tan while on a winter vacation to a sunny climate than while on a summer vacation. Rates of sun-tanning while on vacation are similar for adults in Ontario and those in other provinces, with the exception of Quebec where rates are significantly higher for both summer and winter vacationers.

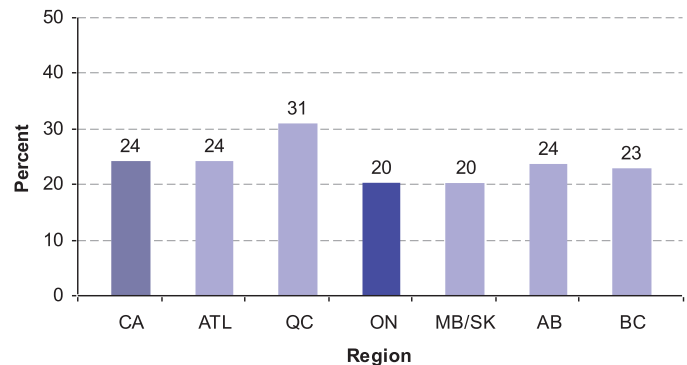
Women are more likely than men to try to get a tan while on vacation and the proportions who seek a tan decrease with age. Fifty-six per cent of young women (ages 16–24) try to get a tan while on vacation, compared to 37% of young men.

Canadian adults seeking a tan while on a winter vacation in a sunny climate, by region



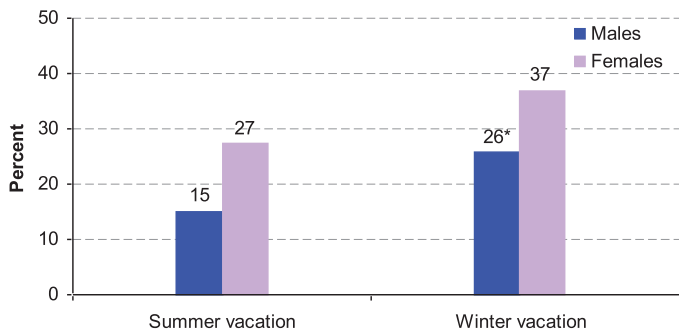
Age-standardized to the 2001 Canadian population.

Canadian adults seeking a tan while on a summer vacation, by region



Age-standardized to the 2001 Canadian population.

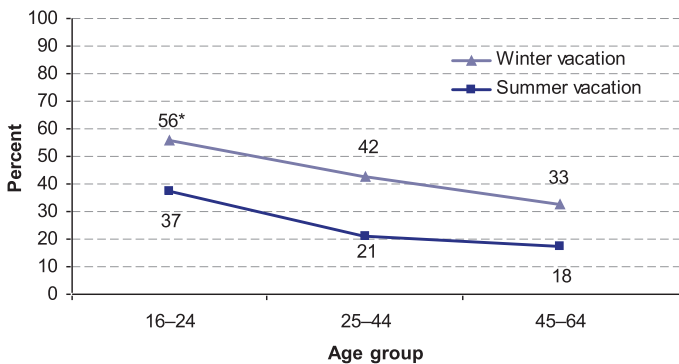
Ontario adults seeking a tan from the sun while on a summer or winter vacation, by sex



*Figures should be interpreted with caution: N \geq 10 but coefficient of variation 16.6% – 33.3%.

Ontario adults are more likely to try to get a suntan on a winter vacation in a sunny climate than on a summer vacation, and young women are the most likely to sunbathe.

Ontario adults seeking a tan from the sun while on a summer or winter vacation, by age†



*Figures should be interpreted with caution: N \geq 10 but coefficient of variation 16.6% – 33.3%.

†For Age group '65+', estimates are suppressed: N<10 or coefficient of variation > 33.3%.



PROTECTION FROM THE SUN

Adults

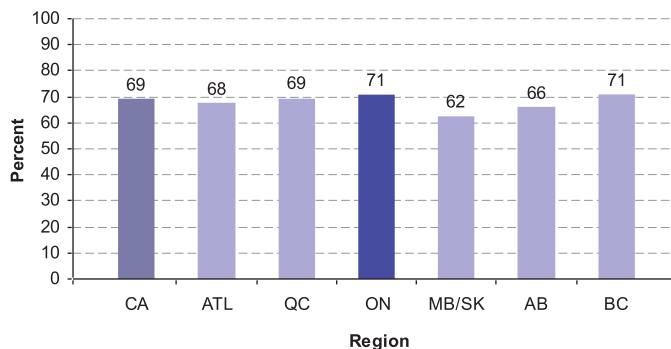
Seventy-one per cent of adults in Ontario protect themselves from the sun one way or another. Women are more likely to protect themselves from the sun than men and protective actions increase with age.

In general, men and women favour different ways of protecting themselves from the sun. Women most often wear sunglasses (69%), use sunscreen with an SPF of at least 15 on the face (56%) and seek shade/avoid direct sun (53%). Men most often wear a hat (58%), wear sunglasses (53%), or wear protective clothing (41%).

Across all age groups, seeking shade or avoiding direct sun is the preferred method of sun protection. Each successive age group increasingly spends fewer than 30 minutes in the sun (on both weekdays and weekend days), seeks shade/avoids direct sun and wears protective clothing or head covering. Sunscreen with an SPF of at least 15 is used most often by the two middle age groups (25–44 and 45–64).

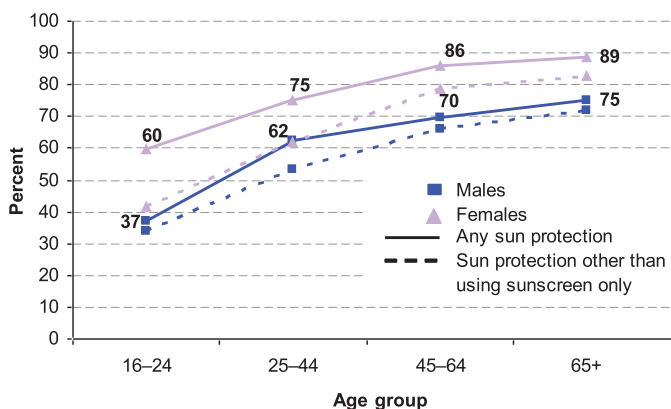
Young people are least likely to protect themselves from the sun, but when they do, they favour seeking shade or avoiding direct sun (27%) and using sunscreen with at least a 15 SPF (23%).

Canadian adults who protect themselves from the sun, by region



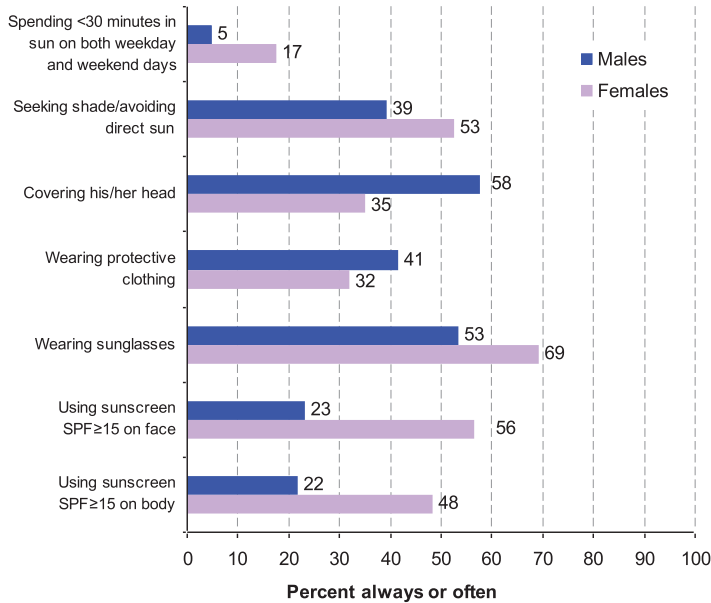
Sun protection: Typically spending fewer than 30 minutes in the sun during peak hours OR spending 30 minutes or more in the sun and always/often doing at least one of the following: seeking shade and avoiding the sun OR wearing protective clothing and a hat OR wearing sunscreen SPF \geq 15 on face and body. Age-standardized to the the 2001 Canadian population.

Ontario adults who protect themselves from the sun, by age and sex



Sun protection: Typically spending fewer than 30 minutes in the sun during peak hours OR spending 30 minutes or more in the sun and always/often doing at least one of the following: seeking shade and avoiding the sun OR wearing protective clothing and a hat OR wearing sunscreen SPF \geq 15 on face and body.

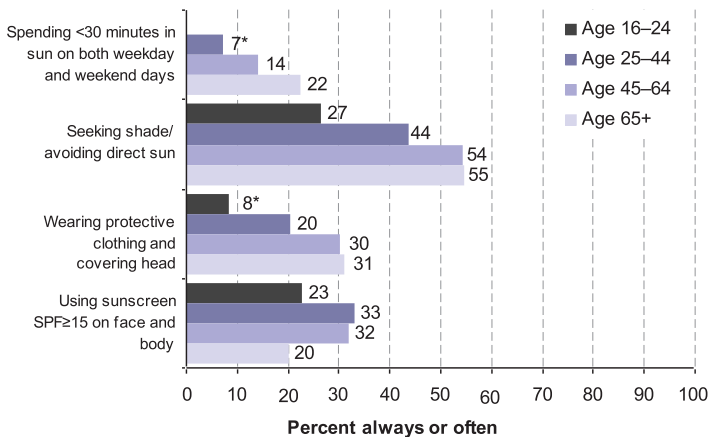
Ways that Ontario adults protect themselves from the sun, by sex



Denominator for 'spending <30 minutes in sun' is the full Ontario sample; denominator for all other behaviours is respondents spending at least 30 minutes in the sun on either a typical weekday or weekend day.

Almost three quarters of Ontario adults protect themselves from the sun, with women more likely to protect themselves than men. **Young adults in Ontario are least likely to protect themselves from the sun.** When they do, they prefer sunscreen to protective clothing. Older adults and men prefer to cover up.

Ways that Ontario adults protect themselves from the sun, by age†



Denominator for 'spending <30 minutes in sun' is the full Ontario sample; denominator for all other behaviours is respondents spending at least 30 minutes in the sun on either a typical weekday or weekend day.

*Figures should be interpreted with caution: N ≥ 10 but coefficient of variation 16.6% – 33.3%.

†For Age 16-24, 'spending <30 minutes in the sun' estimate is suppressed: N < 10 or coefficient of variation > 33.3%.



PROTECTION FROM THE SUN CONTINUED

Children

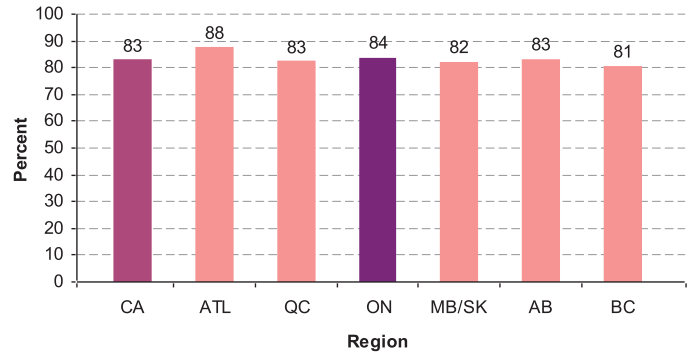
Eighty-four per cent of children in Ontario are protected from the sun in some way. This percentage rises to 99% for very young children (ages 1–5) and falls to 75% for older children (ages 6–12).

Children are usually in the sun for at least 30 minutes during peak sun hours on a typical summer day.

Boys and girls use similar types of sun protection with the exception that boys are considerably more likely to cover their head (74% for boys and 53% for girls). Aside from head covering among boys, sunscreen is the most common sun protection used by children (68–71%).

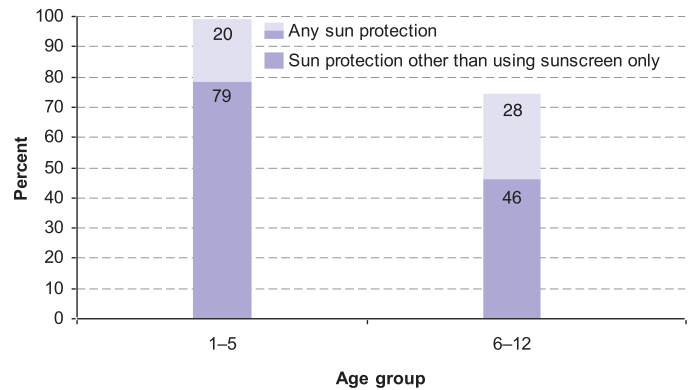
All forms of protection from the sun are more common in younger than older children.

Canadian children protected from the sun, by region



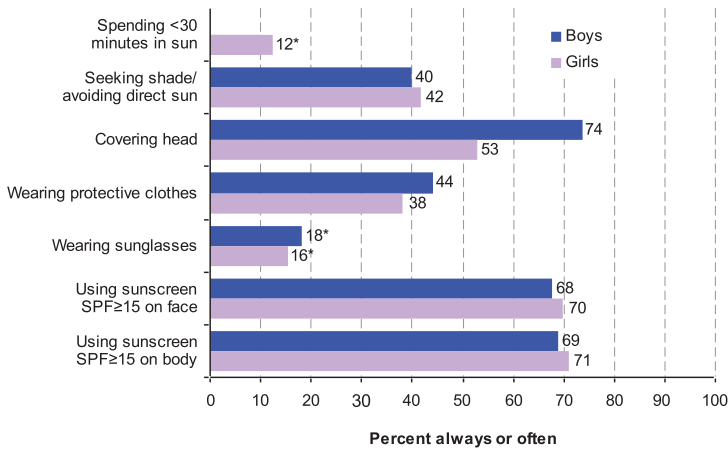
Sun protection: Typically spending fewer than 30 minutes in the sun during peak hours OR spending 30 minutes or more in the sun and always/often doing at least one of the following: seeking shade and avoiding the sun OR wearing protective clothing and a hat OR wearing sunscreen SPF \geq 15 on face and body.

Ontario children protected from the sun, by age



Sun protection: Typically spending fewer than 30 minutes in the sun during peak hours OR spending 30 minutes or more in the sun and always/often doing at least one of the following: seeking shade and avoiding the sun OR wearing protective clothing and a hat OR wearing sunscreen SPF \geq 15 on face and body.

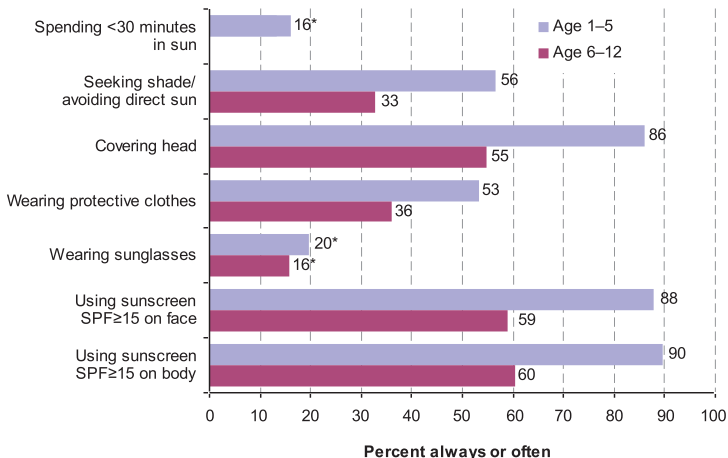
Ways that Ontario children are protected from the sun, by sex†



Denominator for 'spending <30 minutes in sun' includes all children in Ontario; denominator for all other behaviours includes only children spending at least 30 minutes in sun
 *Figures should be interpreted with caution: N≥10 but coefficient of variation 16.6% – 33.3%.
 †For Boys, 'spending <30 minutes in the sun' estimate is suppressed: N<10 or coefficient of variation > 33.3%.

Ontario children are usually in the sun for at least 30 minutes during peak sun hours on a typical summer day. Most children are protected from the sun, with over two thirds of them wearing a sunscreen with an SPF of at least 15. **Younger children are more likely to be protected from the sun than older children.**

Ways that Ontario children are protected from the sun, by age†



Denominator for 'spending <30 minutes in sun' includes all children in Ontario; denominator for all other behaviours includes only children spending at least 30 minutes in sun
 *Figures should be interpreted with caution: N≥10 but coefficient of variation 16.6% – 33.3%.
 †For Age 6-12, 'spending <30 minutes in sun' estimate is suppressed: N<10 or coefficient of variation > 33.3%.



PROTECTION FROM THE SUN CONTINUED

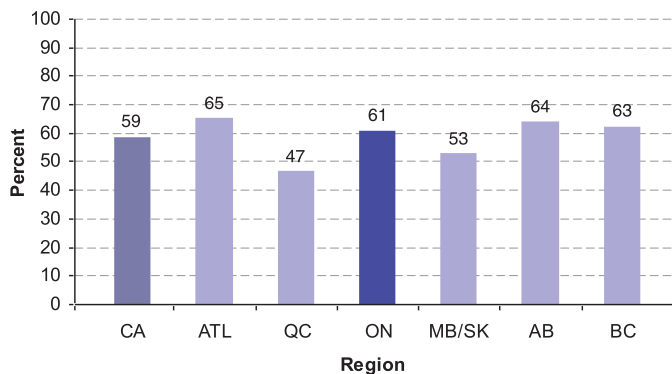
Outdoor workers

Sixty-one per cent of outdoor workers in Ontario protect themselves from the sun during work time.

Sex-specific preferences in sun protection among outdoor workers while working are similar to that for all adults in Ontario, in that men prefer to cover up and women prefer to wear sunglasses and use sunscreen.

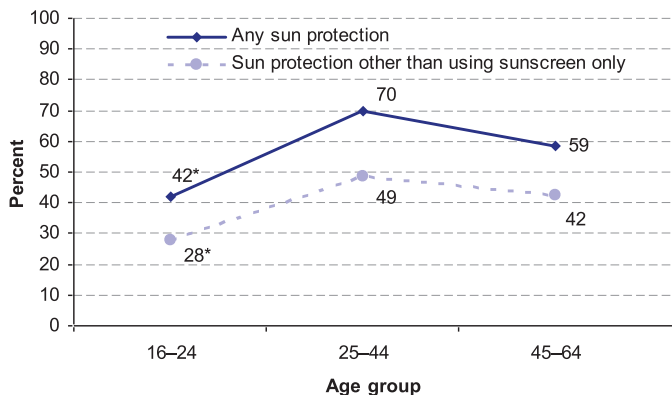
The youngest outdoor workers (ages 16–24) are the least likely to protect themselves from the sun.

Canadian outdoor workers, ages 16-64, who protect themselves from the sun during work time, by region



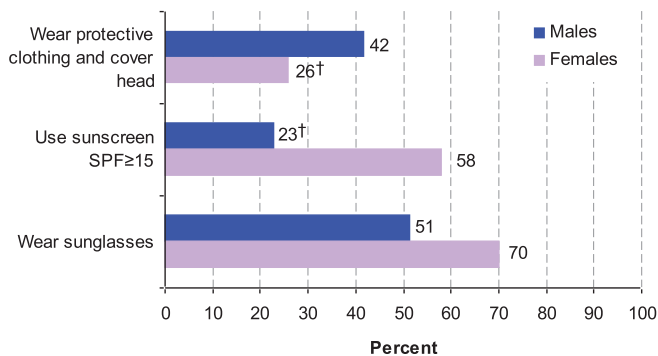
Sun protection: Typically spending fewer than 30 minutes work time in the sun during peak hours OR always/often wearing protective clothing and a hat OR always/often wearing sunscreen SPF \geq 15
Age-standardized to the 2001 Canadian population.

Ontario outdoor workers, ages 16-64, who protect themselves from the sun during work time, by age



*Figures should be interpreted with caution: N \geq 10 but coefficient of variation 16.6% – 33.3%.
Sun protection: Typically spending fewer than 30 minutes work time in the sun during peak hours OR always/often wearing protective clothing and a hat OR always/often wearing sunscreen SPF \geq 15

Ways that Ontario outdoor workers, ages 16-64, protect themselves from the sun during work time*, by sex



*When in the sun for 30 minutes or more at work

†Figures should be interpreted with caution:

N ≥ 10 but coefficient of variation 16.6% – 33.3%.

Over half of outdoor workers in Ontario use some type of sun protection while working. Men prefer protective clothing whereas women favour sunscreen and sunglasses. **The youngest outdoor workers are the least likely to protect themselves from the sun while working.**



SUNBURN

Adults

Sixteen per cent of adults in Ontario get at least one sunburn during the summer. This percentage is lower in Ontario than in the rest of Canada (20%).

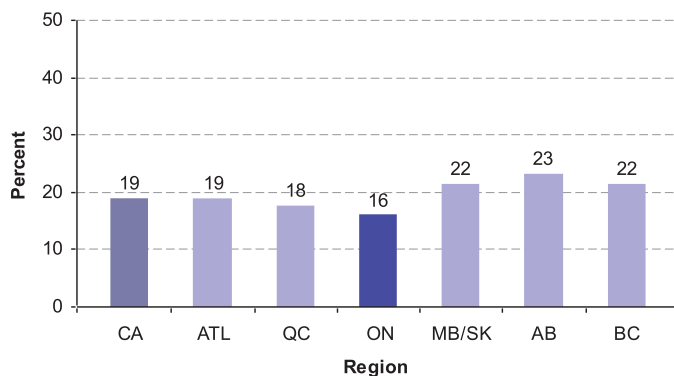
The likelihood of getting a sunburn is higher in men than women and diminishes with age. Twenty-eight per cent of men and 22% of women aged 16–24 get a sunburn.

Of those who sunburn, most get one sunburn, but 20% of women and 31% of men report three or more. Over a third of young adults (ages 16–24) get three or more sunburns (35%) compared to about one quarter of older adults (24%).

By far, the activity most strongly associated with getting a serious sunburn is taking part in outdoor recreational activities, which accounts for almost two thirds of sunburns. Outdoor leisure-time work, such as gardening, is a distant second.

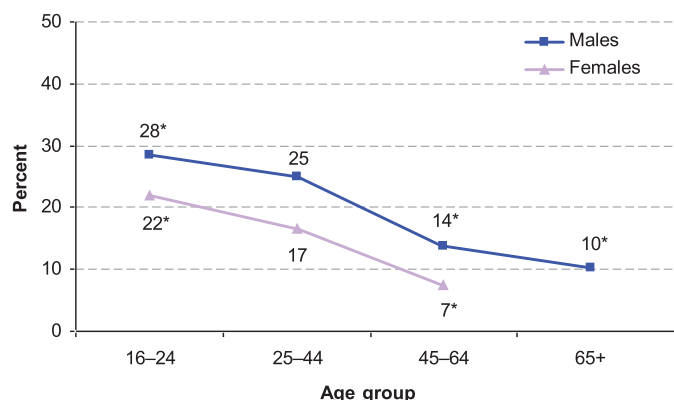
The likelihood of sunburn is related to whether a person is able to tan when exposed to the sun. Twenty-two per cent of those who get little or no tan get at least one sunburn, compared to 14% of those who tan deeply. Eighteen per cent of those who spend two or more hours in the sun during peak hours get a sunburn compared to 14% of those who spend fewer than 30 minutes in the sun.

Canadian adults who get at least one sunburn during the summer, by region



Age-standardized to the 2001 Canadian population.

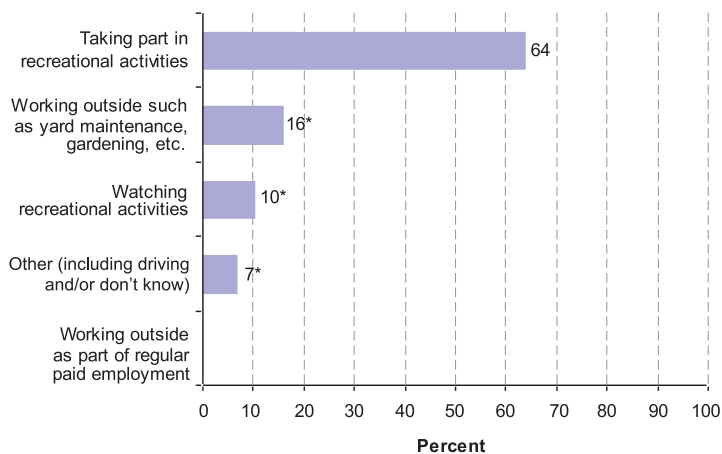
Ontario adults who get at least one sunburn during the summer, by age and sex†



*Figures should be interpreted with caution: N≥10 but coefficient of variation 16.6% – 33.3%.

†For Females, '65+', estimate is suppressed: N<10 or coefficient of variation > 33.3%.

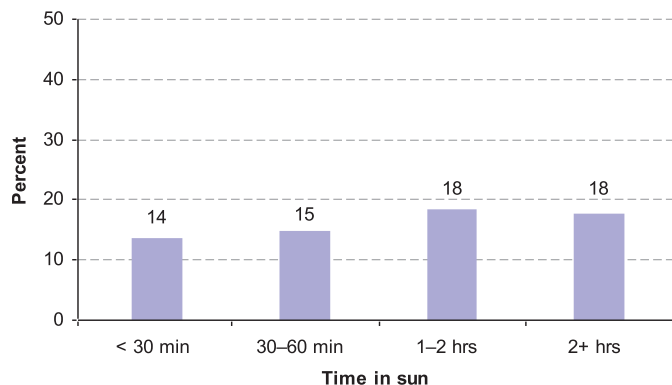
What Ontario adults are doing when they receive their most serious sunburn†



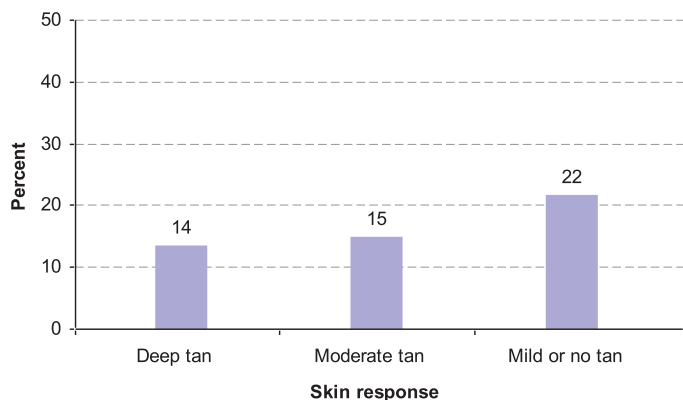
*Figures should be interpreted with caution: N≥10 but coefficient of variation 16.6% – 33.3%.

†For 'Working outside as part of regular paid employment', estimate is suppressed: N<10 or coefficient of variation > 33.3%.

Ontario adults who get at least one summer sunburn, by time spent in the sun on a typical day



Ontario adults who get at least one summer sunburn by skin response on repeated exposure to sunlight (tendency to tan)



The likelihood of getting a sunburn is highest in young men. Getting a sunburn is related to both skin reactivity and time in the sun. Most people get their most serious sunburn while taking part in outdoor recreational activities.



SUNBURN CONTINUED

Children

Children are less likely to get a sunburn than adults, even though they spend more time in the sun. Twelve per cent of children in Ontario get at least one sunburn during the summer months.

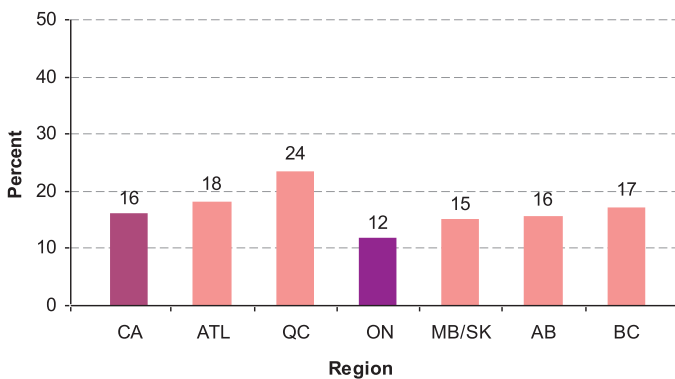
According to national data, older children (ages 6–12) are about twice as likely as younger children to get a sunburn. Of those children who sunburn, about 30% get two or more sunburns (Note: The Ontario sample is too small and frequency of sunburning is too low to generate estimates specific to Ontario).

Outdoor workers

Outdoor workers in Ontario, particularly those who spend three or more hours in the sun, are slightly more likely to get a summer sunburn than those who are not outdoor workers.

Seventy-two per cent of outdoor workers get their most serious sunburn while engaging in outdoor recreational activities. This percentage is slightly higher than the percentage for all adults (64%).

Canadian children who get at least one sunburn during the summer, by region



Ontario adults, ages 16-64, who get a summer sunburn, by average daily time spent in the sun as an outdoor worker



*Figures should be interpreted with caution: N≥10 but coefficient of variation 16.6% – 33.3%.
Age-standardized to the 2001 Canadian population.

Children are slightly less likely to get a sunburn than adults, even though they spend more time in the sun.

Outdoor workers are slightly more likely to get a summer sunburn than those who are not outdoor workers.

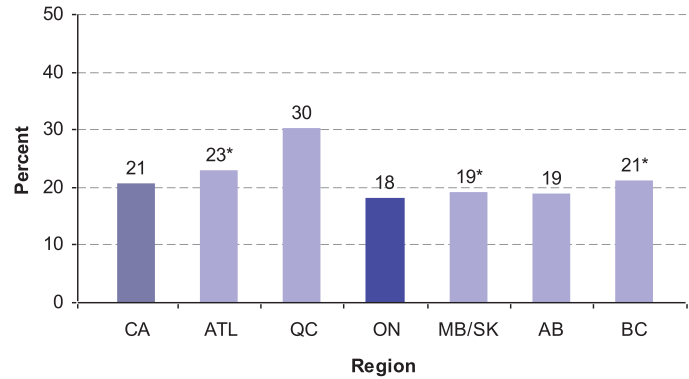
Adults on vacation

Eighteen per cent of adults in Ontario who take a winter vacation to a sunny climate get a sunburn, and 17% of summer vacationers get a sunburn. These values are slightly higher than for all Ontario adults on a typical summer day.

The age pattern and frequency of getting a sunburn while on vacation is similar to the pattern and frequency for the average Ontarian on a typical summer day.

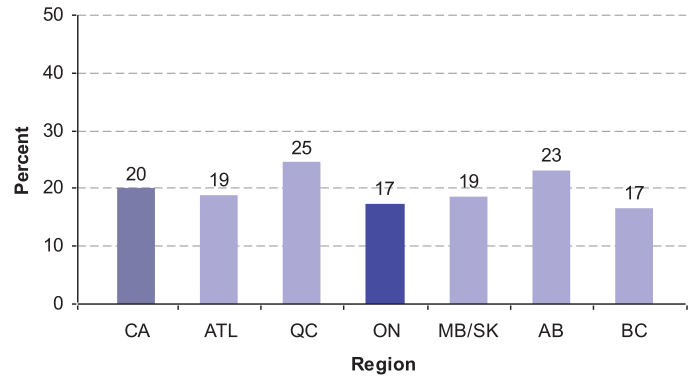
The age pattern and frequency of getting a sunburn while on vacation is similar to the pattern and frequency for the average Ontarian on a typical summer day.

Canadian adults who get a sunburn while on a winter vacation in a sunny climate, by region



*Figures should be interpreted with caution: N≥10 but coefficient of variation 16.6% – 33.3%.
Age-standardized to the 2001 Canadian population.

Canadian adults who get a sunburn while on a summer vacation, by region



Age-standardized to the 2001 Canadian population.



THE UV INDEX

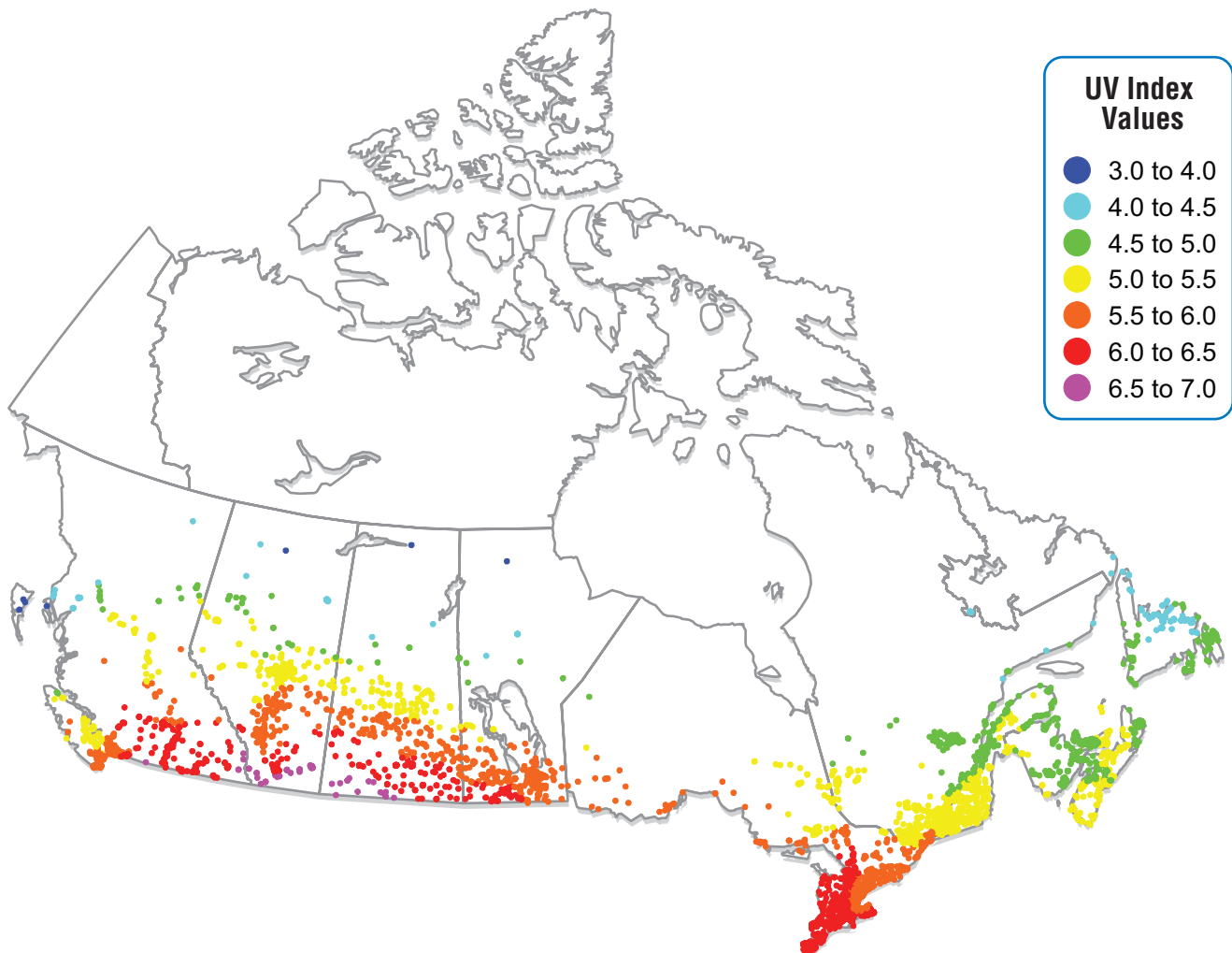
The UV Index is a simple measure of the intensity of the sun's UV radiation that indicates the potential for skin damage. It is determined by weighting quantities of incoming radiation at different wavelengths according to how effective these are in reddening human skin. The higher the UV Index, the greater the potential for damage to skin and eyes. Environment Canada scientists developed the UV Index in 1992 as a tool for Canadians to gauge the strength of the ultraviolet radiation to which they are exposed. Environment Canada issues UV Index forecasts for 48 locations across Canada. The UV Index forecast is the maximum value expected for a given day, usually around solar noon. Generally, the closer to the equator, the higher the UV Index. However, the UV Index is also dependent on altitude, reflection and clouds. In Canada, the UV Index generally ranges between 0 and 10.

UV Index	Category
+11	Extreme
8 to 10	Very High
6 to 7	High
3 to 5	Moderate
0-2	Low

UV Index values across the country

The average daily UV Index values at solar noon during the summer of 2006 were estimated for the place of residence of every survey participant. Values were highest in the southern parts of Saskatchewan, Alberta and British Columbia as well as southwestern Ontario.

Mean daily UV Index value at solar noon, summer 2006, at survey participants' places of residence





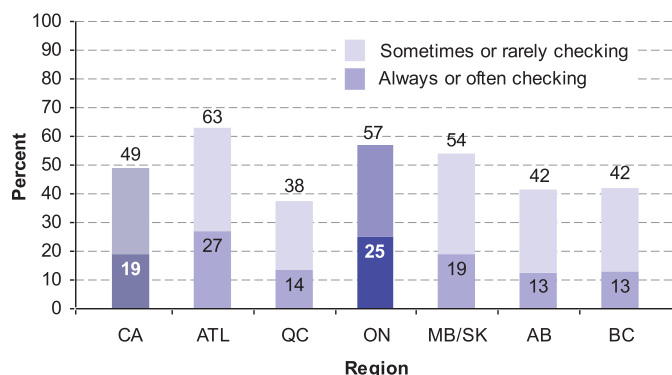
THE UV INDEX CONTINUED

Checking the UV Index

Twenty-five per cent of Ontarians always or often check the UV Index before spending time in the sun. A further 32% sometimes or occasionally do. More Ontarians and Atlantic Canadians check the UV Index compared to residents of any other regions. In both Ontario and Atlantic Canada, Environment Canada's UV Index and its associated health messages are integrated into sun protection campaigns through regional bodies such as the Ontario Sun Safety Working Group.

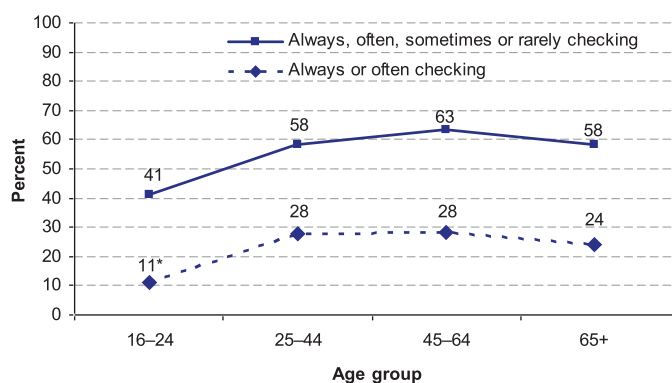
Young adults (ages 16–24), especially young men, are least likely to check the UV Index before spending time in the sun.

Canadian adults always, often, sometimes or rarely checking the UV Index before spending time in the sun, by region



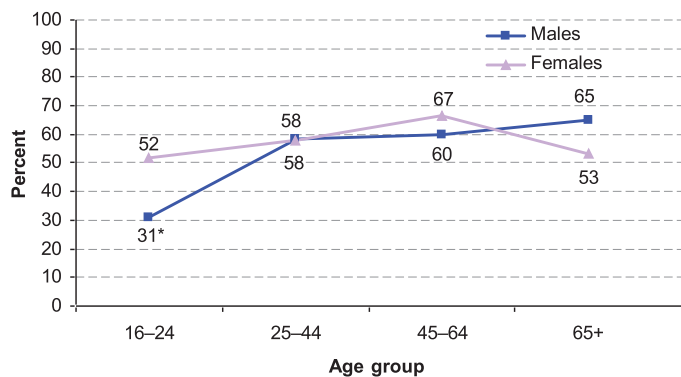
Age-standardized to the 2001 Canadian population.

Ontario adults checking the UV Index before spending time in the sun, by age



*Figures should be interpreted with caution: N≥10 but coefficient of variation 16.6% – 33.3%.

Ontario adults always, often, sometimes or rarely checking the UV Index before spending time in the sun, by age and sex



*Figures should be interpreted with caution: N≥10 but coefficient of variation 16.6% – 33.3%.

One quarter of Ontarians regularly check the UV Index before venturing out into the sun. A further 32% check it less regularly. Young adults, particularly young men, are least likely to check the UV Index.



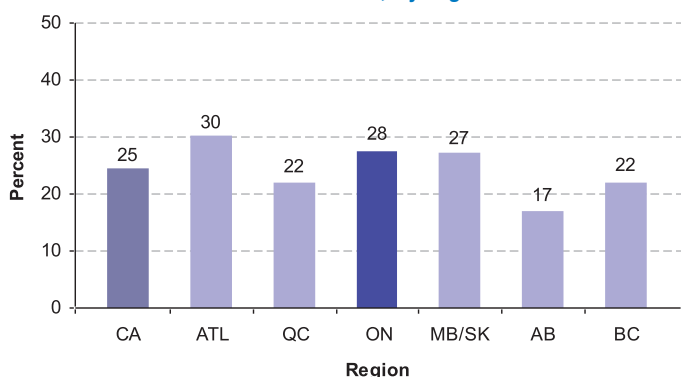
THE UV INDEX CONTINUED

Understanding the UV Index

Twenty-eight per cent of Ontarians interpret the UV Index correctly, in that they believe the risk of sunburn is high when the UV Index is 6 or 7.

Men and women interpret the UV Index similarly. Young adults (ages 16–24) and perhaps older women (ages 65+) are least likely to interpret the index correctly.

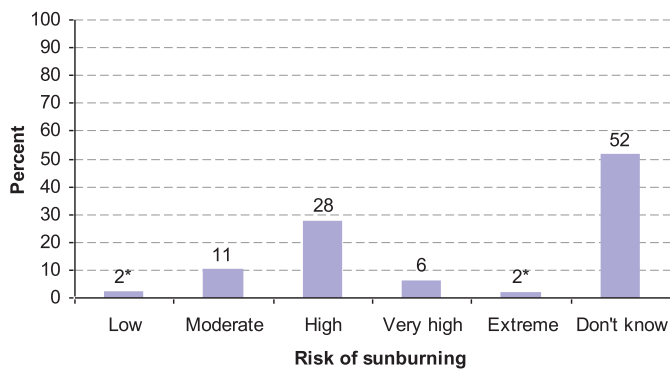
Canadian adults who believe that the risk of sunburning is “high” when the UV Index is rated 6 or 7, by region



Age-standardized to the 2001 Canadian population.

Just over one quarter of Ontarians interpret the UV Index correctly. Young adults appear least likely to interpret the UV Index correctly.

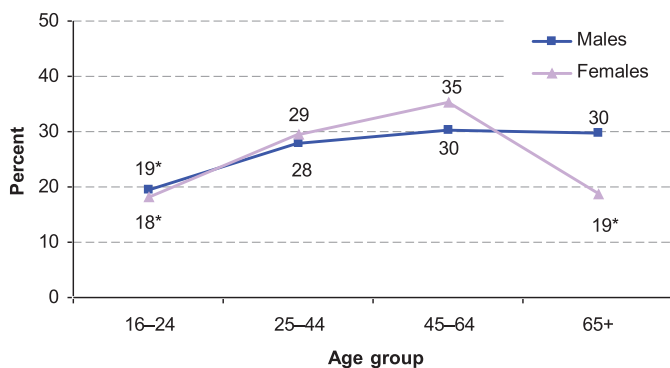
Ontario adults' belief regarding the risk of sunburning when the UV Index is rated as 6 or 7



Note: Correct response = 'High'

*Figures should be interpreted with caution: N≥10 but coefficient of variation 16.6% – 33.3%.

Ontario adults who believe that the risk of sunburning is “high” when the UV Index is rated 6 or 7, by age and sex



*Figures should be interpreted with caution: N≥10 but coefficient of variation 16.6% – 33.3%.

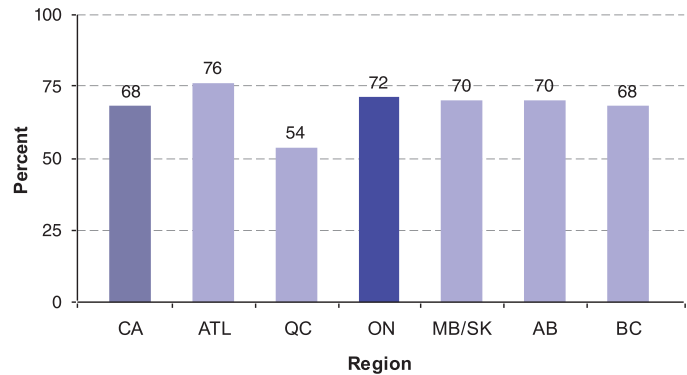
Using the UV Index

Of the 57% of Ontarians who check the UV Index (even if only rarely), 72% say that it affects their behaviour, in that they take extra efforts to protect themselves from the sun when the UV Index is high. The 43% of Ontarians who never check the UV Index presumably do not use it to modify their behaviour; under this assumption, 41% of people use the UV Index to guide behaviour (72% of 57%).

Women are slightly more likely than men to modify their behaviour in relation to the UV Index and young adults (ages 16–24) are least likely to be influenced by the UV Index.

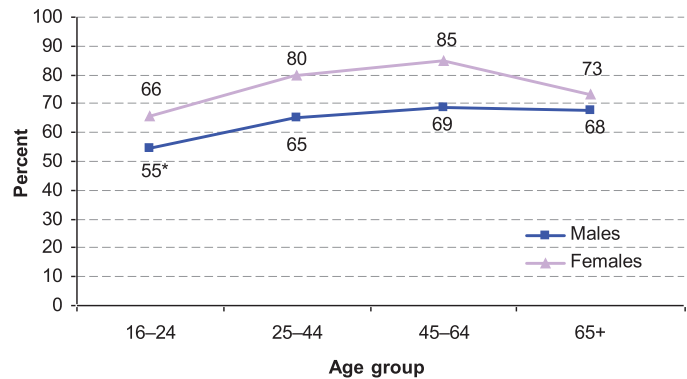
Less than half of Ontarians use the UV Index to guide their behaviour when going out into the sun. Women are slightly more likely to be influenced by the UV Index and young adults are least likely to use the UV Index.

Canadian adults who take extra efforts to protect from the sun when the UV Index is high or very high, by region



Age-standardized to the 2001 Canadian population.
Denominator includes respondents who always, often, sometimes or rarely check the UV index before spending time in the sun.

Ontario adults who take extra efforts to protect from the sun when the UV Index is high or very high, by age and sex



*Figures should be interpreted with caution: $N \geq 10$ but coefficient of variation 16.6% – 33.3%.
Denominator includes respondents who always, often, sometimes or rarely check the UV index before spending time in the sun.



SUN EXPOSURE AND PROTECTION FROM THE SUN IN ONTARIO

– A COMPARISON BETWEEN 1996 AND 2006

The first national sun survey (NSS1) was carried out in 1996. The design and questions from it were used as starting points for developing the 2006 NSS2 survey, from which results in this report are drawn. However, many of the questions in the NSS1 were modified for the NSS2 and the sampling strategy was revised to permit more robust regional analyses. Therefore results from NSS2 are not strictly comparable to those previously reported from NSS1.

To allow direct comparisons with NSS1, an additional sample of 2115 Canadians aged 16 years or older was selected in the same way as for NSS1 and interviewed using questions identical to those used in NSS1 for a few key domains. This sample is referred to hereafter as NSS2-Comparison, or NSS2-C. To further increase comparability between NSS1 and NSS2-C, 15 year-old respondents were removed from the NSS1 sample.

Because of the relatively small number of Ontarians in NSS2-C (N=600), confidence intervals around many estimates are rather wide, particularly in analyses among sub-populations such as outdoor workers and winter vacationers. Nevertheless, the results give a broad indication of how Ontarians have changed their sun exposure and protective behaviours over a decade.

More Ontarians spent extended time in the sun during the summer of 2006 than 1996, with 32% versus 25% of Ontarians spending two or more hours in the sun, respectively. More Ontarians traveled to a sunny climate during the winter of 2005/6 compared to the winter of 1995/6 (24% versus 16%). Also, when on a winter vacation, a higher proportion of vacationers spent more than 2 hours in the sun in 2006 compared to 1996 (75% versus 58%).

Between 1996 and 2006, there were no significant changes in the percentage of Ontarians protecting themselves from the sun or trying to get a tan; however, there was a significant drop in the percentage of Ontarians reporting a summer sunburn (53% vs. 38%).

A smaller proportion of Ontarians reported hearing or seeing information about the UV Index (borderline statistical significance) in 2006 compared to 1996, and fewer Ontarians correctly stated that the risk of sunburning was high when the UV index was 7.0–8.9 in 1996 and 7 in 2006.

Sun exposure among Ontario adults appears to have increased over the decade, yet individuals have not increased efforts to regularly protect themselves from the sun.

Fewer participants in the 2006 survey than in the 1996 survey reported getting a summer sunburn.

Knowledge and use of the UV Index may have declined over the decade.

Table 4: Comparison of sun exposure and protection from the sun* in Ontario adults: 1996 (NSS1) versus 2006 (NSS2-C)

Variable	1996 (NSS1; N = 1070)		2006 (NSS2-C; N = 600)	
	%	95% CI	%	95% CI
Age				
16-24	14.7	12.0 – 17.4	15.1	11.3 – 19.0
25-44	43.0	39.7 – 46.2	36.9	32.6 – 41.3
45-64	27.4	24.4 – 30.4	31.9	27.8 – 36.0
65+	15.0	12.6 – 17.3	16.0	13.1 – 18.9
Sex				
Male	48.8	45.4 – 52.1	48.9	44.3 – 53.4
Hair colour				
Blonde/red	22.6	19.8 – 25.4	20.4	16.6 – 24.1
Light brown	29.2	26.1 – 32.3	28.7	24.6 – 32.9
Dark brown/black	48.1	44.8 – 51.5	50.8	46.2 – 55.4
Birthplace				
Canada	73.5	70.6 – 76.5	73.9	70.0 – 77.8
Household income				
Less than \$20,000	12.0	9.9 – 14.1	5.7	3.8 – 7.6
\$20,000 to \$39,999	26.0	23.1 – 28.9	11.7	9.2 – 14.2
\$40,000 to \$79,999	32.6	29.4 – 35.7	28.1	24.0 – 32.1
\$80,000 or more	16.5	14.0 – 19.0	33.6	29.3 – 37.8
Don't know or refused to answer	12.8	10.5 – 15.1	20.9	17.2 – 24.5
Outdoor worker (only those aged 16-64 years)				
Works outdoors during summer months	19.0	16.1 – 21.8	21.3	17.0 – 25.6
Winter vacationer				
Travels to a sunny climate during winter	16.2	13.8 – 18.7	24.2	20.3 – 28.0
Sun exposure				
2 or more hours per day in the sun during leisure time	24.5	21.7 – 27.4	32.1	27.8 – 36.3
2 or more hours per day in the sun during work time (outdoor workers only)	60.7	52.2 – 69.1	47.1	35.7 – 58.6
2 or more hours per day in the sun while on winter vacation (vacationers only)	58.0	50.1 – 65.8	74.6	66.7 – 82.5
Protection from the sun				
Spends <30 minutes per day in the sun during leisure time	23.3	20.5 – 26.2	17.3	14.0 – 20.5
Always/often seeks shade†	40.9	37.1 – 44.6	37.5	32.9 – 42.1
Always/often wears protective clothing and head covering†	25.9	22.6 – 29.2	21.1	17.2 – 25.0
Always/often wears sunscreen (SPF ≥ 15) on face and body†	24.7	21.4 – 28.0	21.7	17.8 – 25.6
Always/often wears sunglasses†	56.7	52.9 – 60.6	60.1	55.3 – 65.0
Sunburn‡				
One or more sunburns during the summer months	53.4	50.2 – 56.6	38.0	33.6 – 42.3
Tanning				
Seeks a tan, from either the sun or artificial methods§	26.0	23.2 – 28.7	27.7	23.7 – 31.7
Uses artificial methods of tanning§	6.6	4.9 – 8.3	9.7	7.1 – 12.4
UV Index				
Always/often hears or sees information about the UV Index	67.8	64.6 – 71.0	60.4	56.0 – 64.9
Correctly believes that the risk of sun burning is high when UV Index is 7.0 to 8.9 (in NSS1)/7 (in NSS2-C)	63.3	59.9 – 66.7	54.3	49.8 – 58.8

Abbreviations: NSS1: First National Sun Survey (1996); NSS2-C: Second National Sun Survey, comparison sample (2006); CI: confidence interval

* Time frame for all sun-related activities is summer months (June-August) unless otherwise specified. All percentages (except those for age groups) are age-standardized to the 2001 Canadian population.

† Of those spending 30 or more minutes per day in the sun during leisure time.

‡ The percentage of Ontario adults reporting sunburn in NSS2-C (38%) differs from that in the NSS2 Base Sample (16%, noted elsewhere in this report) due to differences in the sunburn questions used in the two samples.

§ Any time during a year.



Cancer Care Ontario is the provincial agency responsible for continually improving cancer services. As the government's cancer advisor, Cancer Care Ontario works to reduce the number of people diagnosed with cancer, and makes sure patients receive better care every step of the way.

Cancer Care Ontario's mission is to improve the performance of the cancer system by driving quality, accountability and innovation in all cancer-related services.



Canadian Cancer Society
Société canadienne du cancer

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 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.