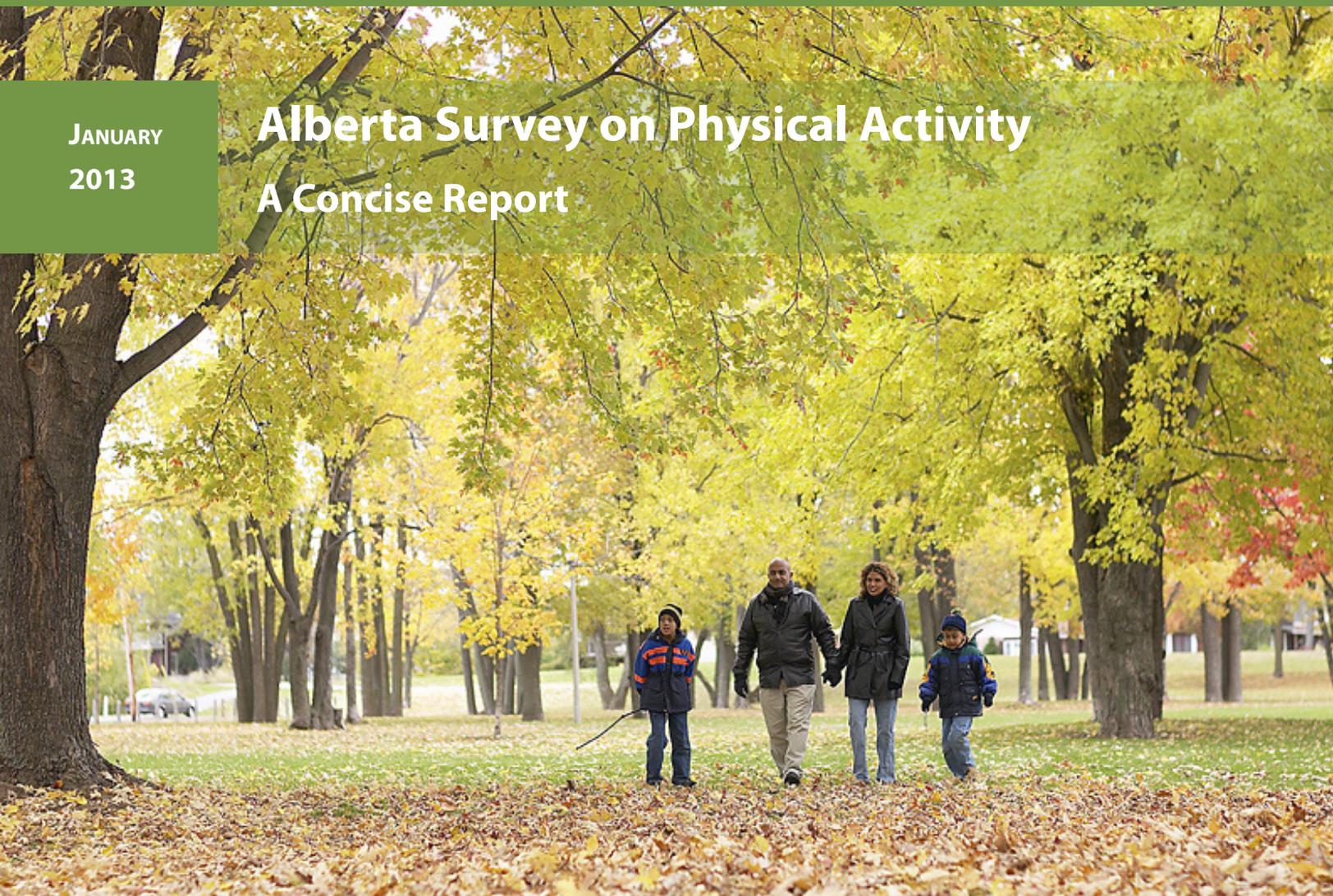


JANUARY
2013

Alberta Survey on Physical Activity

A Concise Report



ALBERTA CENTRE FOR
Active Living
Research and education
for the promotion of physical activity

Summary

Although 94% of Albertans agree that physical activity will keep them healthy, only 59% of adult Albertans are physically active enough to gain health benefits. About 74% of adult Albertans do some walking for leisure, transportation or work, but not enough to reach a moderate level of physical activity.

Most Albertans (89%) agree that physical activity will reduce their chances of getting serious health problems. This report offers recommendations that focus on promoting physical activity at work, ways to encourage older adults to be physically active, and strategies to increase walking time by Albertans of all ages.

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PHYSICAL ACTIVITY IN ALBERTA 2013

59% OF ALBERTANS GET ENOUGH PHYSICAL ACTIVITY.

94% OF ALBERTANS BELIEVE PHYSICAL ACTIVITY WILL REDUCE THEIR CHANCES OF GETTING A SERIOUS HEALTH PROBLEM.



Albertans that are confident in being physically active when life becomes demanding were 3.4 times more likely to be active than those that lack confidence.



Albertans that had access to places where they could be active were 2.7 times more likely to be physically active.

ALBERTANS ARE LESS ACTIVE AS THEY BECOME OLDER.

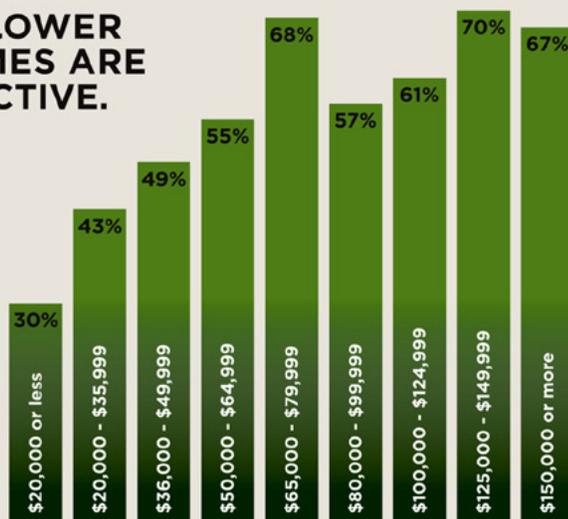


87% OF ADULTS 18 TO 24 YEARS OLD ARE PHYSICALLY ACTIVE.



35% OF ADULTS 65 YEARS AND OLDER ARE PHYSICALLY ACTIVE.

ALBERTANS WITH LOWER HOUSEHOLD INCOMES ARE LESS PHYSICALLY ACTIVE.



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Executive Summary

Survey Rationale

Participation in regular physical activity reduces the risk of developing a number of physical and mental health conditions (Warburton, Nicol & Bredinet, 2006) such as:

- pre-mature mortality,
- cardiovascular disease,
- stroke,
- hypertension,
- colon cancer,
- breast cancer, and
- type 2 diabetes.

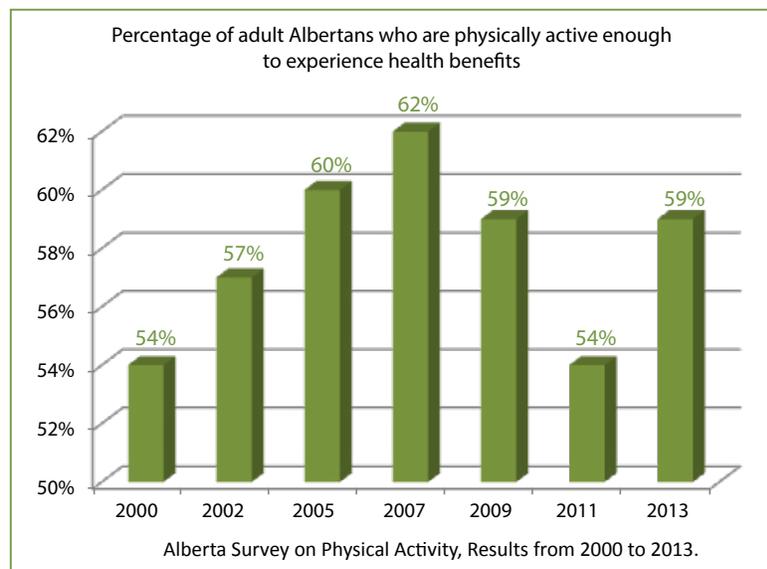
(Warburton et al., 2010)

Despite the health benefits associated with physical activity, participation generally has been on the decline in Alberta over the last decade, according to the Alberta Survey on Physical Activity (Loitz et al., 2012). This survey has provided credible and user-friendly physical activity information to researchers, practitioners, communities and decision-makers since 1995.

Summary of Findings

Physical Activity Levels

59% of Albertans get enough physical activity to achieve health benefits



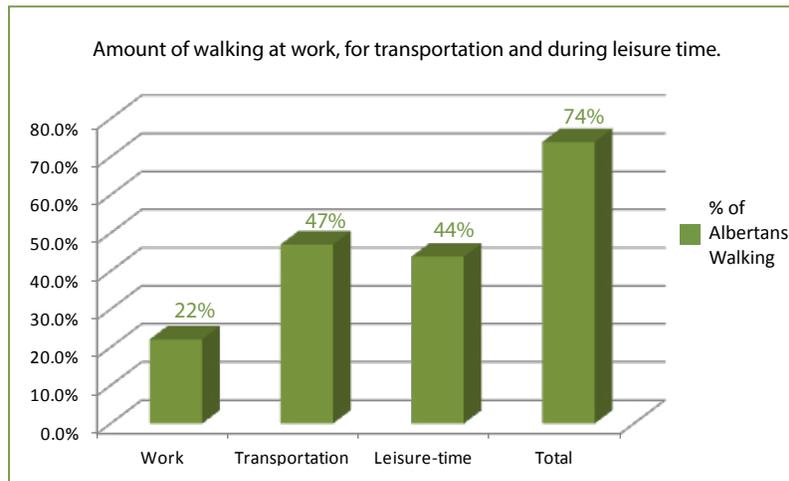
Although physical activity levels are higher in 2013 than in 2011, the results are not significantly different.



Walking Levels

Walking is one of the most popular types of physical activity in Canada (Canadian Fitness and Lifestyle Research Institute, 2001).

74% of Albertans do some walking for leisure, transportation or work



Although walking is popular, Albertans generally do not walk enough to attain a moderate level of physical activity.

Health Benefits

Albertans are aware that physical activity can help them stay healthy and reduce their risk of serious health issues.

94% of Albertans agree that physical activity will keep them healthy

89% of Albertans agree that physical activity will reduce their chances of getting serious health problems



Physical Activity Opportunities

Most Albertans identified they have access to a place to be physically active.

75% of Albertans agree that they have easy access to places where they can be physically active

Barriers to Physical Activity

Overall, Albertans lack confidence in overcoming barriers to physical activity, such as tiredness, lack of time, and bad weather.

25% of Albertans are confident that they can be physically active when they are tired

41% of Albertans are confident that they can be physically active when they have many other demands on their time

32% of Albertans are confident that they can be physically active when the weather is bad

A lack of confidence to overcoming barriers is associated with lower levels of physical activity. Developing strategies to support Albertans in overcoming these barriers should be a key focus of practitioners and decision-makers.

Background to the Survey

Survey Methods

The Alberta Centre for Active Living provided questions on physical activity for the 2012 Alberta Survey, conducted by the Population Research Laboratory at the University of Alberta.

The sample included 1,210 adults living in Alberta (see Table 1).

Table 1. Gender of respondent by Edmonton, Calgary, Other Alberta, and All Alberta.

Gender of Respondent	Metro Edmonton	Metro Calgary	Other Alberta	All Alberta
Male	201	202	200	603
Female	203	203	201	607
Total	404	405	401	1,210

Data collection methods included the following:

- Respondents participated in telephone interviews between July 3 and July 18, 2012.
- Respondents were 18 years of age and older at the time of the survey and were living in a household that could be contacted by direct dialling.
- A random-digit dialling approach ensured that respondents had an equal chance of being contacted whether or not their household was listed in a telephone directory.
- Questions were asked about:
 - ◆ leisure-time physical activity;
 - ◆ physical activity at work;
 - ◆ walking;
 - ◆ beliefs and attitudes about physical activity;
 - ◆ access to physical activity; and
 - ◆ demographics.

Data Quality

Thirty-three percent of households contacted responded to the survey.

The random sample of 1,210 is considered accurate within $\pm 2.8\%$, 19 times out of 20. A subsample of 400 is considered accurate within $\pm 5\%$, 19 times out of 20.

Please note, the subsamples of Edmonton metropolitan, Calgary metropolitan and the rest of Alberta do not necessarily represent the age and gender of the populations in these specific regions. *We advise caution in generalizing the findings related to these subsamples to the overall populations in these regions.*



Estimating Leisure-Time Physical Activity

To estimate the leisure-time physical activity level of each respondent, we asked the following question (adapted from the *Godin Leisure-Time Exercise Questionnaire*, Godin & Shephard, 1985):

Considering a 7-day period (week), we'd like to know how many times a week, on average, you do the following kinds of activity for more than 15 minutes during your free time.

- *Strenuous activity* is exhausting, and typically makes you sweat and your heart beat faster (e. g., running, hockey, soccer, aerobics, cross country skiing and vigorous swimming).
- *Moderate activity* is not exhausting (e. g., fast walking, easy bicycling, easy swimming and dancing).
- *Mild activity* requires only minimal effort and doesn't usually cause you to sweat (e. g., yoga and easy walking).

We multiplied weekly frequencies of strenuous, moderate and mild activities by their estimated value in METs (nine, five and three, respectively). We then calculated total weekly leisure activity by adding the products of the three components.

Based on cut-offs determined by García Bengoechea, Spence, and McGannon (2005), we considered men sufficiently physically active if they expended 38 METs per week and women sufficiently physically active if they expended 35 METs per week.

According to Jacobs, Ainsworth, Hartman, and Leon (1993), these measures equal 300 to 400 MET-minutes per day which equals 2,000 kilocalories per week (Elosúa et al., 2000). An energy expenditure of 2,000 kilocalories or more per week is associated with a reduced risk of heart disease (Paffenbarger, Wing & Hyde, 1978).

Statistical Analysis

We performed a series of chi-square analyses to test differences in leisure-time physical activity status (sufficiently active vs. insufficiently active) related to several sociodemographic and psychological factors.

Two separate binary logistic regressions allowed us to determine the unique contributions of psychological variables (e. g., confidence participating in physical activity) and accessibility variables (e. g., having easy access to places where one can be physically active) in predicting the likelihood of being sufficiently active when controlling for other variables (e. g., age).

We weighted the data to compensate for subsample sizes in three categories—Edmonton, Calgary and the rest of Alberta—as these were not proportional to the Alberta populations they represent. Further, we weighted the physical activity level statistical analyses by age according to postcensal estimates based on the 2006 Census data (Statistics Canada, 2012) to correct for the aging effect in the population.

¹A MET is a measure of energy output equal to one's basal resting metabolic rate which is assumed to be $3.5 \text{ mL} \cdot \text{kg}^{-1} \cdot \text{min}^{-1}$ (Trembley, Shephard, and Brawley, 2007). Thus, two METs are equivalent to an intensity twice that of the resting metabolic rate. Physical activity intensity is often expressed in METs.

Factors Influencing Leisure-Time Physical Activity

We investigated the influence of three types of factors on leisure-time physical activity:

- sociodemographic factors
- psychological factors
- environmental factors

Sociodemographic Factors

Age

$\chi^2 (5, 1153) = 91.76, p < 0.001$

There was a significant difference in physical activity levels according to age. The percentage of sufficiently active people decreases with age:

- 18-24 years (86.7% active)
- 25-34 years (66.7% active)
- 35-44 years (57.4% active)
- 45-54 years (58.4% active)
- 55-64 years (55.5% active)
- 65 + years (35.4% active)

Education

$\chi^2 (2, 1210) = 5.85, p < 0.05$

The proportion of sufficiently active Albertans is higher among those who completed high school or pursued post-secondary studies compared to those who did not complete high school.

- 59.8% (pursued post-secondary studies)
- 60.9% (completed high school)
- 46.1% (did not complete high school)

Annual Household Income

$\chi^2 (8, 891) = 29.21, p < 0.001$

The percentage of sufficiently active Albertans is highest among those with the highest annual household income. Those with an annual household income below \$35,999 are the least likely to be considered sufficiently active, while those that have a household income from \$125,000 to \$149,999 are the most likely to be active.

- < \$20,000 (30.4% active)
- \$20,000 - \$35,999 (43.3% active)
- \$36,000 - \$49,999 (49.1% active)
- \$50,000 - \$64,999 (55.3% active)
- \$65,000 - \$79,999 (67.6% active)
- \$80,000 - \$99,999 (57.0% active)
- \$100,000 - \$124,999 (60.8% active)
- \$125,000 - \$149,999 (69.7% active)
- ≥ \$150,000 (66.8% active)

Marital Status

$$\chi^2 (5, 1213) = 19.42, p < 0.005$$

The proportion of sufficiently active Albertans is higher among those who have never been married, those who have common-law or live-in partners and those who are separated.

- Single (66.8% active)
- Married (57.9% active)
- Common-law/ Live-in partner (64.1% active)
- Divorced (56.9% active)
- Separated (63.2% active)
- Widowed (34.8% active)

Employment Status

$$\chi^2 (10, 1219) = 59.07, p < 0.001$$

The percentage of Albertans who are sufficiently active varies according to employment status.

- Employed full-time (62.2% active)
- Employed part-time (64.6% active)
- Unemployed & looking for work (71.8% active)
- Not in the labour force & not looking for work (54.3% active)
- Student employed part-time or full-time (86.2% active)
- Student not employed (65.0% active)
- Retired (40.6% active)
- Homemaker (68.8% active)
- Maternity leave (64.5% active)
- On disability (27.6% active)

Psychological Factors

Confidence in Physical Activity Participation

Participation in physical activity is related to a persons' confidence in their ability to successfully execute the required steps needed to be active. We examined three types of self-efficacy (general self-efficacy, coping self-efficacy and scheduling self-efficacy) which assesses confidence levels related to physical activity participation. The more efficacious a person feels about physical activity the more likely they are to initiate and maintain a physically active lifestyle.

General Self-efficacy

$$\chi^2 (2, 1208) = 159.27, p < 0.001$$

General self-efficacy refers to confidence in being able to participate in regular physical activity. The proportion of sufficiently active Albertans increases as general self-efficacy increases:

- 70.3% of Albertans with high general self-efficacy are active (cut-off score = 3.5 to 5)
- 43.2% of Albertans with moderate general self-efficacy are active (cut-off score = 2.5 to 3.4)
- 22.9% of Albertans with low general self-efficacy are active (cut-off score = 1 to 2.4)

Coping Self-efficacy

$$\chi^2 (2, 1207) = 181.06, p < 0.001$$

Coping self-efficacy refers to confidence in being able to overcome potential barriers to physical activity such as bad weather, feeling tired or being in a bad mood.

The percentage of sufficiently active Albertans increases as coping self-efficacy increases:

- 83.7% of Albertans with high coping self-efficacy are active (cut-off score = 3.5 to 5)
- 64.0% of Albertans with moderate coping self-efficacy are active (cut-off score = 2.5 to 3.4)
- 38.3% of Albertans with low coping self-efficacy are active (cut-off score = 1 to 2.4)

Scheduling Self-efficacy

$$\chi^2 (2, 1209) = 132.72, p < 0.001$$

Scheduling self-efficacy refers to confidence in being able to arrange one's schedule to participate in physical activity and overcome potential barriers, such as time constraints.

The percentage of sufficiently active Albertans increases as scheduling self-efficacy increases:

- 72.0% of Albertans with high scheduling self-efficacy are active (cut-off score = 3.5 to 5)
- 53.5% of Albertans with moderate scheduling self-efficacy are active (cut-off score = 2.5 to 3.4)
- 29.3% of Albertans with low scheduling self-efficacy are active (cut-off score = 1 to 2.4)

Physical Activity will Improve Health

Health Outcome Expectations

$$\chi^2 (2, 1214) = 15.13, p < 0.001$$

Outcome expectancies tested in this survey were peoples' belief in the health benefits of physical activity. As health outcome expectancy increases, so does the proportion of sufficiently active Albertans:

- 60.5% of Albertans with high health outcome expectancies are active
- 43.9% of Albertans with moderate health outcome expectancies are active
- 15.4% of Albertans with low health outcome expectancies are active

Intentions to Participate in Regular Physical Activity

Physical Activity Intentions

$$\chi^2 (2, 1203) = 93.96, p < 0.001$$

As the intention to participate in physical activity in the near future increases, so does the percentage of physically active Albertans:

- 67.1% of Albertans with high intentions to be physically active are active
- 35.6% of Albertans with moderate intentions to be physically active are active
- 34.1% of Albertans with low intentions to be physically active are active

Perceived Behavioural Control

$$\chi^2 (2, 1211) = 120.09, p < 0.001$$

Perceived behavioural control is the perception that if one wanted to, one could easily participate in regular physical activity. As perceived opportunities to participate in regular physical activity increase, so does the percentage of sufficiently active Albertans.

Respondents were asked whether they strongly agreed, agreed, were neutral, disagreed or strongly disagreed with the following statement: “If I wanted to, I could easily participate in regular physical activity.” Percentages of physically active Albertans are as follows:

- 68.4% of currently active Albertans agree or strongly agree that they can easily be active
- 23.9% of currently active Albertans disagree or strongly disagree that they can easily be active

Environmental Factor

One example of an environmental factor is having access to places to be physically active.

Accessibility

$$\chi^2 (2, 1209) = 39.96, p < 0.001$$

The proportion of sufficiently active Albertans rises with increases in perceptions about access to places for physical activity. Respondents were asked whether they strongly agreed, agreed, were neutral, disagreed or strongly disagreed with the following statement: “I have easy access to places where I can get physical activity.” Percentages of physically active Albertans are as follows:

- 63.3% of active Albertans agree or strongly agree they have access to places to be active
- 37.0% of active Albertans disagree or strongly disagree they have access to places to be active



Predictors of Physical Activity

Sociodemographic Predictors

Gender, age, employment status and marital status are the sociodemographic factors that predict physical activity levels (sufficiently active vs. insufficiently active) among Albertans (see Table 2).

Age: Albertans aged 18 to 24 years are the most likely to be physically active. As Albertans age, the likelihood of being active decreases.

The probability of people achieving sufficient physical activity relative to Albertans aged 18 to 24 years is as follows:

- 25 to 34 years: 0.33 times more likely to be sufficiently active
- 35 to 44 years: 0.20 times more likely to be sufficiently active
- 45 to 54 years: 0.22 times more likely to be sufficiently active
- 55 to 64 years: 0.16 times more likely to be sufficiently active
- 65 years or older: 0.09 times more likely to be sufficiently active

Albertans 25 years and older are significantly less active than those aged 18 to 24 years.

Education: Albertans with less than a high school diploma are more physically active than those with post-secondary education when all variables in the model are controlled for.

Income: Albertans with household incomes of \$65,000 to \$79,999, and greater than \$100,000 are significantly more active than those of incomes less than \$20,000.

Employment status: Albertans who are not in the labour force and not looking for work are the most likely to be active, and are 4.75 times more likely to be sufficiently active as Albertans who have a full-time job.

Marital status: Divorced Albertans are 2.46 times as likely to be sufficiently active as Albertans who have never been married.

Psychological Predictors

After controlling for sociodemographic factors, the psychological predictors of physical activity status are coping self-efficacy and perceived behavioural control to participate in physical activity (see Table 2).

- Albertans with high coping self-efficacy are 3.38 times more likely to be sufficiently active as Albertans with low coping self-efficacy.
- Albertans with high perceived behavioural control to participate in regular physical activity are 2.69 times more likely to be sufficiently active as Albertans with low perceived behavioural control.

Table 2. Sociodemographic and psychological factors related to physical activity status

Sociodemographic and psychological factors	Step 1 ^a		Step 2 ^b	
	OR ^c	CI ^d	OR ^c	CI ^d
Gender				
Male	1		1	
Female	.86	.62 - 1.17	.82	.58 - 1.17
Age (years)				
18 to 24	1**		1**	
25 to 34	.28*	.11 - .69	.33**	.13 - .86
35 to 44	.15**	.06 - .37	.20**	.08 - .52
45 to 54	.16**	.07 - .40	.22*	.08 - .58
55 to 64	.14**	.05 - .36	.16**	.06 - .46
> 65	.07**	.02 - .20	.09*	.03 - .30
Education				
< high school	1		1*	
High school	.58	.28 - 1.21	.50	.21 - 1.17
Post-secondary	.56	.29 - 1.09	.35*	.16 - .76
Annual household income				
< \$20,000	1*		1	
\$20,000 to \$29,999	2.68	.86 - 8.31	2.56	.72 - 9.11
\$30,000 to \$39,999	2.34	.71 - 7.72	2.14	.57 - 8.11
\$40,000 to \$59,999	3.03	.97 - 9.46	2.90	.82 - 10.22
\$60,000 to \$79,999	4.72*	1.47 - 15.16	5.92*	1.59 - 22.01
\$80,000 to \$99,999	3.47*	1.12 - 10.76	2.95	.85 - 10.33
\$100,000 to \$124,999	3.96*	1.30 - 12.06	3.70*	1.07 - 12.75
\$125,000 to \$149,999	5.74*	1.71 - 19.29	5.25*	1.37 - 20.08
≥ \$150,000	5.96*	1.95 - 18.23	5.16*	1.49 - 17.81
Employment status				
Employed full-time	1		1	
Employed part-time	1.31	.80 - 2.14	1.20	.69 - 2.08
Unemployed & looking for work	1.58	.57 - 4.41	2.13	.65 - 7.02
Not in the labour force & not looking for work	2.78	.81 - 9.55	4.75*	.93 - 24.20
Student employed part-time or full-time	1.27	.36 - 4.44	1.48	.38 - 5.78
Student not employed	2.20	.40 - 12.08	2.35	.33 - 16.73
Retired	1.52	.80 - 2.90	1.35	.64 - 2.82
Homemaker	1.28	.59 - 2.78	1.30	.55 - 3.06
Maternity leave	1.51	.33 - 6.81	2.11	.40 - 11.11
On disability	.54	.21 - 1.38	1.40	.45 - 4.34

Children in household				
None	1		1	
One	1.24	.78 - 1.97	1.10	.66 - 1.82
Two or more	.91	.56 - 1.48	.79	.46 - 1.36
Three	1.26	.69 - 2.31	1.30	.66 - 2.55
Marital status				
Never married	1		1	
Married	1.12	.68 - 1.86	1.55	.88 - 2.74
Common-law/Live-in partner	1.21	.63 - 2.36	1.54	.74 - 3.18
Divorced	2.01	.97 - 4.18	2.46*	1.06 - 5.72
Separated	1.17	.38 - 3.64	1.03	.30 - 3.57
Widowed	.94	.35 - 2.55	1.25	.41 - 3.85

Psychological Variables	Step 1 ^a		Step 2 ^b	
	OR ^c	CI ^d	OR ^c	CI ^d
General self-efficacy				
Low			1	
Moderate			1.58	.54 - 4.64
High			2.49	.94 - 6.64
Coping self-efficacy				
Low			1**	
Moderate			1.39	.86 - 2.26
High			3.38**	2.23 - 5.11
Scheduling self-efficacy				
Low			1	
Moderate			1.34	.68 - 2.65
High			1.77	.91 - 3.44
Intention to participate in regular physical activity				
Low			1	
Moderate			.58	.02 - 18.91
High			3.23	.12 - 87.10
Outcome expectancy (health)				
Low			1	
Moderate			2.09	.15 - 29.86
High			1.71	.13 - 21.97
Perceived behavioural control				
Low			1*	
Moderate			1.65	.80 - 3.42
High			2.69*	1.36 - 5.31

Table Notes:

^aStep 1 refers to the variables entered first in the regression (in this case, sociodemographic variables).

^b Step 2 refers to the variables subsequently entered in the regression (in this case, sociodemographic and psychological variables). This way, we determine the contribution of psychological variables in predicting activity status after controlling for sociodemographic variables.

^c OR stands for “odd ratio.” OR is an indicator of the change in odds resulting from a unit change in the predictor (e.g., the change in the odds of being sufficiently active resulting from a unit change in general self-efficacy). If the value is greater than 1, it indicates that as the predictor increases, the odds of the outcome occurring increase. The opposite is also true. The first group in each variable category (the one assigned a value of 1) is a reference group to which the other values are compared.

^d CI stands for “confidence interval.” CI is an estimate of the values between which the OR would fall in the actual population rather than the survey sample (i.e., 95 out of 100 occasions).

* $p < .05$

** $p < .001$ compared to reference group



Environmental Predictors

We found that after controlling for sociodemographic factors, accessibility (as an environmental factor) was a significant predictor of physical activity status (see Table 3).

Accessibility (access to places where one can get physical activity): Albertans who agree or strongly agree that they have easy access to places where they can be physically active are 2.69 times more likely to be sufficiently active as compared to Albertans who disagree or strongly disagree.

Table 3. Sociodemographic and environmental factors related to physical activity status

Sociodemographic and environmental factors	Step 1 ^a		Step 2 ^b	
	OR ^c	CI ^d	OR ^c	CI ^d
Gender				
Male	1		1	
Female	.86	.62-1.17	.85	.62 - 1.18
Age (years)				
18 to 24	1**		1**	
25 to 34	.28*	.11 - .69	.27*	.11 - .66
35 to 44	.15**	.06 - .37	.14**	.06 - .36
45 to 54	.16**	.07 - .40	.16**	.06 - .41
55 to 64	.14**	.05 - .36	.13**	.05 - .34
> 65	.07**	.02 - .20	.06**	.02 - .19
Education				
< high school	1		1*	
High school	.58	.28 - 1.21	.53	.25 - 1.13
Post-secondary	.56	.29 - 1.09	.47*	.24 - .93
Annual household income				
< \$20,000	1*		1	
\$20,000 to \$29,999	2.68	.86 - 8.31	2.60	.81 - 8.32
\$30,000 to \$39,999	2.34	.71 - 7.72	1.93	.57 - 6.55
\$40,000 to \$59,999	3.03	.97 - 9.46	2.50	.78 - 7.98
\$60,000 to \$79,999	4.72*	1.47 - 15.16	4.10*	1.24 - 13.59
\$80,000 to \$99,999	3.47*	1.12 - 10.76	2.87	.91 - 9.07
\$100,000 to \$124,999	3.96*	1.30 - 12.06	3.07*	.98 - 9.57
\$125,000 to \$149,999	5.74*	1.71 - 19.29	4.39*	
≥ \$150,000	5.96*	1.95 - 18.23	4.44*	
Employment status				
Employed full-time	1		1	
Employed part-time	1.31	.80- 2.14	1.32	.80 - 2.17
Unemployed & looking for work	1.58	.57 - 4.41	1.62	.59 - 4.49

Not in the labour force & not looking for work	2.78	.81 - 9.55	3.17	.83 - 12.11
Student employed part-time or full-time	1.27	.36 - 4.44	1.26	.35 - 4.56
Student not employed	2.20	.40 - 12.08	3.81	.37 - 39.36
Retired	1.52	.80 - 2.90	1.52	.79 - 2.95
Homemaker	1.28	.59 - 2.78	1.23	.56 - 2.69
Maternity leave	1.51	.33 - 6.81	1.32	.29 - 5.98
On disability	.54	.21 - 1.38	.60	.23 - 1.58
Children in household				
None	1		1	
One	1.24	.78 - 1.97	1.19	.74 - 1.91
Two	.91	.56 - 1.48	.84	.51 - 1.38
Three or more	1.26	.69 - 2.31	1.27	.69 - 2.34
Marital status				
Never married	1		1	
Married	1.12	.68 - 1.86	1.27	.76 - 2.12
Common-law/Live-in partner	1.21	.63 - 2.36	1.37	.69 - 2.70
Divorced	2.01	.97 - 4.18	2.12*	1.00 - 4.49
Separated	1.17	.38 - 3.64	1.19	.39 - 3.64
Widowed	.94	.35 - 2.55	.96	.35 - 2.64

Accessibility Variables	Step 1 ^a		Step 2 ^b	
	OR ^c	CI ^d	OR ^c	CI ^d
Access to places where one can get physical activity				
Disagree or strongly disagree			1**	
Neutral			1.75	.95 - 3.24
Agree or strongly agree			2.69**	1.68 - 4.33

Table Notes:

a Step 1 refers to the variables entered first in the regression (in this case, sociodemographic variables).

b Step 2 refers to the variable subsequently entered in the regression (in this case, sociodemographic and environmental). This way, we determine the contribution of accessibility (as an environmental factor) in predicting activity status after controlling for sociodemographic variables.

c OR stands for “odd ratio.” OR is an indicator of the change in odds resulting from a unit change in the predictor (e.g., the change in the odds of being sufficiently active resulting from a unit change in accessibility). If the value is greater than 1, then it indicates that as the predictor increases, the odds of the outcome occurring increase. The opposite is also true. The first group in each variable category (the one assigned a value of 1) is a reference group to which the other values are compared.

d CI stands for “confidence interval.” CI is an estimate of the values between which the OR would fall in the actual population rather than the sample (i.e., 95 out of 100 occasions).

* $p < .05$

** $p < .001$ compared to reference group

Walking for Leisure, Transportation and Work

The amount of walking was assessed for work, transportation, and leisure-time. These specific types of walking were scored and computed into MET-minutes/week, and expressed as mean and median scores. The median score should be used to express central tendencies due to the non-normal distribution of energy expenditure (International Physical Activity Questionnaire (IPAQ), 2005). See Table 4 for results.

Table 4. Amount of walking done at work, for transportation and during leisure time.

Types of walking (MET-minutes/week)			
	Mean (SD)	Median	% of Albertans Walking
Work	213.99 (921.91) MET-minutes/week	0 MET-minutes/ week	22.1%
Transportation	155.47 (335.76) MET-minutes/week	0 MET-minutes/ week	47.0%
Leisure-time	141.72 (276.62) MET-minutes/week	0 MET-minutes/ week	43.8%
Total	511.31 (1025.59) MET-minutes/week	231.00 MET- minutes/week	73.9%

Note: When considering all forms of physical activity per week together, a MET-minutes/week score of less than 600 is considered a low level of physical activity. A minimum of 600 MET-minutes/week is considered a moderate amount of physical activity. Accumulating at least 3000 MET-minutes/week is considered a high level of physical activity (IPAQ, 2005). These scores above only include the amount of walking that Albertans reported, not their total physical activity level.

As shown in Table 4, the percentage of Albertans walking varies for each modality. These results show that more Albertans walk during leisure-time and for transportation, than during work-time.

If we only examine Albertans that are engaging in walking and remove the non-walkers from the calculations, we find the following:

- Those Albertans that walk as part of their work accumulate on average 330 MET-minutes/week.
- Albertans that currently walk for transportation accumulate an average of 198 MET-minutes/week.
- Albertans that walk for leisure accumulate an average of 198 MET-minutes/week.
- The total amount of walking Albertans do (when combining all three modes of walking) results in an average of 693 MET-minutes/week among current walkers.
- On average, current walkers meets the minimum of 600 MET-minutes/week, which is considered a moderate amount of physical activity.



Conclusions and Recommendations

Physical Activity and Walking

According to our 2013 survey, 59% of adult Albertans are sufficiently physically active.

This is:

- higher than reported in 2011 (54.3%);
- the same as in 2009 (58.5%); and
- lower than reported in 2007 (62.4%).

The 2013 result is not significantly different from the last two reports. Refer to Appendix, p. 26, for historical results from 2002 forward.

Currently, 73.9% of Albertans engage in walking for work, transportation and/or leisure. Although a large proportion of the population participates in walking, Albertans generally do not walk enough to attain a moderate level of physical activity.

Factors Affecting Leisure-Time Physical Activity

According to our survey, the most significant factors affecting leisure-time physical activity are:

- age;
- education;
- household income;
- employment status;
- marital status;
- coping self-efficacy;
- perceived behavioural control to engage in physical activity; and
- perception of access to places where one can get physical activity.

Determinants of Health Approach

As with previous years, we found that several sociodemographic, psychological and environmental factors were associated with and/or independently predicted participation in physical activity. These findings further support the determinants of health framework advocated in the Alberta Surveys on Physical Activity conducted in 1999, 2002, 2005, 2007, 2009 and 2011 (Loitz, et al., 2012).

The term *determinants of health* includes the broad range of personal, social and environmental factors that affect individual and population health. The determinants of health framework, along with current and previous research, underscores the need for a balance between individual behaviour change strategies and environmental change strategies (Wharf-Higgins, 2002).



Sociodemographic factors (such as age, employment status and income), psychological variables (such as self-efficacy and perceived behavioural control), and access to physical activity are related to physical activity levels among Albertans. Physical inactivity is not simply a personal problem but an ongoing public health issue among Albertans (García Bengoechea & Spence, 2003). As with previous surveys, the findings from this 2013 survey continue to support using a broad determinants of health approach when developing physical activity policies and practices.

Recommendations

The survey results help to identify three areas of focus that may be useful in increasing physical activity levels among adult Albertans:

- physical activity at work;
- physical activity for older adults; and
- increasing time spent walking.

Physical Activity at Work

The workplace offers a practical setting to incorporate physical activity time. Many Albertans spend 35 hours or more per week at work. People with many commitments and obligations outside of work hours may be able to block off time before, during, or after work for physical activity. For example, an employee can schedule time for a physical activity break on a shared work calendar; this can be a practical tool to advise co-workers of physical activity commitments.

Workplaces can provide employees with support and access to physical activity by providing a place to be active. For example, workplaces could provide access to a fitness centre, provide walking poles for urban walking, or allow for flexible lunch hours or work breaks to accommodate physical activity classes or workouts.

Employers benefit when employees' health improves. Some benefits may include reduction in absenteeism and sick leave (Kuoppala Lamminpaa, & Husman, 2008), a positive work environment (Cancelliere, Cassidy, Ammendolia, & Cote, 2011), and increased productivity and morale (Canadian Council for Health and Active Living at Work (CCHALW), 2004).

Here are some other suggestions for employers:

- Provide changing facilities for exercisers, walkers and cyclists.
- Provide secure bicycle storage.
- Subsidize bicycle purchasing.
- Provide a free or subsidized bus pass.
- Provide physical activity programming or access to physical activity programs.
- Provide information on physical activity.
- Provide access to a fitness centre or subsidized a fitness centre pass.
- Encourage senior staff can act as positive role models for physical activity.
- Provide rewards or recognition for physical activity achievement.

(Brockman & Fox, 2011; CCHALW, 2004; Canadian Fitness and Lifestyle Research Institute (CFLRI), 2009; CFLRI, 2007)



Here are some suggestions for employees:

- Create a habit; consistently do 10-60 minutes of physical activity before work, at lunch or during breaks.
- Make physical activity a priority, block off time in your schedule to be active.
- Bike, walk or wheel to work.
- If you use public transit, get off a few stops early and walk the rest of the way, to work or home.
- If you drive to work, park 1.0 or 1.5 kilometres away and enjoy the walking time.
- Sign up for physical activity programs and initiatives offered at your workplace.
- Use your health and wellness spending account, e. g., find out if it covers fitness centre memberships or sports teams fees.
- Start a workplace walking group or sports team.

Physical Activity Among Older Adults

As we age, our physical activity levels decline. This decline starts as early as age 25, and continues to decline throughout our lives.

Encouraging older adults to be active is important. Being physically active allows older adults to maintain their independence, improves their health, improves their functional fitness, maintains a healthy body weight, improves mental health and improves cognitive functions (Alberta Centre for Active Living, 2012).

Furthermore, when an older adult is healthy, the community benefits because:

- the healthy older adult is able to participate in the workforce or volunteer sector;
- there is a decrease in time spent with physicians, and fewer hospital stays;
- the older adult is able to live independently longer; and
- the older adult is able to contribute to the community well into later stages of life.

(Alberta Centre for Active Living, 2012)

What can a community do?

- Develop physical activity classes tailored for older adults of different functional abilities.
- Offer programming within older adult residences or in locations that are easily accessible by public transportation.
- Maintain evenly surfaced, well-lit sidewalks.
- Offer reduced program and membership fees for older adults.
- Create positive physical activity environments.
- Make physical activity programs fun and enjoyable.

(Mathews et al., 2010)



What can older adults do?

- Learn about the benefits of physical activity.
- Develop a physical activity routine; make it a habit.
- Be active in social settings, take a physical activity class tailored for older adults.
- Learn simple exercises that you can safely do at home.
- Find friends who are active.

Increase Time Spent Walking

The most popular physical activity among Canadians is walking (CFLRI, 2001). Walking is a low-cost or no-cost activity that can be done as an individual or in groups. Most Albertans have access to locations or walking routes where they can walk safely, such as local malls, parks or neighbourhoods.

Walking briskly for 150-minutes per week (in bouts as short as 10 minutes) can reduce the risk of cardiovascular disease, diabetes, obesity, osteoporosis, and some cancers (Canadian Society for Exercise Physiology (CSEP), 2011). Additionally, improvements in fitness, strength and mental health can be obtained (CSEP, 2011).

To achieve 150-minutes of brisk walking per week, older Albertans can use walking as:

- a method of getting from place to place;
- a source of leisure;
- a social opportunity; and/or
- a source of exercise.

Goal setting and planning can help older Albertans attain 150-minutes of brisk walking per week. To help a person get started, developing a weekly walking plan is a good idea. It should include:

- the specific starting time
- the location or route; and
- the length of time for each walk.

Recording and monitoring walking patterns can help people identify what is realistic and attainable. For more walking tips, refer to *Stepping Up Your Physical Activity: Walking to Improve Your Health*.

<http://www.centre4activeliving.ca/our-work/feature-articles/stepping-up.pdf>

References

- Alberta Centre for Active Living. (2012). Rural Route to Active Aging. Retrieved from <http://www.centre4activeliving.ca/older-adults/rural/index.html>
- Brockman, R. & Fox, K. R. (2011). Physical activity by stealth? The potential health benefits of a workplace transport plan. *Public Health, 125*, 210-216. doi:10.1016/j.puhe.2011.01.005
- Canadian Council for Health and Active Living at Work. (2004). Frequently asked questions about physical activity in the workplace. Retrieved from <http://www.cchalw.ca/english/faq.aro>
- Canadian Fitness and Lifestyle Research Institute. (2001). Physical activity in smaller communities. *The Research File*. Retrieved from <http://72.10.49.94/media/node/529/files/rf0111.pdf>
- Canadian Fitness and Lifestyle Research Institute. (2007). 2006 Physical activity monitor: Physical activity among Canadian workers: Trends 2001 to 2006. Retrieved from <http://72.10.49.94/node/274>
- Canadian Fitness and Lifestyle Research Institute. (2009). Working to become active: Increasing physical activity in the Canadian workplace. Retrieved from <http://72.10.49.94/node/237>
- Canadian Society for Exercise Physiology. (2011). Canadian Physical Activity Guidelines: For Adults 18 to 64 years. Retrieved from <http://www.csep.ca/CMFiles/Guidelines/CSEP-InfoSheets-adults-ENG.pdf>
- Cancelliere, C., Cassidy, J. D., Ammendolia, C. & Cote, P. (2011). Are workplace health promotion programs effective at improving presenteeism in workers? A systematic review and best evidence synthesis of the literature. *BMC Public Health, 11*, 395. doi:10.1186/1471-2458-11-395
- Elosúa, R., García, M., Aguilar, A., Molina, L., Covas, M., & Marrugat, J. (2000). Validation of the Minnesota leisure time physical activity questionnaire in Spanish women. *Medicine and Science in Sports and Exercise, 32*, 1431-1437. doi:10.1097/00005768-200008000-00011
- García Bengoechea, E., & Spence, J. C. (2003). 2002 Alberta survey on physical activity: A concise report. Retrieved from <http://www.centre4activeliving.ca/publications/absurveyphysicalactivity/2002report.pdf>
- García Bengoechea, E., Spence, J. C., & McGannon, K. (2005). Gender differences in perceived environmental correlates of physical activity. *International Journal of Behavioral Nutrition and Physical Activity, 2*, 12. doi:10.1186/1479-5868-2-12
- Godin, G., & Shephard, R. J. (1985). A simple method to assess exercise behavior in the community. *Canadian Journal of Applied Sport Sciences, 10*, 141-146.
- International Physical Activity Questionnaire. (2005). Guidelines for Data Processing and Analysis of the International Physical Activity Questionnaire (IPAQ): Short and Long Forms. Retrieved from <http://www.ipaq.ki.se/scoring.pdf>

- Jacobs, D. R., Ainsworth, B. E., Hartman, T. J., & Leon, A. S. (1993). A simultaneous evaluation of 10 commonly used physical activity questionnaires. *Medicine and Science in Sports and Exercise*, 25, 81-91. doi:10.1249/00005768-199301000-00012
- Kuoppala, J., Lamminpaa, A., & Husman, P. (2008). Work health promotion, job well-being, and sickness absences—a systematic review and meta-analysis. *Journal of Occupational and Environmental Medicine*, 50, 1216–1227. doi:10.1097/JOM.0b013e31818dbf92
- Loitz, C.C., Fraser, S. N., Bengoechea, E., Berry, T. R., McGannon, K. R., & Spence, J. C. (2012). Sociodemographic patterns of leisure-time physical activity of Albertans 2000 – 2011. *Health & Fitness Journal of Canada*, 5, 3-15. Retrieved from <http://www.healthandfitnessjournalofcanada.com/index.php/html/index>
- Mathews, A. E., Laditka, S. B., Laditka, J. N., Wilcox, S., Corwin, S., ... Logsdon, R. G. (2010). Older adults' perceived physical activity enablers and barriers: A multicultural perspective. *Journal of Aging and Physical Activity*, 18, 119-140. Retrieved from <http://journals.humankinetics.com/japa-back-issues/JAPAVolume18Issue2April>
- Paffenbarger, R. S., Wing, A. L., & Hyde, R. T. (1978). Physical activity as an index of heart attack risk in college alumni. *American Journal of Epidemiology*, 108, 161-175.
- Population Research Laboratory. (2012). The 2012 Alberta Survey Methodology Report. Edmonton, AB: University of Alberta.
- Statistics Canada. (2012). Table 051-0001 Estimates of population, by age group and sex for July 1, Canada, provinces and territories, annual (persons unless otherwise noted). (CANSIM database). Retrieved from <http://www5.statcan.gc.ca/cansim/pick-choisir?lang=eng&p2=33&id=0510001>
- Statistics Canada. (2006) . 2006 Census. (CANSIM: 2010092917104748407). Retrieved from <http://www12.statca .ca/census-recensement/2006/rt-td/index-eng.cfm>
- Tremblay, M. S., Shephard, R. J., & Brawley, L. R. (2007). Research that informs Canada's physical activity guides: An introduction. *Applied Physiology, Nutrition, and Metabolism*, 32, S1-S8. doi:10.1139/H07-104
- Warburton, D. E. R., Nicol, C. W., & Bredin, S. S. D. (2006). Health benefits of physical activity: the evidence. *Canadian Medical Association Journal*, 174, 801-809. doi:10.1503/cmaj.051351
- Warburton, D. E. R., Charlesworth, S., Ivey, A., Nettlefold, L., & Bredin, S. S. D. (2010). A systematic review of the evidence for Canada's Physical Activity Guidelines for Adults. *International Journal of Behaviour Nutrition and Physical Activity*, 7, 39. doi:10.1186/1479<5868<7<39
- Wharf-Higgins, J. (2002). Making the case for a crucial role for physical activity in the future of Canada's health care system. Retrieved from <http://www.activeliving.ca/pdf/Romanowfinalreport.pdf>

Appendix

Table 5: Physical Activity Trends from 2002 to 2013

Variable	2002	2005	2007	2009	2011	2013
Participation in leisure-time physical activity						
% of adult Albertans who are active enough to experience health benefits	57.0%	60.2%	62.4%	58.5% ^b	54.3% ^b	59.1% ^c
METs per week spent by 50% of Albertans	39 METs	41 METs	44 METs	45 METs	44 METs	41 METs
% of sufficiently active Albertans by location ^a						
Edmonton	55.9%	61.4%	61.1%	55.4%	53.7%	56.5%
Calgary	59.9%	59.2%	62.3%	64.0%	51.4%	60.1%
Rest of Alberta	55.5%	60.2%	63.8%	56.1%	57.6%	60.8%
Awareness of the importance of being physically active						
% of Albertans who agree or strongly agree that physical activity will keep them healthy	91.0%	93.1%	93.6%	95.3%	94.2%	94.4%
% of Albertans who agree or strongly agree that physical activity will reduce their chances of getting serious health problems	87.0%	88.2%	88.2%	88.8%	90.2%	89.2%
Perceived opportunities to be physically active						
% of Albertans who agree or strongly agree that they have easy access to places where they can be physically active	72.0%	75.1%	81.1%	76.6%	76.2%	75.0%

Table Notes:

^a The results of the age and gender breakdowns for the total sample adequately reflect the overall Alberta adult population. However, the subsamples of Edmonton metropolitan, Calgary metropolitan and the rest of Alberta do not necessarily represent the age and gender of the populations in these specific regions. We advise caution in generalizing the findings related to these subsamples to the overall populations in these regions.

^b This analysis was weighted according to age in agreement with the 2006 Census data (Statistics Canada, 2006) to correct for the aging effect in the population.

^c This analysis was weighted according to age according to postcensal estimates based on the 2006 Census data (Statistics Canada, 2012) to correct for the aging effect in the population.