

# 2005 Alberta Survey on Physical Activity:

## A Concise Report



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Research and education for the promotion of physical activity

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## 1. Introduction

### Purpose of the Survey

The Alberta Centre for Active Living (formerly the Alberta Centre for Well-Being) has carried out a survey every second year since 1995 to monitor the status of physical activity in Alberta. This Alberta survey series is part of the centre's strategy of providing credible and user-friendly physical activity information to researchers and practitioners.



### Survey Method

The Alberta Centre for Active Living sponsored a series of questions on physical activity for the 2005 Alberta survey, which was conducted by the Population Research Laboratory at the University of Alberta. The sample included 1,208 adults (18 years of age and over). Data collection methods included

- data collection by telephone interview between March 3, 2005, and May 17, 2005.
- three separate subsamples representing Edmonton, Calgary, and the rest of the province;
- a random-digit dialling approach that ensured respondents had an equal chance of being contacted whether or not their household was listed in a telephone directory;
- collection of information on demographics, current leisure-time physical activity, beliefs, attitudes, and perceptions of neighbourhood convenience.

### Data Quality

Depending on the response rate calculation used, between 26.2% and 39.9% of valid households responded to the survey. The random sample of 1,208 is considered accurate within +/- 2.8, 19 times out of 20. The subsample of 400 is considered accurate within +/-5, 19 times out of 20.

Although the results of the age and gender sample breakdowns adequately reflect the overall Alberta population, the subsamples do not necessarily represent the Alberta population. We advise caution in generalizing the findings related to subsamples to the overall population.

### Estimating Leisure-Time Physical Activity Levels

To estimate leisure-time physical activity levels, we used the following question (adapted from the Godin Leisure-Time Exercise Questionnaire, Godin & Shephard, 1985):

Question: Considering a seven-day period (a week), how many times a week, on average, do you do the following kinds of activity for more than 15 minutes during your free time?

- Strenuous activity (where the heart beats rapidly, e.g., running, jogging, hockey, football, soccer, squash, basketball, cross country skiing, judo, in-line skating, vigorous swimming, vigorous long-distance bicycling);
- Moderate activity (not exhausting, e.g., fast walking, baseball, tennis, easy bicycling, volleyball, badminton, easy swimming, alpine skiing, popular folk dancing);

- Mild activity (Minimal effort, e.g., yoga, archery, fishing from a river bank, bowling, horseshoes, golf, snowmobiling, easy walking).

The weekly frequencies of strenuous, moderate, and light activities are multiplied by their estimated value in METs<sup>1</sup> (nine, five, and three respectively). We calculated total weekly leisure activity by adding the products of the separate components.

Based upon cutoffs determined by Garcia Bengoechea, Spence, & McGannon (2005), men were considered sufficiently physically active if they expended 38 METs a week while women were considered physically active if they expended 35 METs a week. According to Jacobs, Ainsworth, Hartman, & Leon (1993), these measures equal 300 to 400 MET-minutes per day. This number of MET-minutes equals 2,000 kcals per week (Elosúa et al., 2000). An energy expenditure of 2,000 kcals or more per week is associated with a reduced risk of heart disease (Paffenbarger, Wing, & Hyde, 1978).

### Statistical Analyses

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

Two separate multivariate logistic regressions allowed us to determine the unique contributions of personal and environmental variables in predicting the likelihood of being sufficiently active when controlling for other variables.

Data were weighted to compensate for sample sizes in three categories—Edmonton, Calgary, and “the rest of Alberta,” as these were not proportional to the Alberta population they represent.

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<sup>1</sup> A MET is the ratio of energy expended in kilocalories divided by resting energy expenditure in kilocalories. A MET is a unit of resting metabolic rate. Thus, two METs are equivalent to an intensity twice that of the resting metabolic rate.

## 2. Results

This report presents highlights major findings related to each question asked.

### Current Participation in Leisure-Time Physical Activity

Approximately 60% (60.2%) of Albertans (60.4% of men and 60.1% of women) are physically active enough to experience health benefits.

### Factors Influencing Leisure-Time Physical Activity

Three types of factors had an influence on leisure-time physical activity in our sample:

- a) sociodemographic factors;
- b) psychological factors;
- c) environmental factors.

#### a) Sociodemographic factors

- Age,  $X^2(5, 1191) = 48.58, p < .001$ :

The survey divided results into six age groups. The percentage of sufficiently active people decreased with age:

- |                  |                        |
|------------------|------------------------|
| ▪ 75.5% (18-24); | ▪ 58.8% (45-54);       |
| ▪ 69.4% (25-34); | ▪ 47.8% (55-64);       |
| ▪ 63.2% (35-44); | ▪ 44.9% (65 and over). |

- Education,  $X^2(2, 1205) = 7.39, p < .05$ :

The percentage of sufficiently active Albertans was higher among people who had graduated from high school (61.4%) or pursued post-secondary studies (61.8%) than among people who had not completed high school (49.6%).

- Annual household income,  $X^2(6, 960) = 23.01, p = .001$ :

Overall, the percentage of sufficiently active Albertans is higher among people with higher household incomes:

- 52.4% (lowest income);
- 50.7% (low income);
- 50.9% (medium income);
- 64.6% (high income);
- 66.9% (highest income).



- Marital status,  $X^2(5, 1205) = 58.19, p < .001$ :

Albertans who had never married or who were living with a partner were the most active (72.3% and 78.2%, respectively). The other results related to marital status were as follows:

- married (58.7%);
- separated (55.3%);
- divorced (38.9%);
- widowed (38.8%).

- Number of children,  $X^2(2, 1207) = 10.371, p < .01$ :

Albertans who have one or more children (65.9%) were more active than those who have no children (56.6%).

- Employment status,  $X^2(3, 1206) = 11.12, p < .05$ :

Albertans who have both a paid job and are self-employed engage in more physical activity (71.7%), followed by those who either have a paid job (62.3%) or are self-employed (62.1%). Albertans who have neither a paid job nor are self-employed are less physically active (53.2%). However, these results may reflect the fact that there is a larger number of retired older adults in the latter group.

Note: There were no statistically significant differences in leisure-time physical activity related to area of residence (i.e., Calgary, Edmonton, and the rest of Alberta).

## b) Psychological factors

We found differences in leisure-time physical activity related to three types of self-efficacy.

- General self-efficacy (i.e., confidence in being able to participate in regular physical activity),  $X^2(4, 1186) = 117.475, p < .001$ :

The percentage of sufficiently active Albertans increases as general self-efficacy increases (27.7%, 51.6%, and 67.4%, respectively, for people with low, moderate, and high levels of general self-efficacy).

- Coping self-efficacy (i.e., confidence in being able to overcome potential barriers to physical activity such as time constraints, bad weather, feeling tired or in a bad mood),  $X^2(16, 1131) = 131.943, p < .001$ :

The percentage of sufficiently active Albertans increases as levels of coping self-efficacy increase (47.6%, 61.4%, and 76.7%, respectively, for people with low, moderate, and high levels of general self-efficacy).

- Scheduling self-efficacy (i.e., confidence in being able to arrange one's schedule to participate in physical activity),  $X^2(4, 1188) = 88.00, p < .001$ :

The percentage of sufficiently active Albertans increases as scheduling self-efficacy increases (38.4%, 58.5%, and 69.5%, respectively, for people with low, moderate, and high levels of scheduling self-efficacy).

We found differences in leisure-time physical activity behaviour resulting from people's beliefs, intentions, and perceptions.

- Belief in the health benefits of physical activity (outcome expectancy),  $X^2(4, 1194) = 16.77, p > .01$ :

As the belief in the health benefits of physical activity increases, so does the percentage of sufficiently active Albertans (33.8%, 46.4%, and 56.9%, respectively, for people with low, moderate, and high levels of belief).

- Intention to participate in regular physical activity in the near future,  $X^2(2, 1188) = 103.17, p < .001$ :

As the intention to participate in physical activity increases, so does the percentage of sufficiently active Albertans. This percentage is 25%, 43.8%, and 68.4% for people who disagree or strongly disagree, are neutral, and agree or strongly agree, respectively, with the following statement: "It is my goal for the near future to participate in regular physical activity."

- Perception that if they wanted to, they could easily participate in regular physical activity,  $X^2(2, 1196) = 94.94, p < .001$ :

As perceived opportunities to participate in regular physical activity increase, so does the percentage of sufficiently active Albertans. This percentage is 29.9%, 46.6%, and 68.8% for individuals who disagree or strongly disagree, are neutral, and agree or strongly agree, respectively, with the following statement: "If I wanted to, I could easily participate in regular physical activity."

### c) Environmental factors

Three features of the perceived built environment had an impact on leisure-time physical activity.

- The perception that many shops, stores, or other places to buy things one needs are within easy walking distance from home,  $X^2(2, 1140) = 11.11, p < .01$ :

The percentage of sufficiently active Albertans rises with increases in perceptions of neighbourhood convenience. The percentages are 55%, 58%, and 65.3% for people who agree or strongly disagree, are neutral, and agree or strongly agree, respectively, with the following statement: "Many shops, stores, or other places to buy things I need are within easy walking distance of my home."

- The perception that one's neighbourhood has several free or low-cost recreation facilities,  $X^2(2, 114) = 6.72, p < .05$ :

The percentage of sufficiently active Albertans rises with increases in perceptions of the availability of affordable recreation facilities in one's neighbourhood. The percentages are 53.2%, 59.5%, and 62.8% for people who disagree or strongly disagree, are neutral, and agree or strongly agree, respectively, with the following statement: "My neighbourhood has several free or low-cost recreation facilities, such as parks, walking trails, bike paths, playgrounds, and recreation centres."

- The perception that one has easy access to places for physical activity,  $X^2(2, 1199) = 43.50, p < .001$ :

The percentage of sufficiently active Albertans rises with increases in perceptions about access to places for physical activity. The percentages are 39%, 52.4%, and 65.6% for people who disagree or strongly disagree, are neutral, and agree or strongly agree, respectively, with the following statement: "I have easy access to places where I can get physical activity."



## Predictors of Sufficient Physical Activity

### Personal predictors

As Table 1 shows, marital status was the only sociodemographic factor that predicted physical activity status (sufficiently active vs. insufficiently active). Specifically, Albertans who were married, divorced, and widowed, were only 0.47, 0.29, and 0.32 times, respectively, as likely to be active as Albertans who have never married.

After controlling for sociodemographic factors, coping self-efficacy, scheduling self-efficacy, and intention to participate were the only psychological predictors of physical activity status (see Table 1). For each one unit increase in coping and scheduling self-efficacy, the odds of being active increased by 1.32 and 1.24 times, respectively. Similarly, those reporting a stronger intention to participate were more likely to be active. For each one unit increase in intention to participate, the odds of being active increased by 1.29 times.

**Table 1. Sociodemographic and psychosocial factors related to activity status**

	Step 1*			Step 2		
	OR†	95% CI‡		OR	95% CI	
<b>Gender</b>						
Male	1			1		
Female	1.29	0.95	1.74	1.11	0.80	1.56
<b>Age</b>						
18–24	1			1		
25–34	0.72	0.37	1.38	0.64	0.32	1.29
35–44	0.70	0.36	1.37	0.67	0.33	1.38
45–54	0.64	0.33	1.25	0.55	0.27	1.13
55–64	0.51	0.24	1.10	0.38 <sup>§</sup>	0.17	0.87
>65	0.59	0.26	1.38	0.47	0.19	1.18
<b>Income</b>						
<20,000	1			1		
20,000–29,999	0.93	0.41	2.14	0.64	0.26	1.62
30,000–39,999	0.97	0.44	2.14	0.58	0.24	1.39
40,000–59,999	0.86	0.42	1.78	0.64	0.28	1.45
60,000–79,999	1.00	0.49	2.09	0.68	0.30	1.55
80,000–99,999	1.78	0.79	4.01	0.97	0.39	2.42
>100,000	1.36	0.65	2.82	0.74	0.32	1.72
<b>Education</b>						
Less than high school	1			1		
High school complete	1.49	.83	2.67	1.55	0.82	2.94
Post-secondary	1.38	.82	2.31	1.14	0.65	2.01

	Step 1*			Step 2		
	OR†	95% CI‡		OR	95% CI	
<b>Job Status</b>						
Yes, paid	1			1		
Yes, self-employed	1.40	0.91	2.18	1.33	0.83	2.15
Yes, both	1.47	0.75	2.88	1.28	0.62	2.67
No, neither	0.94	0.61	1.43	0.87	0.54	1.39
<b>Children</b>						
none	1			1		
one	1.256	0.81	1.94	1.35	0.836	2.16
two or more	1.419	0.93	2.158	1.57	0.998	2.48
<b>Marital Status</b>						
Never married	1			1		
Married	0.47**	0.29	0.77	0.59	0.35	1.00
Common-law	1.44	0.70	3.00	1.51	0.71	3.23
Divorced	0.29**	0.15	0.57	0.32**	0.15	0.68
Separated	0.41	0.17	1.00	0.47	0.18	1.23
Widowed	0.32§	0.12	0.82	0.41	0.15	1.12
<b>Psychological variables</b>						
Self-efficacy						
General				1.16	0.97	1.39
Coping				1.32§	1.06	1.64
Scheduling				1.24**	1.07	1.44
<b>Outcome expectancy</b>						
Intention to participate				1.03	0.78	1.37
Perceived opportunities				1.29**	1.10	1.56
				1.10	0.92	1.31

Table Notes:

- \*Step 1 refers to the variables entered first in the regression (in this case, sociodemographic variables). Step 2 refers to the variables subsequently entered in the regression (in this case, sociodemographic and psychosocial variables). This way, we determine the contribution of psychological variables in predicting activity status after controlling for sociodemographic variables.
- † 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 self-efficacy). If the value is greater than 1, then it indicates that, as the predictor increases, the odds of the outcome occurring increase (and 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.

- ‡ 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.
- §  $p < .05$ .
- \*\* $p < .01$  compared to reference group. Self-efficacy scores range from 1 to 5 (not at all confident to completely confident). Outcome expectancy, intention, and perceived opportunities range from 1 to 5 (strongly disagree to strongly agree).

### Environmental predictors

As Table 2 shows, after controlling for sociodemographic factors, perceptions of neighbourhood convenience and access to places for physical activity were the only environmental predictors of physical activity status. Those who agreed or strongly agreed that shops were within walking distance were 1.50 times more likely to be sufficiently active than those who disagreed or strongly disagreed. Similarly, those who agreed or strongly agreed that they had easy access to places for physical activity were 1.94 times more likely to be sufficiently active than those who disagreed or strongly disagreed.

**Table 2. Sociodemographic and neighbourhood factors related to activity status**

	Step 1			Step 2		
	OR	95% CI		OR	95% CI	
<b>Gender</b>						
Male	1			1		
Female	1.24	0.91	1.68	1.19	0.87	1.65
<b>Age</b>						
18–24	1			1		
25–34	0.68	0.35	1.32	0.68	0.35	1.34
35–44	0.67	0.34	1.31	0.69	0.35	1.38
45–54	0.68	0.34	1.34	0.75	0.37	1.50
55–64	0.50	0.23	1.07	0.54	0.25	1.20
>65	0.58	0.25	1.36	0.58	0.25	1.39
<b>Income</b>						
<20,000	1			1		
20,000–29,999	0.54	0.23	1.25	0.44	0.18	1.06
30,000–39,999	0.64	0.28	1.44	0.54	0.23	1.26
40,000–59,999	0.61	0.30	1.27	0.53	0.25	1.13
<b>Income</b>						
60,000–79,999	0.80	0.38	1.68	0.66	0.30	1.45
80,000–99,999	1.19	0.53	2.70	1.03	0.44	2.44
>100,000	1.06	0.50	2.24	0.88	0.40	1.94

	Step 1			Step 2		
	OR	95% CI		OR	95% CI	
<b>Education</b>						
Less than high school	1			1		
High school complete	1.36	0.75	2.47	1.31	0.70	2.44
Post-secondary	1.42	0.84	2.40	1.31	0.76	2.28
<b>Job status</b>						
Yes, paid	1			1		
Yes, self-employed	1.26	0.80	2.00	1.23	0.77	1.98
Yes, both	1.36	0.69	2.70	1.30	0.64	2.62
No, neither	0.83	0.54	1.29	0.84	0.54	1.31
<b>Children</b>						
none	1			1		
one	1.28	0.82	2.00	1.27	0.80	2.02
two or more	1.34	0.87	2.06	1.41	0.90	2.21
<b>Marital status</b>						
Never married	1			1		
Married	0.50**	0.31	0.83	0.51*	0.31	0.85
Common-law	1.24	0.61	2.54	1.23	0.59	2.56
Divorced	0.29**	0.15	0.58	0.31**	0.15	0.64
Separated	0.47	0.19	1.16	0.43	0.17	1.07
Widowed	0.26**	0.10	0.68	0.30*	0.11	0.81
<b>Shops close-by</b>						
Disagree or strongly disagree				1		
Neutral				1.04	0.65	1.68
Agree or strongly agree				1.50*	1.04	2.17
<b>Sidewalks in neighbourhood</b>						
Disagree or strongly disagree				1		
Neutral				1.11	0.48	2.57
Agree or strongly agree				0.69	0.41	1.18
<b>Bicycle lanes</b>						
Disagree or strongly disagree				1		
Neutral				0.83	0.49	1.42
Agree or strongly agree				0.96	0.61	1.53

	Step 1		Step 2		
	OR	95% CI	OR	95% CI	
<b>Low-cost facilities</b>					
Disagree or strongly disagree			1		
Neutral			1.53	0.88	2.64
Agree or strongly agree			1.21	0.70	2.09
<b>Crime rate makes it unsafe</b>					
Agree or strongly agree			1		
Neutral			1.03	0.65	1.65
Disagree or strongly disagree			0.81	0.53	1.26
<b>Traffic interferes</b>					
Agree or strongly agree			1		
Neutral			1.10	0.72	1.69
Disagree or strongly disagree			0.99	0.62	1.60
<b>Many people engaging in physical activity in neighbourhood</b>					
Disagree or strongly disagree			1		
Neutral			1.38	0.90	2.13
Agree or strongly agree			1.37	0.90	2.09
<b>Interesting things</b>					
Disagree or strongly disagree			1		
Neutral			0.84	0.55	1.27
Agree or strongly agree			1.15	0.77	1.72
<b>Access</b>					
Disagree or strongly disagree			1		
Neutral			1.51	0.81	2.83
Agree or strongly agree			1.94**	1.18	3.18

\* p < .05.

\*\*p < .01 compared to reference group.

### 3. Conclusions and Recommendations

#### Activity Levels

Currently, approximately 60% of Albertans are active enough to experience health benefits. While these findings are similar to those reported in the *2002 Alberta Survey on Physical Activity* (García Bengoechea & Spence, 2003), they differ from the recent *Canadian Community Health Survey* (Statistics Canada, 2002) and *2001 Physical Activity Monitor* (Canadian Fitness and Lifestyle Research Institute, 2002). Both of these documents reported that fewer than 50% of Albertans are active enough to experience optimal health benefits.

These differences are most likely due to differences in the questionnaires and in the definitions of physical activity and health benefits used in each study.



#### Factors Affecting Leisure-Time Physical Activity

In this study, the most significant factors affecting leisure-time physical activity were marital status, coping and scheduling self-efficacy, intention to participate in physical activity, perceptions of neighbourhood convenience, and access to places for physical activity.

#### Taking a Determinants-of-Health Approach

We found that several sociodemographic, psychological, and environmental factors affect and/or independently predict participation in physical activity. This finding further supports the determinants-of-health framework advocated in the Alberta surveys on physical activity conducted in 1999 and 2002 (Spence & Poon, 2000; García Bengoechea & Spence, 2003).

The term “determinants of health” includes the broad range of personal, social, and environmental factors (beyond personal risk factors and coping skills) 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).

The findings that several sociodemographic, psychological, and environmental factors affect and/or independently predict participation in physical activity highlight the need to position policy initiatives (Alberta Active Living Task Force, 1998) and public health campaigns to reduce physical inactivity (Health Canada, 1998) within a determinants-of-health framework. As the authors of the *1999 Alberta Survey of Physical Activity* noted, “...encouraging more Albertans to become physically active will require a shift in policies and practices that reflect this broader health determinants thinking” (Spence & Poon, 2000, p. 9). Today, as then, it is important to understand that physical inactivity is a public health issue. It is not simply a personal problem.

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## Appendix

### Evolution of Variables of Interest (2000–2005)

	2000	2002	2005
<b>Participation in Leisure-Time Physical Activity</b>			
% of Albertans who are active enough to experience health benefits	54.3%	57%	60.2%
METs per week spent by 50% of Albertans	39 or more	41 or more	44 or more
% of Albertans who state that they often participate in regular physical activity long enough to work up a sweat	35%	32%	N/A*
<b>Awareness of the Importance of Being Physically Active</b>			
% of Albertans who agree or strongly agree that physical activity will keep them healthy	91%	91%	93.1%
% of Albertans who agree or strongly agree that physical activity will reduce their chances of developing serious health problems	83%	87%	88.2%
<b>Confidence in Being Able to Overcome Barriers to Physical Activity</b>			
% of Albertans who are very to extremely confident that they can be physically active when they are a little tired	37%	45%	25.7%**
% of Albertans who are very to extremely confident that they can be physically active when they have many other demands on their time	20%	27%	39.8%
% of Albertans who are very to extremely confident that they can be physically active when the weather is bad	32%	35%	31.9%
<b>Perceived Opportunities to Be Physically Active</b>			
% of Albertans who agree or strongly agree that they have easy access to places where they can be physically active	70%	72%	75.1%
<b>Sufficiently Active Albertans as a Function of Provincial Location (%)</b>			
Edmonton	51.1%	55.9%	61.4%
Calgary	56.8%	59.9%	59.2%
Other Alberta	54.4%	55.5%	60.2%

\*This question was not asked in the 2005 survey.

\*\*The 2005 question asked respondents about their confidence to be physically active when they were *tired* and not when they were *a little tired*, as in 2000 and 2002. This helps explain the considerably lower percentage.