2009 Alberta Survey on Physical Activity: A Concise Report

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Background to the Survey

What Is the Purpose of the Survey?

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

Survey Method

The Centre sponsored a series of questions on physical activity for the 2009 Alberta survey (conducted by the Population Research Laboratory at the University of Alberta). The sample included 1,211 adults aged 18 years and over.

Data collection methods included the following:

- Data were collected by telephone interview between May 14, 2008, and June 20, 2008.
- The data included three separate subsamples representing Edmonton, Calgary and the rest of the province.
- 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.
- Data were collected on current participation in leisure-time physical activity, demographics, beliefs and attitudes about physical activity, access to physical activity and familiarity with national and provincial health campaigns (e.g., ParticipACTION) and resources (e.g., *Canada's Food Guide*).

Data Quality

Depending on the response rate calculation used, between 18.9% and 28.5% of valid households sampled responded to the survey. The random sample of 1,211 is considered accurate within +/–2.8, 19 times out of 20. A subsample of 400 is considered accurate within +/–5, 19 times out of 20.

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 (Ngo, 2008, p. 9). We advise caution in generalizing the findings related to these subsamples to the overall populations in these regions.

Estimating Leisure-Time Physical Activity Levels

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):

Question: *Considering an average 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 light activities by their estimated value in METs[1] (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. This number of MET-minutes 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).

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

Statistical Analyses

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.

To examine the reach of health campaigns and resources, we determined the percentages of inactive, active and total Albertans who had heard of six different resources and campaigns.

Two separate binary logistic regressions allowed us to determine the unique contributions of psychological variables (e.g., self-efficacy) and accessibility and awareness 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, to allow for comparisons with previous surveys, we weighted all statistical analyses by age according to 2006 census data (Statistics Canada, 2006) to correct for the aging effect in the population.

Factors Influencing Leisure-Time Physical Activity

Current Participation in Leisure-Time Physical Activity

Our survey shows that 58.5% of adult Albertans (59.4% of women and 57.7% of men) are physically active enough to experience health benefits.

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

- sociodemographic factors
- psychological factors
- accessibility and awareness factors (e.g., access to places where one can get physical activity and awareness of national and provincial health campaigns and resources)

Sociodemographic Factors

i. Age

χ^2 (5, 1309) = 92.1, $p < 0.001$

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

- 81.2% (18–24 years)
- 69.0% (25–34 years)
- 61.1% (35–44 years)
- 55.7% (45–54 years)
- 48.0% (55–64 years)
- 36.9% (65+ years)

ii. Education

χ^2 (2, 1308) = 5.39, $p < 0.068$

The proportion of sufficiently active Albertans was higher among those who completed high school or pursued post-secondary studies compared to those who did not complete high school. However, please note that the differences between Albertans' physical activity levels across the three levels of education are not statistically significant.

- 59.9% (pursued post-secondary studies)
- 57.0% (completed high school)
- 47.8% (did not complete high school)

iii. Annual household income

χ^2 (6, 966) = 41.11, $p < 0.001$

The percentage of sufficiently active Albertans was highest among those with the highest annual household income. Those with an income below $20,000 or between $30,000–$39,000 were the least likely to be considered sufficiently active.

- 67.6% (> $100,000)
- 60.0% ($80,000–$99,999)
- 55.7% ($60,000–$79,999)
- 57.5% ($40,000–$59,999)
- 36.7% ($30,000–$39,999)
- 55.6% ($20,000–$29,999)
- 27.8% (< $20,000)

iv. Marital status

χ^2 (5, 1304) = 46.53, $p < 0.001$

The proportion of sufficiently active Albertans was higher among those who had common-law or live-in partners and those who had never been married.

- 74.7% (common-law or live-in partner)
- 69.2% (never married)
- 56.3% (married)
- 53.1% (divorced)
- 45.5% (separated)
- 28.6% (widowed)

v. Employment status

χ^2 (3, 1303) = 23.17, $p < 0.001$

The percentage of Albertans who are sufficiently active was higher among those who are employed compared to those who are not.

However, these results may reflect the fact that a high proportion of retired older adults are in the group who have neither a paid job nor are self-employed. (Our results show that sufficient physical activity tends to decrease with age. See previous page.)

- 63.6% (both paid job and self-employed)
- 63.2% (paid job)
- 60.8% (self-employed)
- 48.1% (neither a paid job nor self-employed)

Psychological Factors

We found differences in leisure-time physical activity related to three types of self-efficacy: general self-efficacy, coping self-efficacy and scheduling self-efficacy.

We also found differences in leisure-time physical activity related to people's beliefs, intentions and perceptions.

i. General self-efficacy

χ^2 (2, 1289) = 165.3, $p < 0.001$

General self-efficacy means confidence in being able to participate in regular physical activity.

The proportion of sufficiently active Albertans increases as general self-efficacy increases:

- 69.4% (high general self-efficacy; cut-off 3.5–5)
- 46.3% (moderate general self-efficacy; cut-off 2.5–3.4)
- 19.7% (low general self-efficacy; cut-off 1–2.4)

ii. Coping self-efficacy

χ^2 (2, 1291) = 131.3, $p < 0.001$

Coping self-efficacy means 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:

- 78.3% (high coping self-efficacy)
- 60.0% (moderate coping self-efficacy)
- 41.6% (low coping self-efficacy)

iii. Scheduling self-efficacy

χ^2 (2, 1295) = 144.9, $p < 0.001$

Scheduling self-efficacy means 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:

- 71.5% (high scheduling self-efficacy)
- 51.6% (moderate scheduling self-efficacy)
- 28.0% (low scheduling self-efficacy)

iv. Outcome expectancy

χ^2 (2, 1304) = 12.76, p < 0.002

Outcome expectancy means belief in the health benefits of physical activity. As outcome expectancy increases, so does the proportion of sufficiently active Albertans:

- 59.8% (high outcome expectancy)
- 42.3% (moderate outcome expectancy)
- 26.7% (low outcome expectancy)

v. Intention to participate in regular physical activity

χ^2 (2, 1294) = 108.9, p < 0.001

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

Respondents were asked whether they strongly agreed, agreed, were neutral, disagreed or strongly disagreed with the following statement: "It is my goal for the near future to participate in regular physical activity." Percentages of physically active Albertans in each response category were as follows:

- 66.2% (agree or strongly agree)
- 35.9% (neutral)
- 26.4% (disagree or strongly disagree)

vi. Perceived behavioural control

χ^2 (2, 1299) = 93.09, 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 in each response category were as follows:

- 64.8% (agree or strongly agree)
- 50.3% (neutral)
- 21.0% (disagree or strongly disagree)

Accessibility and Awareness Factors

i. Access to places where one can get physical activity

χ^2 (2, 1299) = 69.13, $p < 0.001$

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 in each response category were as follows:

- 64.8% (agree or strongly agree)
- 42.8% (neutral)
- 33.8% (disagree or strongly disagree)

ii. If one looks for information about physical activity

χ^2 (1, 1299) = 26.68, $p < 0.001$

Respondents were asked the following question: "Do you ever look for information about physical activity?" Percentages of physically active Albertans in each response category were as follows:

- 59.5% (yes)
- 40.5% (no)

iii. Awareness of health campaigns and resources

Public health promotion campaigns strive to increase the amount of information available on a particular health topic and frame the topic as an important public health issue (Randolph & Viswanth, 2004).

Prior knowledge and motivation interact with level of education to influence the attention that people pay to mass-market campaigns (Weenig & Midden, 1997). Other researchers have shown that people have the strongest recall for advertisements they were the most engaged in (Shavitt, Vargas & Lowry, 2004).

Therefore, finding out more about who is—and isn't—aware of public health promotion campaigns and resources can help health promoters to better target the campaigns.

Table 1. % of total, active and inactive Albertans who can recall health campaigns and resources

Health Campaigns and Resources	Total Albertans	Active Albertans	Inactive Albertans
Canada's Physical Activity Guide	50.5%	53.5%	46.2%
Canada's Food Guide	83.0%	85.0%	80.3%
Healthy U	20.0%	22.5%	16.4%
ParticipACTION	77.3%	79.4%	74.4%
Active Edmonton	16.4%	17.5%	14.8%
GO2 Calgary	12.1%	13.2%	10.5%
None of the above	7.2%	5.6%	9.4%

Table Notes:

To arrive at these percentages, we first determined the total percentage of Albertans who were able to recall different health campaigns and resources. We then subcategorized this group into those active and inactive Albertans who were familiar with the different campaigns and resources.

For example, 50.5% of Albertans were able to recall *Canada's Physical Activity Guide*. More specifically, 46.2% of inactive Albertans and 53.5% of active Albertans were familiar with *Canada's Physical Activity Guide*.

The most recognizable health resource was *Canada's Food Guide* (83.0%). The most recognizable health campaign was ParticipACTION (77.3%).

Predictors of Physical Activity

Sociodemographic Predictors

Age, income 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 18–24 are 4.91 times more likely to obtain sufficient levels of physical activity than those 65 years or older. Albertans aged 25–34 are 1.93 times more likely to be sufficiently active than those aged 65+.

Income: Albertans with annual household incomes greater than $100,000 are 5.53 times more likely to obtain enough physical activity to achieve health benefits than those who have an annual income lower than $20,000.

The probability of people achieving sufficient physical activity relative to households that make $20,000 or less is as follows:

- $20,000–$29,000: 4.09 times more likely to be sufficiently active
- $30,000–$39,000: 1.78 times more likely to be sufficiently active
- $40,000–$59,000: 3.90 times more likely to be sufficiently active
- $60,000–$79,000: 3.80 times more likely to be sufficiently active
- $80,000–$99,000: 3.92 times more likely to be sufficiently active
- $100,000+: 5.53 times more likely to be sufficiently active

Marital status: Widowed Albertans are 0.28 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 were moderate to high general self-efficacy, high coping self-efficacy, high intention to participate in physical activity and moderate to high perceived behavioural control (see Table 2):

- Albertans with moderate or high general self-efficacy were 2.29 and 2.46 times more likely to be sufficiently active as Albertans with low general self-efficacy.
- Albertans with high coping self-efficacy were 2.66 times more likely to be sufficiently active as Albertans with low coping self-efficacy.
- Albertans with high intention to participate in regular physical activity were 2.17 times more likely to be sufficiently active as Albertans with low intention.

- Albertans with moderate or high perceived behavioural control were 2.60 and 2.29 times more likely to be sufficiently active, repectively, as Albertans with low perceived behaviour control.

Table 2. Psychological and sociodemographic factors related to physical activity status

Sociodemographic Variables	Step 1[a]		Step 2[b]	
	OR[c]	CI[d]	OR	CI
Gender				
Male	1		1	
Female	1.32	0.99–1.77	1.22	0.89–1.68
Age				
> 65	1**		1	
18–24	4.91**	2.13–11.31	3.46*	1.40–8.55
25–34	1.93*	1.03–3.62	1.52	0.76–3.04
35–44	1.34	0.71–2.50	1.22	0.61–2.45
45–54	1.12	0.62–2.02	1.10	0.57–2.13
55–64	1.03	0.59–1.81	1.08	0.57–2.03
Education				
Less than high school	1		1	
High school	1.41	0.71–2.80	1.07	0.49–2.29
Post-secondary	1.46	0.78–2.72	0.94	0.47–1.88
Annual household income				
< $20,000	1**		1	
$20,000–$29,999	4.09*	1.31–12.74	4.38*	1.24–15.38
$30,000–$39,999	1.78	0.63–5.04	1.80	0.57–5.71
$40,000–$59,999	3.90*	1.51–10.10	3.19*	1.10–9.24
$60,000–$79,999	3.80*	1.47–9.89	3.32*	1.14–9.63
$80,000–$99,999	3.92*	1.47–10.47	3.24*	1.08–9.72
> $100,000	5.53**	2.16–14.16	4.15*	1.44–11.94
Employment status				
Yes, paid	1		1	
Yes, self-employed	0.98	0.68–1.42	0.78	0.52–1.18

Sociodemographic Variables	Step 1[a]		Step 2[b]	
	OR[c]	CI[d]	OR	CI
Yes, both (paid and self-employed)	0.89	0.40–1.96	0.66	0.29–1.50
No, neither	0.96	0.64–1.44	0.90	0.57–1.41
Children				
None	1		1	
One	0.94	0.61–1.45	1.28	0.79–2.08
Two or more	1.25	0.83–1.87	1.44	0.93–2.25
Marital status				
Never married	1		1*	
Married	0.80	0.49–1.31	0.73	0.43–1.24
Common-law	1.28	0.64–2.60	1.58	0.74–3.38
Divorced	0.92	0.48–1.76	0.91	0.45–1.84
Separated	1.10	0.34–3.50	1.48	0.41–5.30
Widowed	0.28*	0.09–0.81	0.17*	0.06–0.54

Psychological Variables	Step 1[a]		Step 2[b]	
	OR[c]	CI[d]	OR	CI
General self-efficacy				
Low			1*	
Moderate			2.29*	1.24–4.25
High			2.46*	1.36–4.45
Coping self-efficacy				
Low			1**	
Moderate			1.35	0.89–2.05
High			2.66**	1.68–4.19
Scheduling self-efficacy				
Low			1	
Moderate			1.10	0.65–1.86
High			1.53	0.87–2.68

Psychological Variables	Step 1[a]		Step 2[b]	
	OR[c]	CI[d]	OR	CI
Outcome expectancy				
Low			1	
Moderate			0.82	0.13–5.22
High			1.25	0.25–6.33
Intention to participate in regular physical activity				
Low			1*	
Moderate			1.18	0.58–2.41
High			2.17*	1.17–4.01
Perceived behavioural control				
Low			1*	
Moderate			2.60*	1.18–5.69
High			2.29*	1.09–4.80

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 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).

* $p < 0.05$

** $p < 0.001$ compared to reference group

Accessibility and Awareness Predictors

We found that after controlling for sociodemographic factors, all three accessibility and awareness factors that we asked about (access to places where one can get physical activity, if one looks for information about physical activity and awareness of health campaigns and resources) were significant predictors of physical activity status.

Access to places where one can get physical activity: Albertans who agreed or strongly agreed that they have easy access to places where they can be physically active were 2.81 times more likely to be sufficiently active as compared to Albertans who disagreed or strongly disagreed.

If one looks for information about physical activity: Albertans who responded that no, they do not look for physical activity information, were 0.63 times as likely to be sufficiently active as compared to Albertans who responded that yes, they did look.

Awareness of health campaigns and resources: Albertans who responded that yes, they had heard of the ParticipACTION campaign, were 1.62 times more likely to be sufficiently active as compared to Albertans who responded that no, they had not heard of the ParticipACTION campaign.

Table 3. Accessibility, awareness and sociodemographic factors related to physical activity status

Sociodemographic Variables	Step 1[a]		Step 2[b]	
	OR[c]	CI[d]	OR	CI
Gender				
Male	1		1	
Female	1.30	0.98–1.74	1.19	0.87–1.62
Age				
> 65	1**		1**	
18–24	4.89**	2.12–11.29	5.21**	2.15–12.63
25–34	1.91*	1.02–3.58	1.82	0.95–3.49
35–44	1.28	0.69–2.41	1.14	0.59–2.19
45–54	1.10	0.61–1.99	1.08	0.58–1.99
55–64	1.00	0.57–1.77	0.94	0.52–1.69
Education				
Less than high school	1		1	
High school	1.42	0.72–2.82	1.36	0.67–2.76
Post-secondary	1.51	0.81–2.80	1.42	0.75–2.71

Sociodemographic Variables	Step 1[a]		Step 2[b]	
	OR[c]	CI[d]	OR	CI
Annual household income				
< $20,000	1**		1*	
$20,000–$29,999	4.99*	1.61–15.51	5.43*	1.62–18.24
$30,000–$39,999	1.86	0.66–5.21	1.98	0.66–5.93
$40,000–$59,999	4.13*	1.61–10.61	3.62*	1.31–9.99
$60,000–$79,999	4.02*	1.56–10.34	3.44*	1.24–9.50
$80,000–$99,999	4.38*	1.66–11.57	3.96*	1.39–11.28
> $100,000	5.94**	2.34–15.09	4.80*	1.76–13.13
Employment status				
Yes, paid	1		1	
Yes, self-employed	0.93	0.65–1.35	0.97	0.66–1.44
Yes, both (paid and self-employed)	0.85	0.39–1.85	0.77	0.34–1.74
No, neither	0.94	0.62–1.41	0.95	0.62–1.45
Children				
None	1		1	
One	0.98	0.64–1.52	0.99	0.63–1.55
Two or more	1.23	0.82–1.83	1.24	0.81–1.88
Marital status				
Never married	1		1	
Married	0.77	0.48–1.26	0.89	0.54–1.47
Common-law	1.26	0.62–2.55	1.43	0.69–2.98
Divorced	0.90	0.47–1.73	1.04	0.53–2.03
Separated	1.11	0.35–3.56	1.33	0.40–4.37
Widowed	0.29*	0.09–0.85	0.29*	0.09–0.89

Accessibility and Awareness Variables	Step 1[a]		Step 2[b]	
	OR[c]	CI[d]	OR	CI
Access to places where one can get physical activity				
Disagree or strongly disagree			1**	
Neutral			1.17	0.64–2.12
Agree or strongly agree			2.81**	1.75–4.52
If one looks for information about physical activity				
Yes			1	
No			0.63*	0.47–0.85
Awareness of health campaigns and resources				
Canada's Physical Activity Guide				
No			1	
Yes			1.33	0.97–1.82
Canada's Food Guide				
No			1	
Yes			1.11	0.67–1.85
Healthy U				
No			1	
Yes			1.19	0.81–1.75
ParticipACTION				
No			1	
Yes			1.62*	1.02–2.56
Active Edmonton				
No			1	
Yes			1.24	0.81–1.88

Accessibility and Awareness Variables	Step 1[a]		Step 2[b]	
	OR[c]	CI[d]	OR	CI
GO2 Calgary				
No			1	
Yes			0.98	0.61–1.56
None of the above				
No			1	
Yes			1.42	0.61–3.27

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 variables subsequently entered in the regression (in this case, sociodemographic and accessibility and awareness variables). This way, we determine the contribution of accessibility and awareness 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 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).

* $p < 0.05$

** $p < 0.001$ compared to reference group

Conclusions and Recommendations

Activity Levels

According to our survey, 58.5% of adult Albertans are sufficiently physically active. This is lower than but not significantly different from 2007, when 62.4% of respondents reported being sufficiently active. It is also slightly lower than 2005, when 60.2% of respondents reported being sufficiently active (see Appendix, p. 25).

Factors Affecting Leisure-Time Physical Activity

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

- age
- income
- general self-efficacy
- coping self-efficacy
- intention to participate in physical activity
- perceived behavioural control
- perception of access to places where one can get physical activity

Awareness of health campaigns and resources

We asked a new question this year about Albertans' awareness of six health campaigns and resources. The most recognizable health resource was *Canada's Food Guide*, which was recognized by 83% of respondents. The most recognizable health campaign was ParticipACTION, which was recognized by 77.3% of respondents. Albertans who had heard of ParticipACTION were 1.62 times more likely to be sufficiently physically active as compared to Albertans who hadn't heard of ParticipACTION.

Taking a 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 and 2007 (Burgess, Berry & Spence, 2007; García Bengoechea & Spence, 2003; García Bengoechea, Spence & Fraser, 2005; Spence & Poon, 2000).

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).

The fact that several sociodemographic, psychological and environmental factors affect and/or independently predict participation in physical activity highlights 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 on 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 and not simply a personal problem.

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Appendix

Table 4: Evolution of variables of interest (2000–2007)

Variable	2000	2002	2005	2007	2009
Participation in leisure-time physical activity					
% of Albertans who state that they often participate in regular physical activity long enough to work up a sweat	35%	32%	N/A[a]	N/A[a]	N/A[a]
METs per week spent by 50% of Albertans	39 or more	41 or more	44 or more	45 or more	43 or more
% of adult Albertans who are active enough to experience health benefits	54.3%	57%	60.2%	62.4%	58.5%[b]
% of sufficiently active Albertans by location					
Edmonton	51.1%	55.9%	61.4%	61.1%	55.4%[b]
Calgary	56.8%	59.9%	59.2%	62.3%	64.0%[b]
Rest of Alberta	54.4%	55.5%	60.2%	63.8%	56.1%[b]
Awareness of the importance of being physically active					
% of Albertans who agree or strongly agree that physical activity will keep them healthy	91%	91%	93.1%	93.6%	95.3%
% of Albertans who agree or strongly agree that physical activity will reduce their chances of getting serious health problems	83%	87%	88.2%	88.2%	88.8 %
Confidence in being able to overcome barriers to physical activity					
% of Albertans who are quite to completely confident that they can be physically active when they are tired	37%[c]	45%[c]	25.7%[c]	31.2%[c]	28.8%[c]
% of Albertans who are quite to completely confident that they can be physically active when they have many other demands on their time	20%	27%	39.8%	42.8%	42.1%
% of Albertans who are quite to completely confident that they can be physically active when the weather is bad	32%	35%	31.9%	39.2%	32.9%

Variable	2000	2002	2005	2007	2009
Perceived opportunities to be physically active					
% of Albertans who agree or strongly agree that they have easy access to places where they can get physical activity	70%	72%	75.1%	81.1%	76.6%

Table Notes:

[a] This question was not asked in the 2005, 2007 or 2009 survey.

[b] 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 (Ngo, 2008, p. 9). We advise caution in generalizing the findings related to these subsamples to the overall populations in these regions.

[c] The 2005, 2007 and 2009 question asked respondents about their confidence in being physically active when they were *tired*. In 2000 and 2002, the phrase was *a little tired*. This helps explain the considerably lower percentages after 2002.