

## ***Appendix B. Methodology***

The 2002 Physical Activity Monitor is the ninth nationwide survey on physical activity conducted by the Canadian Fitness and Lifestyle Research Institute—after the 1981 Canada Fitness Survey,<sup>1</sup> the 1988 Campbell Survey on Well-Being in Canada,<sup>2</sup> and the 1995,<sup>3</sup> 1997<sup>4</sup>, 1998<sup>5</sup>, 1999<sup>6</sup>, 2000<sup>7</sup>, and 2001<sup>8</sup> waves of the Physical Activity Monitor. The 2002 survey provides a synopsis of variables associated with policy and decision-making to increase active living among Canadians and describes current physical activity levels in Canada according to Statistics Canada's Canadian Community Health Survey.<sup>9</sup>

### ***Questionnaire content***

The content of the 2002 Physical Activity Monitor was determined by the Institute in collaboration with partners: the Physical Activity Unit of Health Canada and the provincial and territorial government departments concerned with fitness, active living, leisure, sport, and recreation through the auspices of the Interprovincial Sport and Recreation Council.

In addition to monitoring progress toward achieving the goal of reducing physical inactivity by 10% in Canada by 2003, the report was designed to

- provide data on physical activity patterns, including participation in physical education classes by children and youth;
- describing trends, by updating previously release data on physical activity in Canada. These factors include: healthy lifestyles; general health status; overweight and obesity; high blood pressure; diabetes; awareness of Canada's guidelines for physical activity; confidence in following guidelines; beliefs about health benefits of lifestyle and of physical activity; future intention; perceived control; perceived barriers for physical activity; relevant services; supportive infrastructure; government roles; physical education (adequacy in terms of quantity, enjoyment and meeting needs); other physical activity programs at school (availability and adequacy of meeting needs); and public facilities and programs for children (availability and adequacy of meeting needs).

### ***Data collection***

Data from the Physical Activity Monitor were collected throughout the full calendar year of 2002 by the Institute for Social Research at York University in Ontario. This institute captured data directly during the interviews using the CATI (computer-assisted telephone interviews) system. Canadians 15 and over were asked about their physical activity patterns, attitudes, and awareness of physical activity opportunities.

### ***Survey design***

The 2002 sample for the Physical Activity Monitor was selected using random-digit dialing from household-based telephone exchanges. Findings in this report are based on a final country-wide sample of 5,303 Canadian adults. The random sample of households was selected roughly proportional to the population in each province and territory with a minimum sample size of 250 set for each jurisdiction. For each selected household, one

individual over the age of 15 was selected at random, thus providing a random sample of individuals in Canada.

The overall response rate obtained in the 2002 Physical Activity Monitor was 51%. In telephone surveys of this type, a response rate of approximately 50–65% has been typical, with the response rates dropping in recent years. The sample take is shown in Table 1.

*Table 1*

<b>SAMPLE TAKE BY REGION AND PROVINCE</b>	
	Adults 15+
Canada	5,303
Atlantic	1,014
Newfoundland	251
Prince Edward Island	258
Nova Scotia	253
New Brunswick	252
Quebec	637
Ontario	1563
West	1,314
Manitoba	260
Saskatchewan	256
Alberta	396
British Columbia	402
North	775
Yukon	259
Northwest Territories	254
Nunavut	262

When there is non-response, there is the potential for bias if the responses of participants do not represent those of non participants. Potential bias was identified by comparing the demographic variables to the latest Census data. Respondents are more likely to be female and to have a university degree, a common occurrence in telephone surveys.<sup>10</sup>

### ***Data analysis***

The sample weights were adjusted using a post-stratification adjustment to reflect the latest Census distributions for age and sex. All numbers have a statistical error associated with them by virtue of the random selection of the sample. The first table in the table section (Appendix A) permits statistical tests of significance between percentages, taking into account sample design, design effect, and sample size. It specifies the difference required between two estimates for statistical significance. Caution should be used in interpreting data based on small cell sizes, particularly for provincial comparisons. According to standard practice, data released in the tables have been screened to ensure that each statistic is based on a minimum of 30 individuals. Insufficient sample size is

denoted by “-”. Don’t know and refused generally amounts to less than 3 % and are excluded in the tables as they have a negligible effect on estimates.

### ***Comparability with earlier surveys***

#### Physical Activity Levels:

The physical activity data from the 1995, 1997, 1998, 1999, 2000, 2001, and 2002 waves of the Physical Activity Monitor are comparable to the data collected in the 1981 Canada Fitness Survey and the 1988 Campbell Survey on Well-Being in Canada. The question used to determine physical activity levels was similar in all surveys. In all seven surveys, the objective was introduced as participation in physical activity and its role in the individual’s well-being. In each survey, participation in physical activity was probed by means of a list and respondents had the opportunity to volunteer additional activities. The physical activity question used is an adaptation of the Minnesota Leisure-Time Physical Activity questionnaire, with acceptable test-retest reliability and validity.<sup>11</sup>

The data collection methods differed for the nine surveys. The 1981 and 1988 surveys used self-completed questionnaires administered face to face in households, whereas the 1995, 1997, 1998, 1999, 2000, 2001 and 2002 surveys were telephone surveys. This accounts for the difference in response rates: about 85% in the 1981 and 1988 surveys compared with about between 50% and 65% depending on the year in the 1995, 1997, 1998, 1999, 2000, 2001 and 2002 surveys. The assumptions used for non-response adjustment should enable comparisons among the nine surveys.

In 2002, however, the physical activity level data from the Physical Activity Monitor is not being published in this report. This was owing to fact that the Benchmarks Advisory Committee, with input from the federal government and the Interprovincial Sport and Recreation Council decided not to collect this data on a regular basis, but rather to report on physical activity levels using Statistics Canada’s Canadian Community Health Survey (CCHS). This survey uses a similar type of question that was used previously by the Physical Activity Monitor, with some exceptions. The recall period used for the physical activity questions was three months in the CCHS, compared with 12 months in the Physical Activity Monitor. The question was essentially the same in both surveys, with the difference that 20 activities were probed directly in the Health Survey compared with 25 in the Physical Activity Monitor. Finally, the structure of the response categories and scoring of the question led to a truncation in the amount of time spent participating in activities compared to the Physical Activity Monitor resulting in lower overall energy expenditures and therefore lower prevalence rates for specific energy expenditure categories. Taken together, differences in methodology can sometimes add up to sizeable differences in the overall results obtained from different surveys.<sup>12</sup> Therefore, the physical activity levels between the Canadian Community Health Survey and the Physical Activity Monitor can not be directly compared due to these methodological differences.

### Redesign of earlier questions

To increase the discrimination between responses, the questions for several topics in this report were originally asked as 7-point Likert scales. Due to the large number of questions involved in each wave of the Physical Activity Monitor, this type of scale was cumbersome for respondents. As a result, the questionnaire design for the Physical Activity Monitor shifted to using 5-point Likert scales in 2000. To understand the potential impact of redesigning the scales, a small study of 300 respondents was conducted asking both scales. Spearman correlations—comparing the correlation between two ordinal scales—yielded rho values from 0.70 to 0.84, which can be characterized as substantial to almost perfect agreement.<sup>13</sup> These results indicated that moving from a 7-point and a 5-point scale for such questions would be appropriate.

As the data from the Physical Activity Monitor is used to track progress, set policy and develop strategic plans, a cautious approach was adopted to ensure comparability for trends. In the 2002 survey, a random split sample of respondents were asked the original 7-point Likert scale questions using the two different scales, that is a 7-point and 5-point scales. The results in this report were based on a combination of the two types of scales. This was done after considerable in-depth analysis to examine the similarity of the response distributions across scale categories and to assess whether trends and policy implications would be affected by moving from the original to the 7-point to the more recent 5-point design construction for scales. Given the high consistency in these, it was deemed reasonable to combine the results from the two scales to gain additional power for detecting trends.

## *Appendix C. Statistical notes*

**Activity Level (CCHS):** A classification based on energy expenditure in all non-work, non-chore activity. *Active* represents an average daily energy expenditure of at least 3 kilocalories per kilogram of body weight during the previous 3 months. *Moderately active* represents average energy-expenditure values that are greater than 1.5 and less than 3.0. *Inactive* corresponds to average energy-expenditure values less than 1.5. Although all activities count in calculating energy expenditure, consider a simple example where a person only walks. In this case,

- Active—walking 1 hour every day
- Moderately active—walking ½ hour every day (30 minutes)
- Inactive—walking less than ½ hour every day (< 30 minutes)

**Daily activity:** A classification based on energy expenditure in all domains, including work, chore, leisure and commuting activity. The definitions of various levels of activity are as follows:

High: 3000 Met-minutes of activity. This is equivalent to about 2 hours of activity a day and includes things like walking to the cafeteria at work that were not normally included in questionnaires

Moderate: 1500 Met-minutes

Low: 30 minutes of activity on at least 5 days

Lowest: < 30 minutes of activity on 5 days

**Public education:** Public education covers a wide variety of activities designed to inform and educate (e.g. building awareness via mass media campaigns, increasing knowledge via informational pamphlets, etc). In this report, data was gathered pertaining to three specific types of public education activities: providing information on physical activity, health and well-being; help in planning daily schedule to include physical activity; and professional help in choosing activities best suiting people individually.

**Supports for physical activity:** A list of amenities, resources and services that can support an active lifestyle. Data on supportive infrastructure, supportive services and public education were collected.

**Supportive infrastructure:** This encompasses a range of local infrastructure that would support participation in physical activity, including access to safe streets and public places; affordable facilities, services and programs; and access to paths, trails and green spaces, which are specific to this report.

**Supportive services:** A range of services that make it easier for people to be active, including convenient transportation; services linking up participants; specific instruction or coaching, and other services such as affordable day-care.

## References

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- <sup>3</sup> Craig, C.L., Russell, S.J., Cameron, C. & Beaulieu, A. (1998). *1997 Physical activity benchmarks report*. Ottawa, ON: Canadian Fitness and Lifestyle Research Institute.
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- <sup>5</sup> Cameron, C., Craig, C.L., Russell, S.J. & Beaulieu, A. (2000). *Increasing physical activity: Creating effective communications*. Ottawa, ON: Canadian Fitness and Lifestyle Research Institute.
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- <sup>9</sup> Statistics Canada (2003). Canadian Community Health Survey (CCHS) - Cycle 1.1 [On-line]. Available: <http://www.statcan.ca/english/concepts/health/index.htm>
- <sup>10</sup> Canadian Fitness and Lifestyle Research Institute. (1996). 1995 Survey methodology. *Progress in Prevention*.
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- <sup>13</sup> Landis J, Kock G. (1977). The measurement of observer agreement for categorical data. *Biometrics*; 33:159-174.