

# The Research File



Summary from the Canadian Fitness and Lifestyle Research Institute and ParticipACTION

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## Fitness levels of Canadians: How far have we come?



The health benefits of regular physical activity for adults and children are well documented in the literature.<sup>1</sup> Physical activity has been shown to both prevent serious chronic illnesses such as Type 2 diabetes, obesity and cardiovascular disease and to improve

psychosocial well-being (e.g. by reducing stress). It is particularly important for children and youth to engage in regular physical (at least 60 minutes of moderate-to-vigorous physical activity daily) to mitigate the risk of developing these chronic conditions in later adulthood. Despite the known benefits of regular physical activity, Canadians (adults and children alike) still do not achieve recommended levels.

Until recently there has been little research looking at fitness levels of Canadians (previous findings are from over 20 years ago). There have been two published reports from a study which examined current fitness levels of Canadian adults (ages 20-69) and children and youth (6-19 years) using data from the 2007-2009 Canadian Health Measures Survey; also where appropriate these results were compared to the findings from 1981. The following is a summary of the findings:

### Aerobic Fitness

In adults aerobic fitness levels were determined using the modified Canadian Aerobic Fitness test (mCAFT), by recording participants' age predicted maximal heart rate and calculating their predicted maximal aerobic power ( $VO_2$  max).<sup>1,2</sup> Among Canadian adults (20-69 years) mean aerobic fitness levels were highest among 20-39 year olds and this decreased with increasing age.<sup>1</sup> Men were more likely than women to have higher fitness scores. Specifically, more men than women (27% vs. 23%) ages 20-39 were rated as being in excellent/very good aerobic fitness.<sup>1</sup> Conversely, having a higher rating for overall aerobic fitness decreased



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with age.<sup>1</sup> Similar to adults, boys had higher aerobic fitness values compared to girls.<sup>2</sup> Moreover, boys (ages 15-19) ranked higher in the fair/needs improvement category compared to girls the same age.<sup>2</sup>

#### Musculoskeletal fitness

Musculoskeletal fitness was assessed by measuring muscular strength, endurance, and flexibility.<sup>1,2</sup> Muscle strength was assessed by measuring grip strength;

endurance was measured by the partial-curl up test; and flexibility was assessed using the sit-and-reach test.<sup>1,2</sup> Young adults demonstrated better flexibility, muscle endurance and strength compared to older adults.<sup>1</sup> Women were more flexible than men across all age groups, although they showed lower muscle endurance—31% of women ages 20-39 and 4% of those ages 60-69 could complete a full set of 25 curl-ups compared to men the

same age (55% and 12% respectively).<sup>1</sup> Not surprisingly, men also had greater grip strength than women across all age groups, grip strength however decreased with age for both men and women.<sup>1</sup> Similar to adults, girls were more flexible than boys, whereas boys had higher scores for grip strength than girls.<sup>2</sup> Older boys (15-19 years) were more likely than girls the same age to be able to complete a full set of 25 partial curl-ups.<sup>2</sup> Women ages 20-59 were more likely than their male counterparts to have an overall musculoskeletal health score of fair/needs improvement.<sup>1</sup>

## Trends

The following changes were noted in 2007/2009 compared to 1981:

- Generally, muscular strength and flexibility decreased for both adults and youth<sup>1,2</sup>
- Mean values for BMI, waist circumference and skin-fold measurements increased (across all age groups)<sup>1,2</sup>
- Higher percentage of boys and girls (aged 15-19) and young adults were in the fair/needs improvement category for both flexibility and muscle strength<sup>1,2</sup>
- The percentage of youth and adults in the high-risk category for waist circumference has increased significantly<sup>1,2</sup>
- The percentage of adults (20-39 years) with body composition classified as fair/needs improvement increased substantially (4-fold and 7-fold increases for men and women respectively).<sup>1</sup> Boys and girls were also more likely to have poorer body composition ratings.<sup>2</sup>

#### Body Composition

Body composition was assessed by measuring, body mass index (BMI), waist circumference, skin-fold, and waist-to-hip ratios.<sup>1,2</sup> In both adults and children, BMI increased with age, though mean BMI values were above 25 kg/m<sup>2</sup> (individuals with BMI values  $\geq 25$  kg/m<sup>2</sup> are classified as overweight or obese) for adults.<sup>1,2</sup> Waist circumference also increased with age among Canadians of all ages; with men and boys generally having higher measurements compared to women and girls. By contrast, women and girls (11-19 years old) had

## What have we learned?

- In 2007-2009, Canadians had suboptimal health benefit ratings across all fitness components.
- Generally, fitness scores declined with age.
- Men /boys were more likely to demonstrate greater aerobic fitness, and grip strength compared to women/girls.
- Men had higher BMI values and waist-to-hip ratios compared to women (independent of age). These values increased with increasing age across gender.
- Generally, fitness levels of Canadian adults and youth has declined since 1981.
- Compared to 1981, in 2007/2009 Canadians were more likely to have poor ratings for overall body composition.

higher skin-fold measurements than men and boys the same age; skin-fold measurements for women and girls increased with age.<sup>1,2</sup> Women ages 20-39 were more likely than men to be in the fair/needs improvement category for overall body composition (prevalence of poorer ratings increased with age for both sexes).<sup>1</sup> Teens (ages 15-19) were less likely to have poor ratings in overall composition compared to adults aged 20-39 years.<sup>2</sup>

### More info...

<sup>1</sup> Shields, M. et al (2010). Fitness of Canadian Adults: Results from the 2007-2009 Canadian Health Measures Survey.

<sup>2</sup> Tremblay, M. et al. (2010). Fitness of Canadian Children and Youth: Results from the 2007-2009 Canadian Health Measures Survey.

