



# Kids CAN PLAY!

Encouraging children to be active at home, at school, and in their communities

## How many steps are sufficient for children and youth to be healthy?

The Canadian Fitness and Lifestyle Research Institute's *Canadian Physical Activity Levels Among Youth* (CANPLAY) study measures physical activity levels of children and youth by using pedometers to measure daily steps. As indicated in Bulletin 1 of this series, children and youth (aged 5 and 19) took an average of 11,220 daily steps during 2011-2012 (year 7 of the study).

### How many steps are enough?

There are no definitive criteria regarding the number of steps required for health benefits for children and youth. Current research, however, have suggested several criteria, which are described below.

**16,500 steps criterion** The 16,500 step criterion for children and youth was originally established as a step-based translation of the goal that children add 90 minutes of moderate-to-vigorous activity to the incidental activities required by daily living (2002 Canadian Physical Activity Guidelines,<sup>1,2</sup> which were subsequently updated in 2010<sup>3</sup>). In 2005-2007 (years 1 and 2 of CANPLAY), only 10% of children and youth accumulated sufficient steps to meet this benchmark metric. In May 2008, the federal, provincial, and territorial governments set targets for increasing activity levels of children and youth. One goal set was increase the proportion of children and youth who meet a criterion of 16,500 steps per day on average by 7 percentage points by the year 2015. Therefore, using the benchmark metric, the target is to increase this

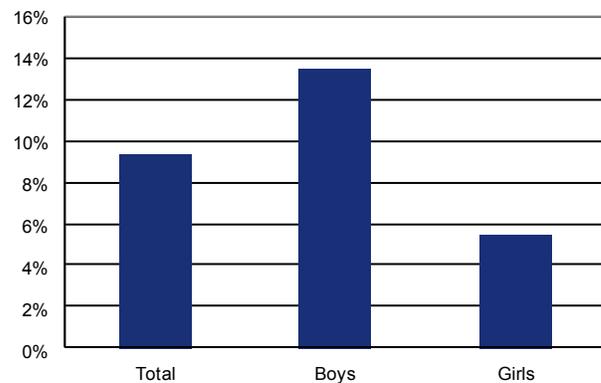
proportion to 17% by the year 2015. Based on the year 7 data, however, currently 9% do so nationally.

### Child characteristics

Based on data representing year 7 (2011-2012) of the CANPLAY study, relatively more boys than girls meet the 16,500 step criterion. Moreover, a greater proportion of young children (5 to 10 year olds) meet the criterion compared to older youth (15 to 19 year olds).

FIGURE 1

Proportion meeting 16,500 criterion by child's gender



2011-2012 CANPLAY study, CFLRI

### Parent and household characteristics

There are no clear relationships between household income, parental education, parental activity level, or region with the proportion of children and youth meeting the 16,500 step criterion.



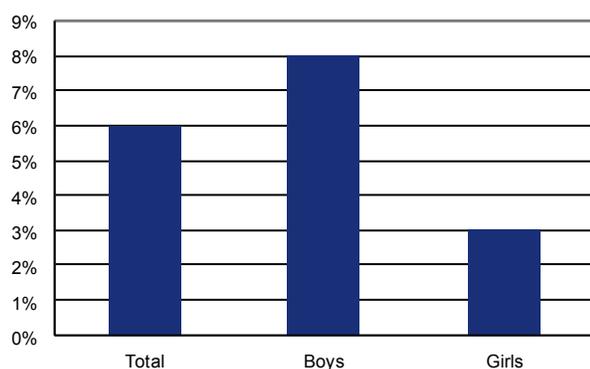
**12,000 step criteria on 7 days of the week** The new 2010 Canadian Physical Activity Guidelines<sup>3</sup> for children and youth state that children need to be active for at least 60 minutes in moderate to vigorous intensity physical activity (MVPA) on a daily basis, to achieve health benefits. The Canadian Health Measures Survey (CHMS) found that 7% of children and youth achieved at least 60 minutes of MVPA on 7 days a week based on accelerometer counts.<sup>4</sup> Colley and colleagues (2012) examined the correspondence between children and youth results from accelerometer counts and step counts and suggest that at least 12,000 daily steps translates into accumulating at least 60 minutes of MVPA.<sup>5</sup> Based on data from year 7 of the CANPLAY study (2011-2012), only 6% of young people take this number of steps 7 days of the week. The important difference between this criterion and the previous 16,500 step criterion is that 12,000 step criteria requires the achievement of this number of steps on *7 days of the week* (in correspondence with the Canadian Physical Activity Guidelines), whereas the 16,500 step criterion is based on an average number of steps. There are no regional differences for achieving this criterion.

### Child characteristics

Based on year 7 of the CANPLAY study, the proportion achieving at least 12,000 steps, *7 days a week* is higher among boys compared to girls, however, this gender difference is only significant among 5 to 10 year olds. Contrary to the other criteria, there are no

**FIGURE 2**

Proportion meeting 12,000 step criterion, 7 days a week by child's gender



2011-2012 CANPLAY study, CFLRI

significant overall age related differences with respect to meeting this criterion.

### Parent and household characteristics

There are no significant relationships between household income, parent education, or parental activity level with respect to achieving at least 12,000 steps on 7 days per week.

### Step criteria based on normative data

Tudor-Locke and colleagues (2011) reviewed existing literature regarding objectively monitored step data for children and youth with the purpose of providing evidence-based recommendations for steps required per day.<sup>6</sup> These researchers concluded that there is no simple cut-point, but rather a range based on gender and age would be more appropriate. Based on the literature, for:

- boys aged 6 to 11 a range from 13,000 to 15,000 would be appropriate
- girls aged 6 to 11, a range of 11,000 to 12,000 would be appropriate; and,
- adolescents aged 12 to 19, a range of 10,000 to 11,700 would be appropriate.

For the purpose of this bulletin, criteria were developed where average step values fell (1) *below* the minimum threshold or value of the range, (2) *within* the specified range, and (3) *above* or *exceeded* the range, and also included 5 year olds into the first two criteria.

Using these criteria, 51% of children and youth were not active enough, in that their daily steps fell *below* the minimum value in the range. Almost one in five (15%) achieved steps that fell *within* the range, and a further 35% took an amount of steps that *exceeded* this range.

### Child characteristics

There are no gender differences in the proportion that are considered not active enough or who *exceed* the range, however, a greater proportion of boys compared to girls fell *within* the range of steps identified. Young people (14 years or younger) are more likely to be considered to *exceed* the criterion, whereas older teens (15 to 19 years old) are more likely to be considered *below* the criterion. Young girls (5 to 10 year olds) are more likely than boys of the same age to *exceed* the

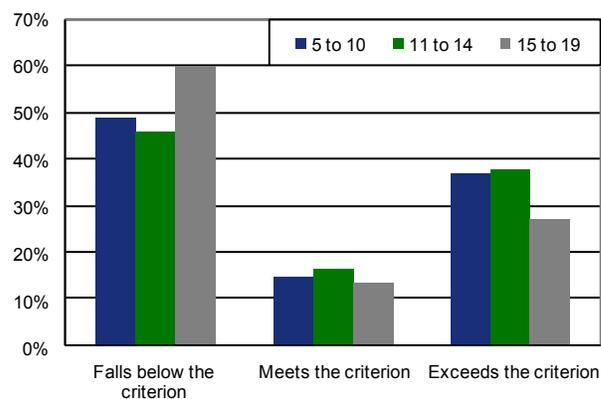
range, whereas more boys in this age group fell *within* the range. This is not surprising, given the lower number of required steps for younger girls to meet the criterion. Children and youth that participate in organized physical activities and sport are more likely to *exceed* the criterion, whereas those who do not participate are more likely to be considered *below* the criterion.

### Parent and household characteristics

There are no significant differences with respect to education level, household income, and parent's activity level and meeting the normative step criterion. Compared to the national average, those living in the Atlantic are slightly more likely to fall *below* the criterion.

FIGURE 3

Proportion meeting normative step criterion by age of child



2011-2012 CANPLAY study, CFLRI

## References

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