MONITORING & TRACKING THE FIELD

Changes in behaviour due to the pandemic

March 2020 marked the beginning of a global public health crisis, with the surfacing of a novel coronavirus (COVID-19) which would cause widespread morbidity and mortality. On January 30, 2020, the World Health Organization (WHO) declared COVID-19 an 'International public health emergency', which would soon after elevate to a 'pandemic'[1, 2]. As a result, nations around the world would impose varying measures, such as lockdowns, physical distancing and closures of schools and businesses, to restrict movement in an attempt to reduce the spread of the virus[1, 2]. Although these government-imposed restrictions have been proven necessary to thwart the risk of infection, little is known about the long-term implications these measures will have on the physical and mental health of the population. This series of bulletins combine Canadian national survey data with other research to examine the available information with regards to the impact of COVID-19 on physical activity.

The Canadian Fitness and Lifestyle Research Institute conducted two waves of its *Impact of COVID-19 on Physical Activity* survey in November-December of 2020 and then again in March 2021. The survey asked about current physical activity and sport participation, and how it relates to their pre-pandemic activity regime. At the time of the surveys, 32% of adults stated that they were considerably active (at least 30 minutes of moderate-to-vigorous intensity physical activity – MVPA – on at least 5 days of the week), whereas 24% indicated participation at this level on 3 to 4 days per week, and 43% reported MVPA of at least 30 minutes for less than 3 days of the week.

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The level of active behaviours varied during the pandemic

Based on the *Impact of COVID-19 on Physical Activity Survey*, adults were asked how they would rate their current (at the time of the survey) activities in comparison to various types or levels of activity prior to COVID-19 (prior to March 2020). The findings are described in Table 1.

Table 1: Perceptions of current levels of active behaviours compared to the pre-pandemic period

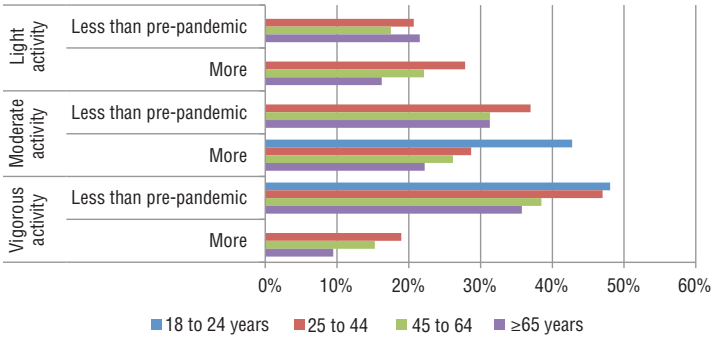
	Perceptions of current activity (at time of the survey) compared to pre-pandemic period (%)			
	Somewhat or much less	Same	Somewhat or much more	Don't know or Not applicable
Light physical activity	20%	55%	23%	1%
Moderate physical activity	34%	35%	28%	3%
Vigorous physical activity	42%	31%	17%	11%

Source: CFLRI, 2020-2021 Impact of COVID-19 on Physical Activity Survey

Age

Differences in participation exist by age. The percentage of adults indicating *more* light intensity activity now compared to pre-pandemic generally decreases with age (from 28% of 25 to 44 year olds to 16% of adults 65 years and older). Compared to pre-pandemic, a greater percentage of young adults (18 to 24 year olds) report *more* moderate activity now compared to adults older than 45 years. Relatively more adults aged 65 years and older say that they are currently participating at the *same* level of moderate activity compared to those 25 to 44 years old. These same older adults (9%) are the *least* likely age group to report participating in *more* vigorous intensity activity now compared to pre-pandemic. Interestingly, a higher percentage of adults aged 25 to 44 years report that they are participating in *less* vigorous activity compared to their older counterparts. Figure 1 graphically illustrates these differences.

Figure 1: Percentage of adults indicating change in active behaviours now compared to pre-pandemic by age



Source: CFLRI, 2020-2021 Impact of COVID-19 on Physical Activity survey

Community size

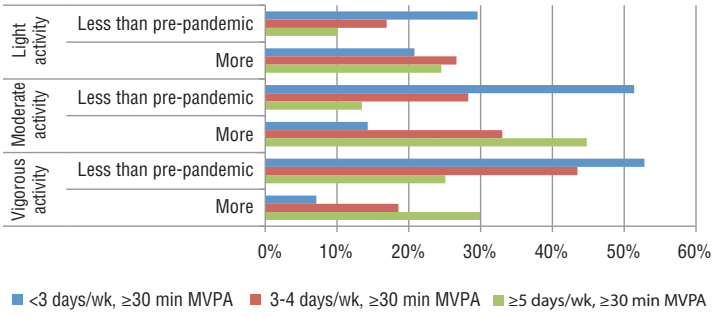
Compared to residents in the smallest communities (less than 10,000 residents), a larger percentage of residents living in the largest communities (500,000 or more residents) say that they are currently participating in *less* light-, moderate- or vigorous-intensity physical activity, compared to before the pandemic.

Compared to before the pandemic, a larger percentage of 18 to 24 year olds report *more* time spent sitting or in front of screens compared to adults 45 years and older.

Activity level

Thirty percent (30%) of the least active adults have reported participating in *less* light-intensity activity during the pandemic compared to pre-pandemic compared to 10% of highly active adults. The percentage of adults indicating that they are currently participating in *more* moderate- or vigorous-intensity activity increases dramatically with increasing activity level, whereas conversely, the percentage indicating *less* moderate- or vigorous-intensity activity decreases substantially with increasing activity level. Figure 2 illustrates these relationships.

Figure 2: Percentage of adults indicating change in active behaviours now compared to pre-pandemic by activity level



Source: CFLRI, 2020-2021 Impact of COVID-19 on Physical Activity survey

Some sedentary behaviours have increased considerably during the pandemic

The survey also asked about current participation in sedentary behaviours, such as time spent sitting, in front of screens, and sleeping compared to typical pre-pandemic levels. Table 2 describes percentages by type of activity.

Table 2: Perceptions of current levels of sedentary behaviours compared to the pre-pandemic period

	Perceptions of current activity (at time of the survey) compared to pre-pandemic period (%)			
	Somewhat or much less	Same	Somewhat or much more	Don't know or Not applicable
Time sitting in front of screens	6%	33%	61%	-
Time spent sitting	9%	33%	57%	-
Time spent sleeping	16%	57%	26%	-

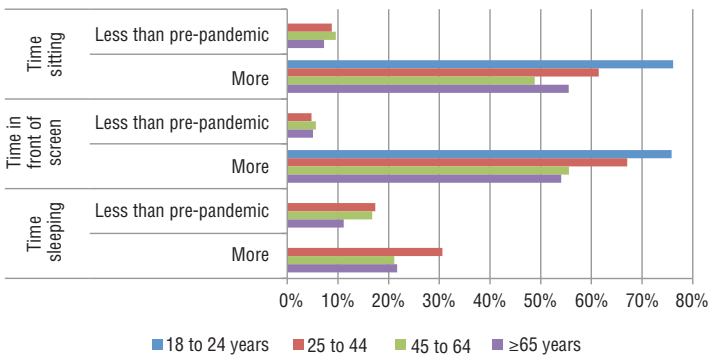
- Sample size insufficient to release

Source: CFLRI, 2020-2021 Impact of COVID-19 on Physical Activity Survey

Age

Interesting results of sedentary time appear by age. Compared to before the pandemic, a larger percentage of 18 to 24 year olds report *more* time spent sitting or in front of screens compared to adults 45 years and older, whereas a greater percentage of adults 45 years and older say that their sitting or screen time has not changed compared to 25 to 44 year olds. In a similar way, a larger percentage of 25 to 44 year olds indicate spending *more* time sleeping now than the pre-pandemic period, compared to adults 45 years and older; the opposite relationship appears for those reporting the *same* amount of time (e.g., a larger % of adults 45 years and older than 25-44 year olds).

Figure 3: Percentage of adults indicating change in sedentary behaviours now compared to pre-pandemic by age



Source: CFLRI, 2020-2021 Impact of COVID-19 on Physical Activity survey

A higher percentage of adults living in the highest income households currently spend *more* time in front of screens than before the pandemic compared to those living in lower income households.

Household income

There are few differences with respect to household income, with one exception: compared to those living in lower income households, a higher percentage of adults living in the highest income households currently spend *more* time in front of screens than before the pandemic.

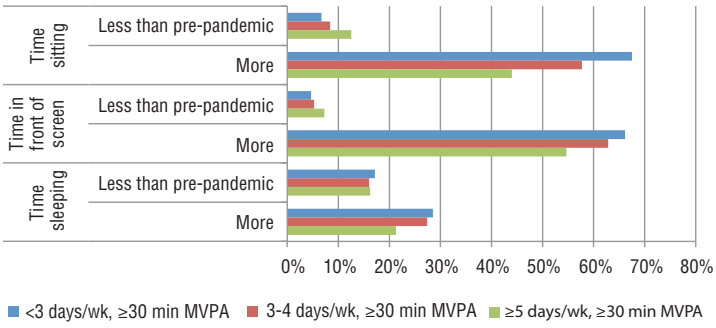
Community size

Compared to pre-pandemic, a greater percentage of residents of the largest communities (500,000 or more residents) say that they currently spend *more* time sitting or sleeping now, compared to residents in smaller communities. Residents of the largest communities are also most likely to say that they are currently spending more time in front of screens than before the pandemic, and they are least likely to say no change in behaviour between these periods.

Activity level

Compared to more active Canadians, adults with lower activity levels are more likely to report spending *more* time sitting, in front of screens and sleeping now compared to before the pandemic, and consequently are less likely to say that they have spent the *same* amount (for sitting, screen-time or sleeping) or less time sitting.

Figure 4: Percentage of adults indicating change in sedentary behaviours now compared to pre-pandemic by activity level



Source: CFLRI, 2020-2021 Impact of COVID-19 on Physical Activity survey

Discussion

Research has shown that the COVID-19 pandemic has had an impact on the physical, mental, psychosocial, and economic well-being of individuals, both here in Canada and around the world[2, 3]. Yet to be determined is whether these observed changes will be long lasting or short lived. This bulletin aims to provide insight into the immediate effect of the pandemic on Canadians' movement behaviours. Perhaps not surprising, studies conducted at the height of the pandemic reported declines in physical activity participation[2]. More recently, however, there appears to be evidence that the negative impact on physical activity may have waned, particularly for Canadians adults. In a recent national study, physical activity levels of adults during the fall of 2020 were compared to estimates from 2018. The study found that physical activity levels among adults during the pandemic did not differ significantly compared to pre-pandemic levels[4]. The CFLRI study described in this bulletin has provided details about how adults have changed their behaviour in terms of intensity levels during compared to pre-pandemic. While fewer Canadians report similar intensities of moderate or vigorous activities during the pandemic compared to before, more than three-quarters remained engaged in the same or more light physical activity.

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This CFLRI study found that roughly 6 in 10 adults spent *more* time in front of screens or sitting during the pandemic than before. Similarly, another Canadian study found that the majority of participants (60%) increased their screen time during the pandemic[9]. This is a great cause for concern. Prolonged periods of sedentary behaviour are concerning as physical inactivity has been shown to be linked with negative health outcomes such as an increased risk of developing chronic diseases (e.g., obesity, Type 2 Diabetes, cardiovascular disease) and premature mortality[10]. Results from a recent review and meta-analysis of studies examining the relationship between objective measures of physical activity, sedentary time and mortality, revealed that physical inactivity was positively linked to premature mortality[11]. More specifically, this study found that the risk of premature death increased with increasing time spent being sedentary and that this risk was more pronounced at higher levels inactivity (9.5 hours)[11]. Also, the researchers found that physical activity at any intensity was associated with a lower risk of premature death[11]. In another review, substituting sedentary time with physical activity was found to reduce the risk of mortality, with greater reductions observed when sedentary time was replaced with higher intensity physical activity[12]. In addition to reductions in risk of mortality, reallocating time spent being sedentary to physical activity was associated with a reduced risk of chronic diseases (e.g., cardiovascular disease, Type 2 diabetes), and mental health (i.e., depression)[12]. Pre-pandemic levels of sedentary time were a cause of concern as Canadians were already spending large amounts of time being sedentary[9]. In 2019, it was estimated that Canadian adults aged 18 years and older spent roughly 9.5 hours a day being sedentary[9] Rising rates of sedentarism during the pandemic among Canadians is worrisome given its relationship to morbidity and mortality.

FUTURE CONSIDERATIONS

Consider educational campaigns

Public health messaging during the pandemic was focused primarily at reducing the risk of transmission by encouraging isolation and physical distancing. As restrictions begin to ease educational campaigns may be required to re-educate the public on the importance of physical activity for optimal health. Education initiatives can focus both on raising awareness of the importance of increasing physical activity and reducing sedentary time, for reducing the risk of various chronic conditions, preventing complications from a COVID-19 infection, improving mental health and sleep, reducing the risk of premature death[7], and just having fun. Messaging could provide specific examples about how Canadians can stay active in and around their home, alone or with members of their household. Examples include encouraging individuals to take frequent breaks from sitting, walking to and from work, standing during phone calls and video meetings or when watching TV[7].

Promote new ways or venues to stay active

Data from the CFLRI study clearly shows that the pandemic has caused Canadians to re-evaluate how to fit physical activity into their lives. In light of this, Canadians should be encouraged and supported to be active in alternative ways, both during and after the pandemic, including participating in outdoor activities such as walking, wheeling, or cycling, or through exploring local parks and trails or the local neighbourhood. Additionally, physical activity and sport providers could consider implementing and promoting virtual programs that would allow participants to be active in the comfort of their own home. As in-person opportunities resume, these virtual options can provide opportunities for segments of the population who have more difficulty getting to, or have trepidation about entering in-person venues.

Invest in programs, facilities and resources

Financial support from government is needed to improve the design and operation of new or existing facilities and programs. Restoring public faith in physical activity and sport programming will require adopting changes to infrastructure and practices that will reduce the risk of transmission of infection in these settings. Examples of changes that may be considered include the use of hygienic building materials, ventilation systems, private or change rooms and showers[8]. Sport and physical activity providers will likely require financial investments from government for human resources (e.g., hiring and/or training of staff) and the provision of alternative modes of delivering physical activity and sport (e.g., virtual programming)[8].

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