



## The Vivo for Healthier Generations Play Project Evaluation

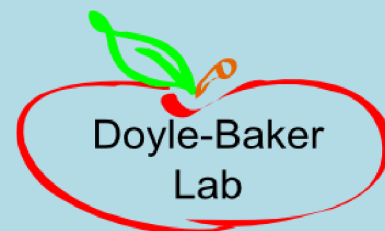
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*A Community Survey on  
Physical Activity, Play, and Social Connections*

March 31, 2021



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## EXECUTIVE SUMMARY

The Vivo Play Project is a community-based intervention focused on increasing participation in outdoor, unstructured play for individuals and families with children 5 to 17 years old living in north central Calgary. The intervention is over a 4 year period and includes the development and delivery of play hubs in local parks, training of volunteers to become play ambassadors, community events and the development of a community health dashboard. The aim of Vivo's Play Project is to increase physical activity, social connections, parks use and outdoor unstructured play by 10% while decreasing sedentary behaviour by 10% over 4 years. **The purpose of this evaluation study was to collect baseline data to evaluate the long-term impact of the Vivo Play Project.**

A cross-sectional survey was administered to 14 neighbourhoods in north central Calgary where the Vivo Play Project is located. Households (n=25,000) in north central Calgary were selected at random and mailed a recruitment postcard containing study instructions and web-link to an online survey. One member of the household (18 years of age and over) was asked to complete the online survey. The survey measured physical activity behaviour, sedentary behaviour, play, parks use and social connections, awareness of Vivo and the Vivo Play Project interventions, as well as socio-demographic characteristics.

A high proportion of survey respondents were aware of the Vivo Recreation Centre (82.6%), with 25.7% of participants reporting awareness of Vivo Play Project programs. Those who were aware of Vivo's Play Project programs spent statistically significantly more time walking, less time engaged in sedentary activities, lower levels of children's sedentary activity, and more time spent walking or hiking during their last park visit. Those who were aware also reported knowing more neighbours and reported a greater number of close friends in their neighbourhood.

Results of the online survey provide a baseline assessment of community resident physical activity levels, sedentary behaviour, parks use, children's outdoor play and social connections. The data is intended to help deliver on the evaluation objectives outlined for the Vivo Play Project, including a third-party evaluation of their intervention.

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## 1. INTRODUCTION

Physical activity is associated with many health and social benefits (Biddle & Asare, 2011; Janssen & Leblanc, 2010). In Canada, approximately 39% of children aged 5 to 17 years meet the physical activity recommendations (i.e., at least 60 minutes of moderate to vigorous activity per day) (ParticipACTION 2020). Children can accumulate physical activity through various forms of play. Play is considered an innate, voluntary behaviour defined as any activity that is “freely-chosen, personally directed and intrinsically motivated” (Brown, 2018, p. 31). Play is associated with health, social, cognitive, physical, and emotional benefits (Barnett, 2018). The nature of play among children has changed during the past few decades. Technological developments, such as video games, smart phones, tablets, computers, and other screen-based devices encourage sedentary behaviour during leisure-time (Loebach & Gilliland, 2016). Some evidence suggests parents and caregivers have become increasingly nervous about the safety of their neighbourhoods and spaces, contributing to reductions in outdoor play among children (Loebach & Gilliland, 2016). Associated with this trend is the increase in structured programming opportunities available for children and youth (De Martelaer & Theebom, 2006).

In late 2018, Vivo for Healthier Generations (Vivo), a large recreation centre in Calgary, launched a multifaceted, community-based intervention called the Vivo Play Project. The Vivo Play Project builds on Vivo’s broader social innovation strategy to enhance community health and well-being. The intervention aims to collaboratively work together with members of the north central Calgary community and focuses on increasing participation in outdoor, unstructured play for individuals and families with children 5 to 17 years old living in north central Calgary. Unstructured play is a critical part of a child’s health and development, defined by the Canadian Public Health Association as a play form where, “children follow their instincts, ideas, and interests without an imposed outcome” (2019, para. 1). The Vivo Play Project targets communities in the north central Calgary area.

Vivo has developed the “Vivo Play Project” which involves the delivery of child-friendly activities within local parks (i.e., outdoor play hubs) in north central Calgary communities. The outdoor play hubs are supervised by trained adult volunteers (or “Play Ambassador”) and offer a variety of activities intended to encourage child-led, unstructured play. Unstructured play offers unique developmental benefits in comparison to more structured forms of play, as it allows children to make their own choices and develop problem-solving skills. Through the Vivo play events, children also have the opportunity to explore their personal limits and take risks, while engaging in play with children from different age groups and neighbourhoods than they usually would (Staempfli, 2009). The Vivo Play Project aims to increase physical activity, social connections, parks use and spontaneous outdoor play by 10% while decreasing sedentary behaviour by 10% among children ages 5 to 17 years living in north central Calgary communities (Vivo Play Project, n.d.). To assess these outcomes, the Vivo team collaborated with the University of Calgary to undertake a third-party evaluation of the Vivo Play Project intervention.

### 1.1. Purpose

The purpose of this study was to collect baseline data on key outcomes related to the Vivo Play Project and to address two primary research questions:

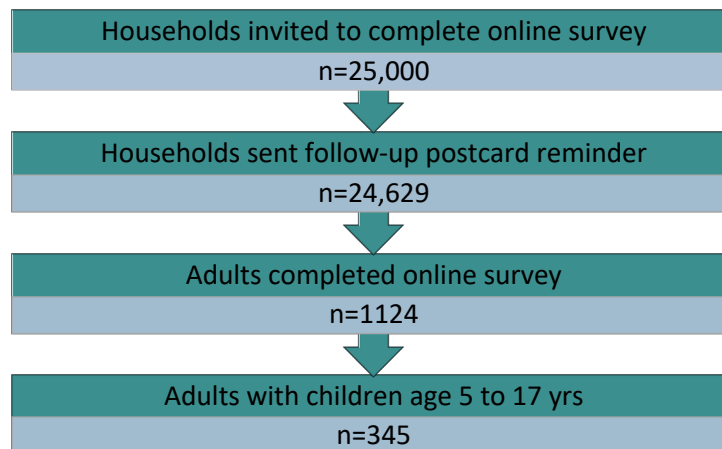
1. *What is the current level of physical activity, sedentary behaviour, play, parks use and social connection of adult and child residents living in north central Calgary communities?*
2. *What is the current level of awareness or knowledge regarding Vivo and Vivo Play programs among residents living in north central Calgary communities?*

## 2. METHODS

### 2.1. Study and sample design

The study was undertaken in Calgary (Alberta, Canada). Using a cross-sectional design, we administered an online community survey to a random selection of households across 14 north central communities targeted by the Vivo Play Project intervention (*Evanston, Nolan Hill, Sage Hill, Sherwood, Country Hills, Country Hills Village, Harvest Hills, Hidden Valley, Kincora, Panorama Hills, Beddington Heights, Huntington Hills, Sandstone Valley, and MacEwan Glen*). The survey was administered during April and June 2020 which unexpectedly coincided with the COVID-19 pandemic. A total of 25,000 households were invited to participate. Each household was sent a recruitment postcard asking one member of the household who was 18 years of age or older to participate an online survey. A follow-up postcard was sent out one week after the initial recruitment postcard to remind participants to complete the survey. Participants were eligible for the study if they: 1) lived in north central Calgary; 2) were age 18 years or older; 3) had access to the internet, and; 4) had an email address. Between mid-April to mid-June, 1124 adults completed the online survey (response rate of 4.5%), including 345 adults who had at least one child between the ages of 5 to 17 years living in the household. All participants who completed the online survey and provided a valid email address were emailed a family drop-in pass to the Vivo recreation facility (\$30 value) and entered into a draw to win one of two \$500 VISA gift cards. Participants provided informed consent prior to completing the online survey. The University of Calgary Conjoint Health Research Ethics Board approved this study (REB# 19-1910).

The participant recruitment flow is outlined in **Figure 2.2.1**.



**FIGURE 2.1.1. Participant Recruitment Flow**

### 2.2. Data Collection

The recruitment postcards contained details for accessing the study information and consent form, a 5-digit identification number assigned to each household, the survey, and information regarding the study and incentives. The online survey was hosted in Qualtrics. The online survey included questions on household demographics, physical activity, sedentary behaviour, play, parks use and social connection. The adult who completed the survey was asked questions about their own behaviours and perceptions related to those variables. Parents of children



5 to 17 years who completed the online survey were also provided physical activity and play information for their child or for child with the next upcoming birthday in the case of households with multiple children.

### **2.3. Variables**

#### ***Sociodemographic and Household Characteristics***

Sociodemographic questions captured age, sex, gender, number of dependents in the household, education, income, employment status, ethnicity, number of dependents at home, neighbourhood tenure, and dog ownership.

#### ***Vivo Awareness and Participation***

One item captured, prompted awareness of Vivo and the different names used to describe the Vivo Play Project (Vivo Play Project, Vivo Play Ambassador Project, Vivo Community Play Hubs, GenH Play Project). Similar items have been used for other community-based interventions (Bauman et al., 2004).

#### ***Physical Activity of Adults and Children***

***Adult Physical Activity.*** Three items from the short-version of the International Physical Activity Questionnaire (IPAQ-short) were used to assess adult physical activity levels. Participants were asked to recall their frequency and time spent participating in each of the following activities over the past seven days: 1) vigorous physical activity (VPA); 2) moderate physical activity (MPA), and; 3) walking. The IPAQ-short has previously undergone extensive reliability and validity testing in several countries, including a representative sample of Canadian adults (Craig et al., 2003).

***Child Physical Activity.*** One item assessed the level of physical activity for one child (5 to 17 years) residing in the household. This item was previously used elsewhere (i.e., Kansas City Neighbourhood and Park Survey) and asked the adult participant undertaking the survey to recall the number of days in the past seven days that the child was moderately-to-vigorously active for at least 60 minutes per day (A. Kaczynski, personal communication, Nov 29<sup>th</sup>, 2019). This level of participation reflects the Canadian guidelines for physical activity in children (ParticipACTION, 2020).

#### ***Sedentary Behaviour of Adults and Children***

***Adult Sedentary Behaviour.*** The adult usual time spent sitting in the last seven days on weekdays was measured also using the IPAQ-short (Craig et al., 2003). An additional question on adult screen time (time spent on a computer or watching television outside of the workplace) was included to gather additional data on sedentary behaviour in adults. A similar item has been used elsewhere (McCormack & Mardinger, 2015).

***Child Sedentary Behaviour.*** Two items from the Kansas City Neighbourhood and Park Survey captured the child's sedentary behaviour (A. Kaczynski, personal communication, Nov 29<sup>th</sup>, 2019), including the average number of hours per day (over the past 30 days), the child spent: 1) watching television or videos, and; 2) used the computer and played video games.

## ***Parks Use of Adults and Children***

**Adult Park Use.** Items from the Physical Activity in the Park Setting (PA-PS) were used to measure adult parks use. The participant was asked about their last park visit, including who they were with. They were also asked how often they visited a park within the last 30 days, including time spent in the park and time spent being physically active. The reliability of these items has been tested previously (Walker et al., 2009). An additional item was included to capture whether the participant's last park visit was to a park within or outside their neighbourhood.

**Child Parks Use.** Three items assessed child use of parks via parent proxy (adapted from the Kansas City Neighbourhood and Park Survey). The first item assessed the different ways the child usually traveled to the park (walk, bike, driven by car, public transit, other, do not know). The second item captured child visits to a park within the last 30 days. The third item captured the amount of time spent at the park during the child's last park visit.

## ***Recreational Activities of Adults and Children***

**Adult Recreational Activities.** One item from the Physical Activity in the Park Setting (PA-PS) was used to capture the recreational activities adults participated in during their last park visit (e.g., walking/ hiking, picnicking, wild life watching, jogging/ running, relaxing, photographing/ viewing nature, and biking).

**Child Recreational Activities.** One item was used to measure recreational activities children aged 5 to 17 participated in during their last park visit via parent proxy (e.g., walking/ hiking, jogging/ running, biking, rollerblading, group sports, individual sports, marital arts/ tai chi, and picnicking).

## ***Children's Play***

**Child Engagement in Play.** Three items from the Kansas City Neighbourhood and Park Survey were used to assess the child's engagement in play (parent proxy). This included the number of days over the past seven days the child engaged in play and the number of days within a typical week the child engaged in play. The third item from the Kansas City Neighbourhood and Park Survey asked parents to indicate the type of play their child engaged in during their last park visit. Items also asked the participant to rate their level of agreement (always, frequently, sometimes, never, N/A) with six items based on how often the child engages in the following: 1) Plays, walks or bicycles in their neighbourhood alone; 2) plays, walks or bicycles in their neighbourhood with friends or siblings; 3) plays, walks or bicycles in their neighbourhood with an adult present; 4) plays in a neighbourhood park or playground alone; 5) plays in a neighbourhood park or playground with friends or siblings, and; 6) plays, walks or bicycles in their neighbourhood with an adult present (Weir et al., 2006).

## ***Neighbourhood Social Connections***

**Social Interaction and Cohesion.** To assess neighbourhood social interactions, three items were used: 1) the number close friends in the neighbourhood; 2) the number of neighbours known on a first-name basis, and; 3) the number of neighbours invited to family events (Maesch, 1998; Sampson et al., 1977). Participants were also asked to assess their sense of community within their neighbourhood based on their level of agreement (strongly agree, agree, neither agree nor disagree, disagree, strongly disagree) with five items: 1) people around here are willing to help their neighbourhoods; 2) this is a close-knit neighbourhood; 3) people in this neighbourhood can be trusted; 4) people in this neighbourhood don't general get along with other people, and; 5) people in this neighbourhood do not share the same values (Sampson et al., 1997).

***Neighbourhood Satisfaction.*** One item captured the level of satisfaction the participant had with their current neighbourhood (delighted, pleased, mostly satisfied, mixed feelings, mostly dissatisfied, unhappy, and terrible) (Diener, 1984; Sirgy et al., 2000).

***Perceptions of Neighbourhood.*** Based on a previous survey used elsewhere (Kitchen et al., 2015), as well as the Canadian Community Health Survey (Ross, 2002; Statistics Canada, 2015) one question measured the participant's sense of belonging to their neighbourhood (very weak, weak, strong, very strong).

## **2.4. Data Analysis**

Descriptive statistics (frequencies, measures of central tendency, and variance) were calculated to profile the baseline characteristics of survey participants. Descriptive statistics were also used to estimate awareness of the Vivo for Healthier Generations Recreation Centre and Vivo Play Programs as well as participation in Vivo Play Programs. Descriptive analysis including Pearson's chi-square (for categorical outcomes) and independent t-tests (for continuous outcomes) estimated differences in participation in physical activity, sedentary behaviour, parks use, recreation activities, outdoor play, and social connections between levels of awareness of Vivo and Vivo Play Programs. P values less than 0.05 were considered statistically significant.

### 3. RESULTS

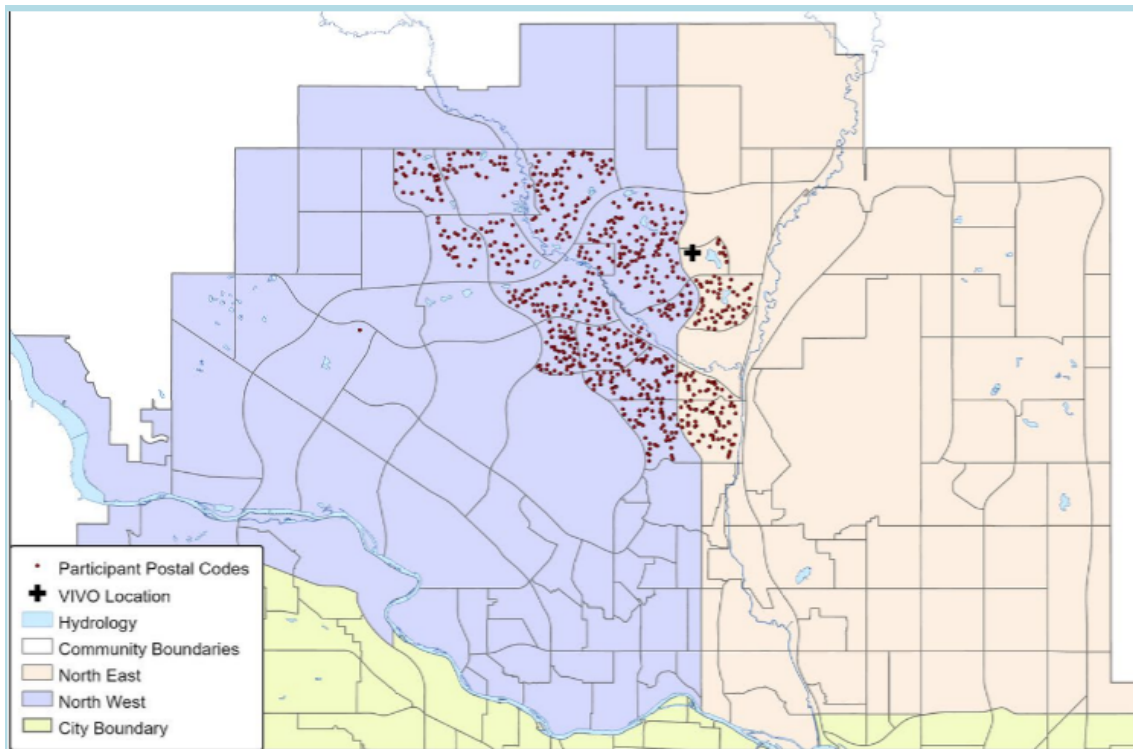
When interpreting results, it is important to consider that the survey was administered between April and June 2020, which unexpectedly coincided with the COVID-19 pandemic.

#### 3.1. Demographic and Household of Survey Respondents

Respondents of the survey resided in 14 neighbourhoods that surrounded the Vivo for Healthier Generations Recreation Centre, with two respondents from other parts of the city (**Table 3.1.1**). The top five neighbourhoods with survey responses were Panorama Hills (14.7%), Huntington Hills (13.9%), Beddington Heights (11.2%), Hidden Valley (11.2%), and Evanston (9.2%). The spatial distribution of survey respondent households is shown in **Figure 3.1.1**. About one third (33.6%) of respondents had lived in their neighbourhood for 5 years or less with about one quarter having lived in their neighbourhood for 1 to 5 years.

**TABLE 3.1.1: Respondent Neighbourhood of Residence (n=1124)**

Characteristic	Responses	n	%
<b>Neighbourhood</b>	<b>Panorama Hills</b>	<b>165</b>	<b>14.7</b>
	<b>Huntington Hills</b>	<b>156</b>	<b>13.9</b>
	<b>Beddington Heights</b>	<b>126</b>	<b>11.2</b>
	<b>Hidden Valley</b>	<b>126</b>	<b>11.2</b>
	<b>Evanston</b>	<b>103</b>	<b>9.2</b>
	MacEwan Glen	81	7.2
	Harvest Hills	78	6.9
	Sandstone Valley	67	6.0
	Sage Hill	49	4.4
	Country Hills	46	4.1
	Nolan Hill	40	3.6
	Kincora	39	3.5
	Sherwood	35	3.1
	Country Hills Village	11	1.0
Other Neighbourhood	2	0.2	
<b>Years in Neighbourhood</b>	Less than 1 year	66	5.9
	<b>1 to 5 years</b>	<b>311</b>	<b>27.7</b>
	6 to 10 years	227	20.2
	11 to 15 years	160	14.2
	More than 15 years	298	26.5
	Did not answer/Don't know	62	5.5



**FIGURE 3.1.1: Distribution of Survey Respondent Postal Codes in North Calgary**

**Demographic characteristics** of adult survey respondents are shown in **Figure 3.1.2**. Almost two thirds of respondents (61.5%) were less than 50 years of age, with about one quarter (26.2%) aged 30 to 39 years and almost one quarter (22.6%) aged 40 to 49 years. The majority of respondents identified as female (60.7%) and were either married or common-law (69.7%).

Over half (60.9%) of the survey respondents identified their ethnicity as Caucasian, 10.4% as Chinese, 8.7% as another Asian ethnicity (including South Asian, Southeast Asian, West Asian, Filipino, Japanese, or Korean), 14% as other ethnicities (including African, Latin American, Arab, or Other), and 6.0% identified as multiple ethnicities.

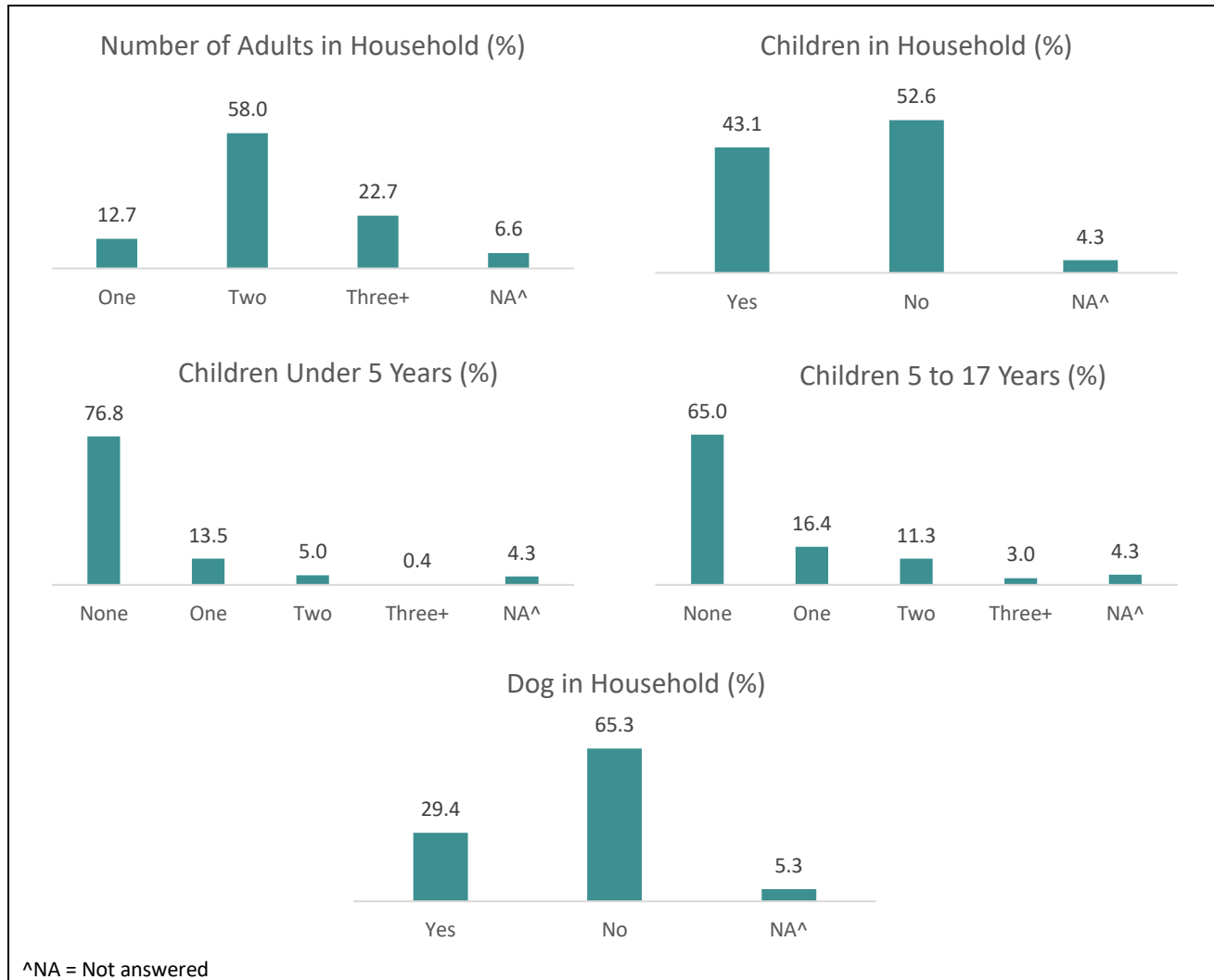
The highest completed level of education among respondents varied, with over a third of respondents (39.0%) with a bachelor’s degree, about a quarter (27.8%) with a trade certificate or diploma, and fewer respondents with a high school diploma or less (13.4%) or a graduate degree (14.4%). Almost half of respondents (45.5%) were working full-time and 11.4% were working part-time at the time of the survey. Almost one-half (55.4%) of respondents had a household income of \$80,000 a year or more.



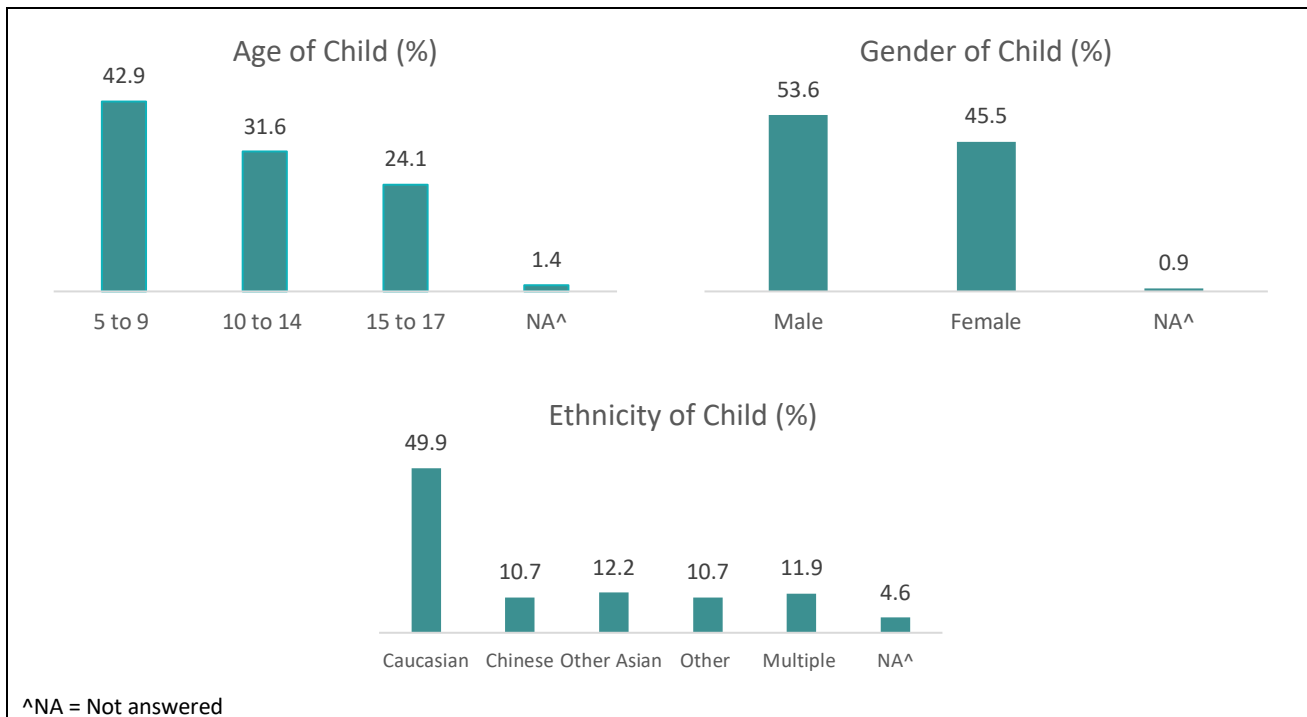
**FIGURE 3.1.2: Demographic Characteristics of Adult Survey Respondents (n=1124)**

Over half (58.0%) of respondents were living in a household with two adults and almost one-quarter (22.7%) were living in a household with 3 or more adults. Almost half (43.1%) of respondents were living in a household with at least one child less than 18 years of age, with 18.9% living with a child less than 5 years of age and 30.7% living with a child aged 5 to 17 years of age. Almost 30% of respondents reported living with a dog (**Figure 3.1.3**).

Respondents who lived with at least one child aged 5 to 17 years answered questions about the child aged 5 to 17 years with the next upcoming birthday (n=345). Almost half (42.9%) of the children were aged 5 to 9 years, about one third (31.6%) were aged 10 to 14 years, and about one quarter (24.1%) were aged 15 to 17 years. A little over half (53.6%) of the children were male and almost half (49.9%) were Caucasian (**Figure 3.1.4**).



**FIGURE 3.1.3: Household Composition of Survey Respondents (n=1124)**



**FIGURE 3.1.4: Children’s Characteristics (n=345)**

### 3.2. Vivo Awareness and Participation

Respondents were asked if they had heard of Vivo for Healthier Generations Recreation Centre and whether they had heard of and had participated in specific Vivo Play Programs (**Table 3.2.1** and **Figure 3.2.1**).

The majority of respondents (82.6%) had heard of the Vivo Recreation Centre. About one quarter of respondents (25.7%) had heard of the Vivo Play Program intervention, with The Vivo Play Project and The Vivo Community Play Hub as the most recognizable programs for the respondents (16.2% and 14.7% of respondents had heard of these two programs). Fewer respondents (6.0%) reported that they had participated in at least one Vivo Play Project Program. The highest rates of participation were for The Vivo Play Project (2.6%) and The Vivo Community Hub (2.0%).

#### ***Respondent characteristics by Vivo Awareness and Awareness of Programs***

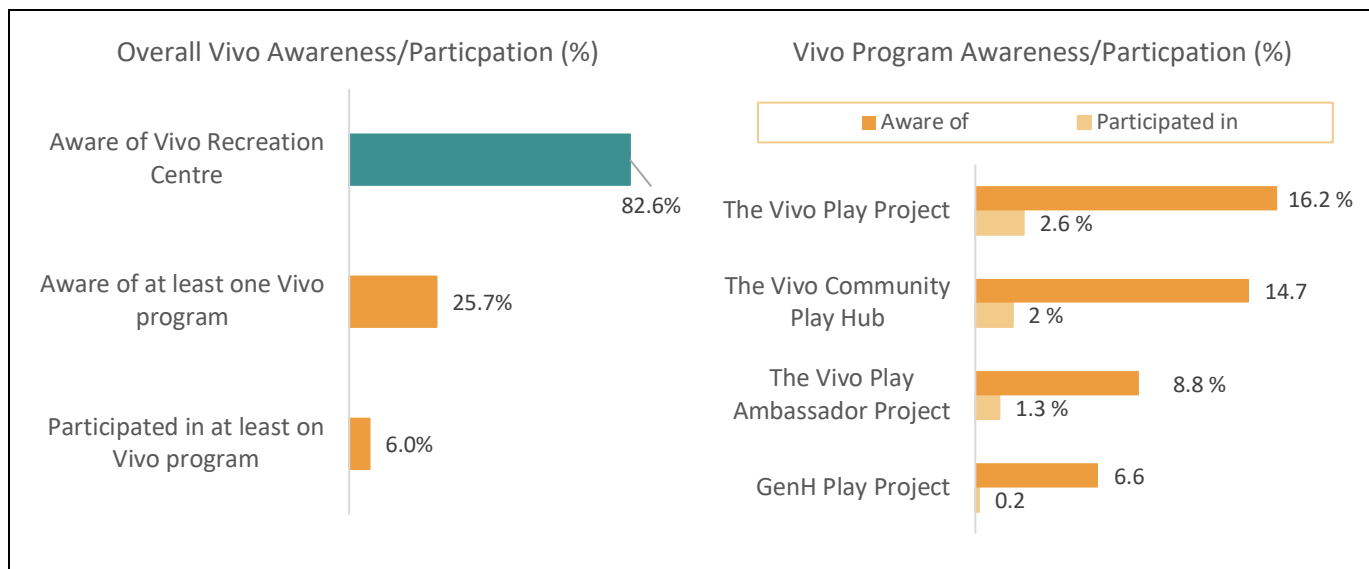
Survey results were analyzed to assess whether a greater awareness of (1) Vivo Recreation Centre and (2) Vivo Play Programs differed by participant characteristics.

Complete tables for the analysis of respondent and household characteristics by Vivo Awareness are included in **APPENDIX B (Table B2.2, Table B2.3, Table B2.4)**.



**TABLE 3.2.1: Vivo Awareness and Participation (n=1124)**

<b>Vivo Awareness/Participation</b>	<b>n</b>	<b>%</b>
<b>Have you heard of or are you aware of Vivo for Healthier Generations (Recreation Centre)?</b>		
Yes	928	82.6
No	188	16.7
Did not answer	8	0.7
<b>Have you heard of or are you aware of the following physical activity programs in your neighbourhood?</b>		
The Vivo Play Project	182	16.2
The Vivo Community Play Hub	165	14.7
The Vivo Play Ambassador Project	99	8.8
GenH Play Project	74	6.6
I've never heard of any of these	827	73.6
Did not answer	8	0.7
<b>Aware of at least one Vivo Play Program</b>		
Yes, aware of at least one Vivo Play Program	289	25.7
Not aware of any Vivo Play Programs	827	73.6
Did not answer	8	0.7
<b>Have you ever participated in any of the following physical activity programs in your neighbourhood?</b>		
The Vivo Play Project	29	2.6
The Vivo Community Play Hub	22	2.0
The Vivo Play Ambassador Project	15	1.3
GenH Play Project	2	0.2
I've never participated in any of these programs	220	19.6
I've never heard of any of these programs/Did not answer	836	74.4
<b>Participated in at least one Vivo Play Program</b>		
Yes, participated in at least one Vivo Play Program	68	6.0
Have not participated in a Vivo Play Program/Did not answer	1056	94.0



**FIGURE 3.2.1: Vivo Awareness and Participation (n=1124)**

Statistically significant ( $p < .05$ ) sociodemographic differences in respondents **aware of the Vivo Recreation Centre** included:

- *Younger respondents*: Respondents aware of Vivo had an average age of 44.7 compared to an average age of 49.3 years for those not aware of the Vivo Recreation Centre
- *Female respondents*: 85.9% of female respondents were aware of the Vivo Recreation Centre compared to 78.7% of male respondents
- Respondents with *at least one child* living in the household: 90.3% of respondents with at least one child were aware of Vivo compared to 78.1% of respondents without children
- Respondents with *more children* living in the household: Respondents aware of Vivo had an average of 0.8 children compared to an average of 0.4 children for those not aware of Vivo

Statistically significant ( $p < .05$ ) sociodemographic differences in respondents **aware of the Vivo Play Programs** included:

- *Younger respondents*: Respondents aware of Vivo Play Programs had an average age of 43.7 compared to an average age of 46.0 years for those not aware of Vivo Play Programs
- *Female respondents*: 30.1% of female respondents were aware of Vivo Play Programs compared to 19.1% of male respondents
- Respondents *working part-time*: 38.3% of respondents working part-time were aware of Vivo Play Programs, which was higher than other respondents, such as those working full-time (24.5%), not working (25.8%) or retired (17.8%)
- Respondents with *at least one child* living in the household: 38.4% of respondents with at least one child were aware of Vivo Play Programs compared to 16.8% of respondents without children
- Respondents with *more children*: Respondents aware of Vivo Play Programs had an average of 1.2 children compared to an average of 0.6 children for those not aware of Vivo Play Programs

Neighbourhood of respondent was also significantly ( $p < .05$ ) related to Vivo Awareness (Table 3.2.2).

Neighbourhoods *most likely* to be **aware of Vivo and Vivo Play Programs** included:

- *Country Hills*: 97.8% were aware of Vivo and 45.7% were aware of Vivo Play Programs
- *Panorama Hills*: 96.9% were aware of Vivo and 44.8% were aware of Vivo Play Programs
- *Harvest Hills*: 96.1% were aware of Vivo and 40.3% were aware of Vivo Play Programs

Neighbourhoods *least likely* to be **aware of Vivo and Vivo Play Programs** included:

- *Sherwood*: 60.0% were aware of Vivo and 5.7% were aware of Vivo Play Programs
- *Huntington Hills*: 63.6% were aware of Vivo and 11.0% were aware of Vivo Play Programs

**TABLE 3.2.2: Respondent Neighbourhood by Awareness of Vivo and Vivo Play Programs**

Respondent Neighbourhood (n=1116)^	Total Valid Responses	Aware of Vivo (n=928)		Aware of Vivo Play Programs (n=289)	
		n	%	n	%
<b>Neighbourhood of Residence</b>	<b>n</b>	<b>n</b>	<b>%</b>	<b>n</b>	<b>%</b>
<b>Panorama Hills</b>	<b>162</b>	<b>157</b>	<b>96.9*</b>	<b>73</b>	<b>44.8*</b>
Huntington Hills	154	98	63.6*	17	11.0*
Beddington Heights	126	93	73.8*	28	22.2*
Hidden Valley	126	109	86.5*	33	26.4*
Evanston	103	96	93.2*	21	20.4*
MacEwan Glen	80	67	83.8*	16	20.0*
<b>Harvest Hills</b>	<b>77</b>	<b>74</b>	<b>96.1*</b>	<b>31</b>	<b>40.3*</b>
Sandstone Valley	67	58	86.6*	14	20.9*
Sage Hill	49	38	77.6*	13	26.5*
<b>Country Hills</b>	<b>46</b>	<b>45</b>	<b>97.8*</b>	<b>21</b>	<b>45.7*</b>
Nolan Hill	40	32	80.0*	7	17.5*
Kincora	38	28	73.7*	7	18.4*
Sherwood	35	21	60.0*	2	5.7*
Country Hills Village	11	10	90.9*	4	36.4*
Other Neighbourhood	2	2	100.0*	2	100.0*

\*Differences are statistically significant  $p < 0.05$  ^Respondents who did not answer question were excluded.

### 3.3. Physical Activity

Respondents were asked about their physical activity as well as their children’s physical activity (**Table 3.3.1**). In the 7 days before completing the survey, adult respondents indicated that they had been walking an average of 4.5 days/week (202 minutes/week), took part in moderate physical activity 3.0 days/week (128 minutes/week), and took part in vigorous physical activity an average of 2.6 days/week (119 minutes/week).

Respondents reported that their child aged 5 to 17 years had been moderately or vigorously active an average of 3.5 days/week in the previous 7 days, but that in a typical week their child was usually active an average of 4.0 days/week.

**TABLE 3.3.1: Physical Activity of Adults and Children**

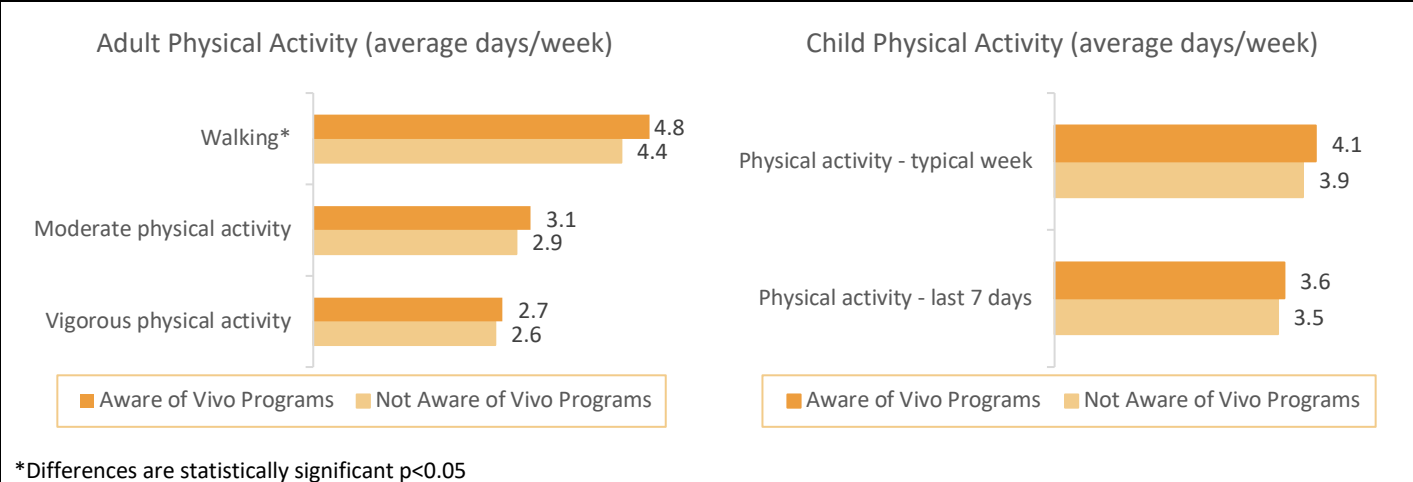
<b>ADULTS (n=1124)^</b>		
<b>Physical Activity Last 7 Days: Days/Week at least 10 minutes^</b>	<b>n</b>	<b>Mean (SD)</b>
Days/week – walking	1092	4.5 (2.3)
Days/week – moderate physical activity	1092	3.0 (2.3)
Days/week – vigorous physical activity	1081	2.6 (2.2)
<b>Physical Activity Last 7 Days: Minutes/Week^^</b>	<b>n</b>	<b>Mean (SD)</b>
Minutes/week – walking	1124	202.2 (212.7)
Minutes/week – moderate physical activity	1124	127.8 (190.3)
Minutes/week – vigorous physical activity	1124	118.8 (159.7)
<b>CHILDREN (n=345)^</b>		
<b>Physical Activity Last 7 Days: Days/Week</b>	<b>n</b>	<b>Mean (SD)</b>
Days/Week – Moderate-to-vigorous physical activity	333	3.5 (2.4)
<b>Physical Activity in a Typical Week: Days/Week</b>	<b>n</b>	<b>Mean (SD)</b>
Days/Week – Moderate-to-vigorous physical activity	331	4.0 (2.3)

^Respondents who did not answer question were excluded.  
^^Minutes per week were calculated (days/week x usual minutes/day). Missing responses were coded to 0.

#### ***Physical Activity by Vivo Awareness and Awareness of Vivo Play Programs***

There were no statistically significant differences in physical activity for those who were aware of the Vivo Recreation Centre compared to those not aware of the Recreation Centre. However, the trend in the results showed that respondents and their children tended to be more physically active if they were aware of the Vivo Recreation Centre compared to those who had not heard of Vivo.

Respondents who were **aware of Vivo Play Programs** were significantly ( $p < 0.05$ ) more likely to have a greater number of days and minutes of walking per week (4.8 days and 230 minutes) compared to those who were not aware of Vivo Play Programs (4.4 days and 194 minutes). Other measures of physical activity were not statistically significant between the two groups, but the trend shows that those aware tend to be more physically active (**Figure 3.3.1**). The complete table for this analysis can be found in **APPENDIX B (Table B3.2)**.



**FIGURE 3.3.1: Physical Activity by Vivo Awareness and Participation for Adults (n=1116) and Children (n=344)**

**3.4. Sedentary Behaviour**

Respondents were asked about their sitting and screen time as well as their children’s screen time (Table 3.4.1). In the 7 days before completing the survey, adult respondents indicated that they had spent an average of 333.9 minutes/day (5.6 hours) sitting down and an average of 198.7 minutes/day (3.3 hours) using a device with a screen. Respondents reported that their child aged 5 to 17 years had spent an average of 2.8 hours/day sitting watching TV/Videos, 2.5 hours/day using a computer or playing video games, and 2.2 hours/day using a screen other than a computer.

**TABLE 3.4.1: Sedentary Behaviour of Adults and Children**

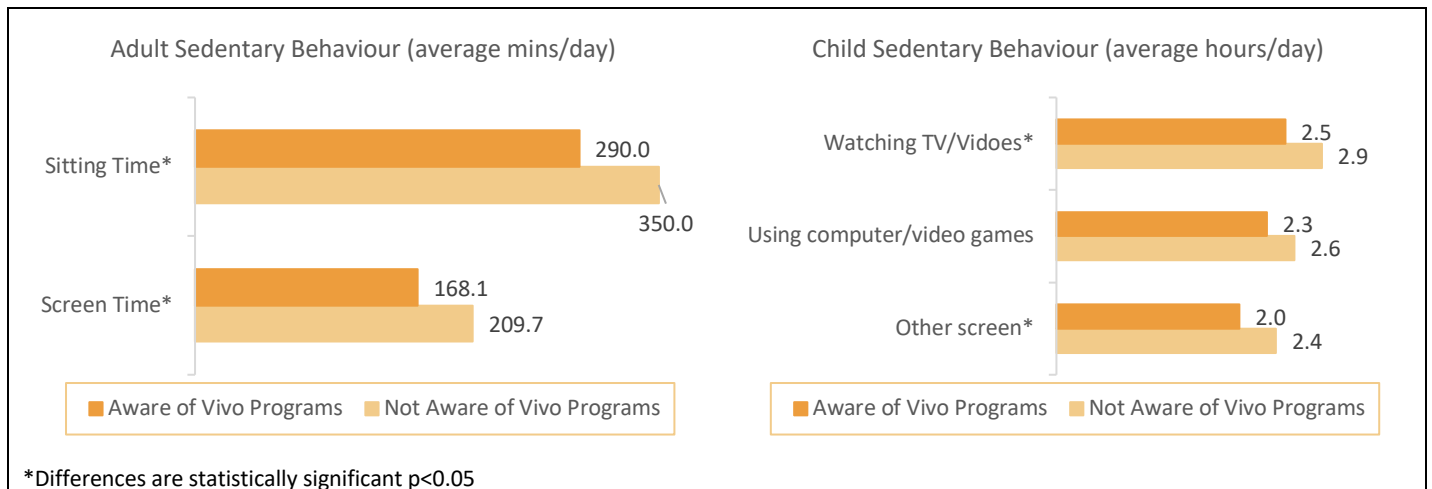
ADULTS (n=1124)^		
Sedentary Behaviour Last 7 Days: Mins/Day	n	Mean (SD)
Minutes/week - Sitting Time	1054	333.9 (215.6)
Minutes/week - Screen Time	1076	198.7 (170.9)
CHILDREN (n=345)^		
Sedentary Behaviour Last 30 days: Hours/Day	n	Mean (SD)
Past 30 days, time sitting and watching TV/videos	340	2.8 (1.6)
Past 30 days, use computer, play video games	340	2.5 (1.8)
Past 30 days, use screen other than computer	339	2.2 (1.8)

^Respondents who did not answer question were excluded.

### Sedentary Behaviour by Vivo Awareness and Awareness of Vivo Play Programs

Respondents who were **aware of Vivo Play Programs**, on average, had a significantly ( $p < 0.05$ ) lower number of sitting minutes and screen time per day (290 minutes and 168 minutes) compared to those who were not aware of Vivo Play Programs (350 minutes and 209 minutes).

Similarly, the children of respondents who were aware of Vivo Play Programs, on average, had a significantly ( $p < 0.05$ ) lower number of hours/day doing screen-based activities than those who were not aware of Vivo Play Programs, such as watching TV or videos (2.5 hours/day compared to 2.9 hours/day), and using other screens (2.0 hours/day compared to 2.4 hours/day) (**Figure 3.4.1**). The complete table for this analysis can be found in **APPENDIX B (Table B4.2)**.



**FIGURE 3.4.1: Sedentary Behaviour by Vivo Awareness and Participation for Adults (n=1116) and Children (n=344)**

### 3.5. Parks Use

Respondents were asked about their use of parks in general as well as visits in the last 30 days (**Table 3.5.1**). About two thirds (68.6%) of respondents indicated that they had visited a park in the 30 days before completing the survey, with respondents, on average, visiting a park 8.5 days within that time. On average, respondents reported spending about 50 minutes at the park during their last visit, with an average of 45 minutes of physical activity. Three quarters (75.9%) reported that their last park visit was within their own neighbourhood and the majority of respondents (63.6%) visited the park with a family member. About 20% of respondents reported visiting the park alone or with a pet.

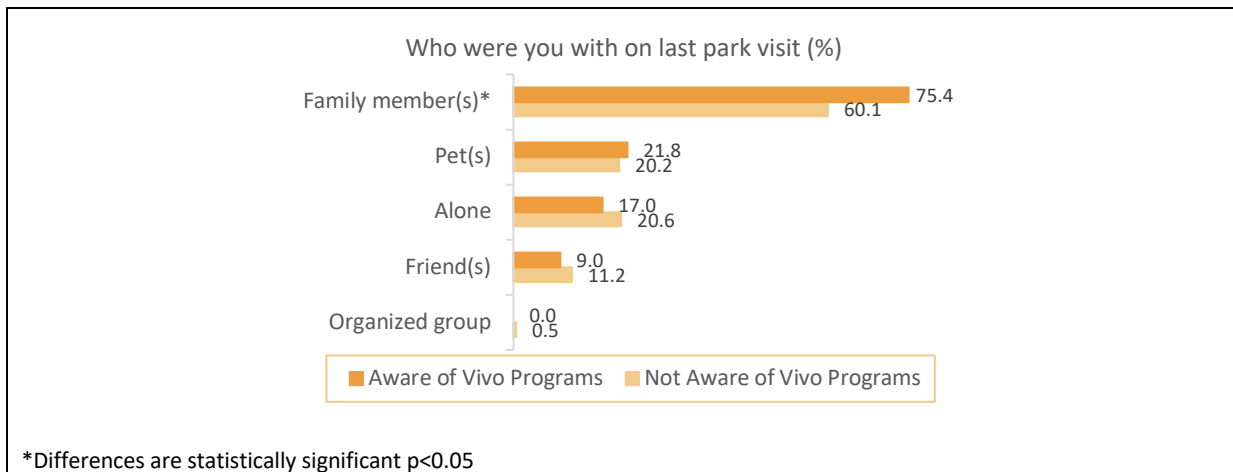
Respondents reported that their child aged 5 to 17 visited a park an average of about 5 days within the 30 days before completing the survey, and the child spent an average of 56 minutes at the park. The majority of children (62.6%) usually walk to the park, with about one quarter (24.6%) reporting that they ride their bike.

**TABLE 3.5.1: Parks Use of Adults and Children**

<b>ADULTS (n=1124)^</b>		
<b>Have you visited a park in the last 30 days?</b>	<b>n</b>	<b>%</b>
Yes	745	<b>68.6</b>
No	341	31.4
<i>Did not answer (n=38)^</i>		
<b>Park Visits – Days and Minutes</b>	<b>n</b>	<b>Mean (SD)</b>
Days visited park in last 30 days	714	8.5 (7.9)
Minutes at park during last visit	720	50.5 (36.3)
Minutes of physical activity during last park visit	707	45.0 (31.4)
<b>Was your last park visit in your neighbourhood?</b>	<b>n</b>	<b>%</b>
Yes	797	<b>75.9</b>
No	231	22.0
Other	22	2.1
<i>Did not answer (n=74)^</i>		
<b>Who were you with on your last park visit?</b>	<b>n</b>	<b>%</b>
Alone	220	19.6
Friend(s)	119	10.6
Family member(s)	715	<b>63.6</b>
Pet(s)	231	20.6
Members of an organized group	4	0.4
<b>CHILDREN (n=345)^</b>		
<b>Child Park Visits – Days and Minutes</b>	<b>n</b>	<b>Mean (SD)</b>
Past 30 days, number of days child visited park	332	4.9 (6.4)
Last park visit, number of minutes child spent at park	261	56.2 (41.8)
<b>When child travels to park, how do they get there?</b>	<b>n</b>	<b>%</b>
Walk	209	<b>62.6</b>
Bike	82	24.6
Driven by car	27	8.1
Public transit	2	0.6
Other	14	4.2
<i>Did not answer/Not applicable (n=11)^</i>		
^Respondents who did not answer question were excluded.		

***Parks Use by Vivo Awareness and Awareness of Vivo Play Programs***

Park visits, time spent at the park, and travelling method to the park were not statistically different between those who were aware of Vivo and Vivo Play Programs and those who were not aware. However, respondents who were **aware of Vivo Play Programs** were statistically more likely ( $p < .05$ ) to have gone to the park with family members (75.4%) than those respondents who were not aware of Vivo Play Programs (60.1%) (**Figure 3.5.1**). The complete table of results is presented in **APPENDIX B (Table B5.2)**.



**FIGURE 3.5.1: Parks Use by Vivo Awareness and Participation for Adults (n=1116)**

### 3.6. Recreational Activities

Adult respondents reported taking part in a variety of activities during their last park visit (**Table 3.6.1**). The majority of respondents (79.5%) reported walking or hiking on their last park visit. Fewer respondents took part in other various activities, with 21.4% playing with kids, 18.0% relaxing, 10.7% biking, 10.6% jogging/running, 8.9% wildlife viewing, 8.1% photographing/viewing nature, 5.7% sightseeing, and 5.7% reporting other activities.

The most popular activity for children aged 5 to 17 was also walking or hiking, with about half (53.0%) taking part in this activity during their last park visit (**Table 3.6.1**). Other popular activities for children were biking (32.2%), jogging/running (20.6%), relaxing (13.6%), other activities (9.0%), wildlife viewing (8.4%), group sports (8.1%), sightseeing (7.5%), and picnicking (7.0%).

#### ***Recreational Activities by Vivo Awareness and Awareness of Vivo Play Programs***

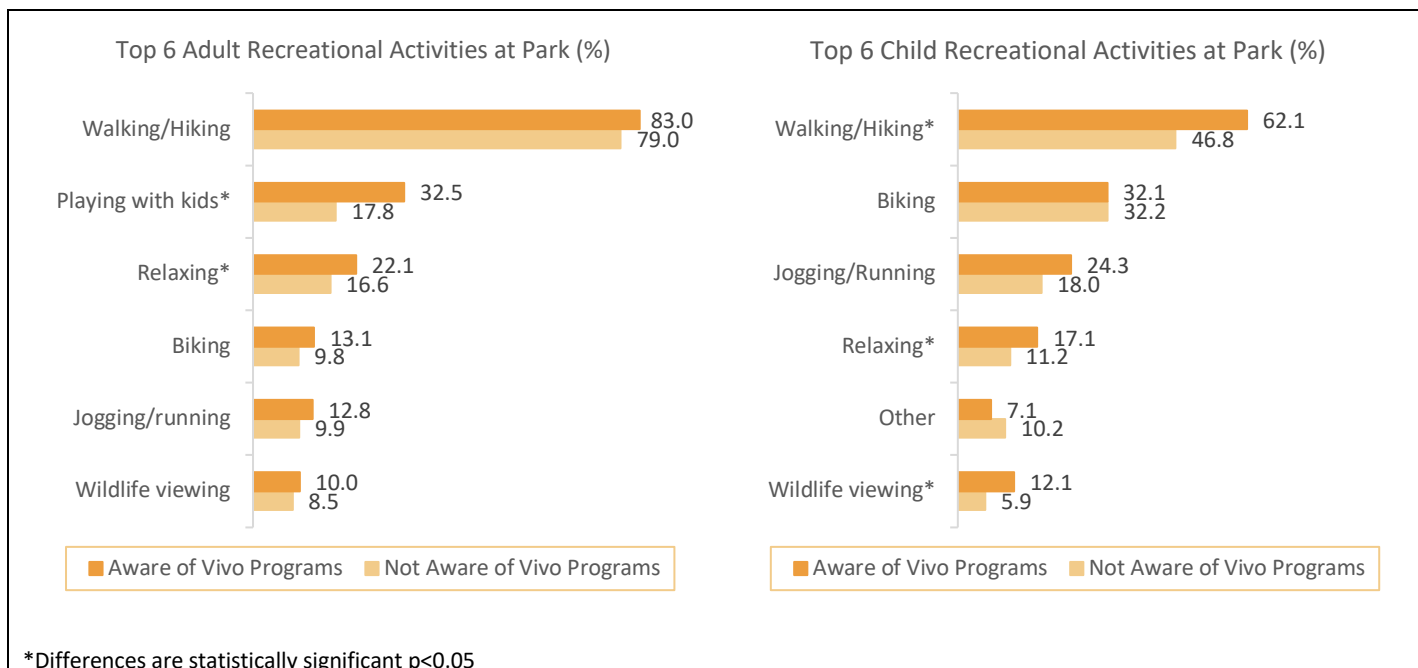
For *adults*, respondents who were **aware of Vivo Play Programs**, were significantly ( $p < 0.05$ ) more likely to have played with kids during their most recent park visit than those who were not aware of Vivo Play Programs (32.5% compared to 17.8%) and they were also significantly ( $p < 0.05$ ) more likely to have spent time relaxing at the park compared to those not aware of Vivo Play Programs (22.1% compared to 16.6%) (**Figure 3.6.1**).

For *children aged 5 to 17*, those who lived in a household with a respondent who was aware of Vivo Play Programs were significantly ( $p < 0.05$ ) more likely to have spent time walking/hiking than children living with a respondent not aware of Vivo Play Programs (62.1% compared to 46.8%), they were more likely to have spent time relaxing at the park (17.1% compared to 11.2%,  $p < 0.05$ ) and they were more likely to have spent time viewing wildlife (12.1% compared to 5.9%,  $p < 0.05$ ) (**Figure 3.6.1**). The complete table of results is presented in **APPENDIX B (Table B6.2)**.



**TABLE 3.6.1: Recreational Activities during Park Visits of Adults and Children**

<b>ADULTS (n=1124)^</b>		
<b>Recreational activities during last park visit</b>	<b>n</b>	<b>%</b>
Walking/Hiking	894	<b>79.5</b>
Playing with kids	241	<b>21.4</b>
Relaxing	202	<b>18.0</b>
Biking	120	<b>10.7</b>
Jogging/running	119	<b>10.6</b>
Wildlife viewing (e.g., bird watching)	100	<b>8.9</b>
Photographing/viewing nature	91	<b>8.1</b>
Sightseeing	64	<b>5.7</b>
Other	64	<b>5.7</b>
Picnicking	53	<b>4.7</b>
Reading	22	2.0
Group sports	16	1.4
Yoga	10	0.9
Swimming	7	0.6
Rollerblading	6	0.5
Fishing	6	0.5
Tennis	3	0.3
Martial Arts	1	0.1
<b>CHILDREN (n=345)^</b>		
<b>Recreational activities during last park visit</b>	<b>n</b>	<b>%</b>
Walking/Hiking	183	<b>53.0</b>
Biking	111	<b>32.2</b>
Jogging/Running	71	<b>20.6</b>
Relaxing	47	<b>13.6</b>
Other	31	<b>9.0</b>
Wildlife viewing	29	<b>8.4</b>
Group sports	28	<b>8.1</b>
Sightseeing	26	<b>7.5</b>
Picnicking	24	<b>7.0</b>
Viewing/Photographing nature	17	<b>4.9</b>
Individual sports	15	4.3
Rollerblading	10	2.9
Reading	8	2.3
Swimming	6	1.7
Martial Arts	3	0.9
Fishing	2	0.6
Tennis	1	0.3
Yoga	1	0.3
^Respondents who did not answer question were excluded.		



**FIGURE 3.6.1: Recreational Activities by Vivo Awareness and Participation for Adults (n=1116) and Children (n=344)**

### 3.7. Children’s Outdoor Play

Respondents with at least one child aged 5 to 17 were asked about their child’s outdoor play (**Table 3.7.1**). The majority (87.9%) of survey respondent’s children engaged in play, walks, or biking in their neighbourhood with an adult present. About three quarters (75.1%) said their child engaged in neighbourhood play with friends or siblings, and about half (55.7%) said their child played alone in the neighbourhood. When it comes to playing at a neighbourhood park or playground, about three quarters (74.1%) said their child played with an adult present, about two thirds (64.0%) played with friends or siblings, and less than one quarter (22.0%) played at a neighbourhood park alone.

Types of play activities during their last park visit varied for respondent’s children, with the two most popular activities listed as playing with friends and siblings (38.6%) and playing in general (34.8%). Other popular activities included playing with a ball or object (31.3%), playing on playground equipment (29.0%), climbing (24.9%), and exploring (24.3%).

**TABLE 3.7.1: Children’s Outdoor Play**

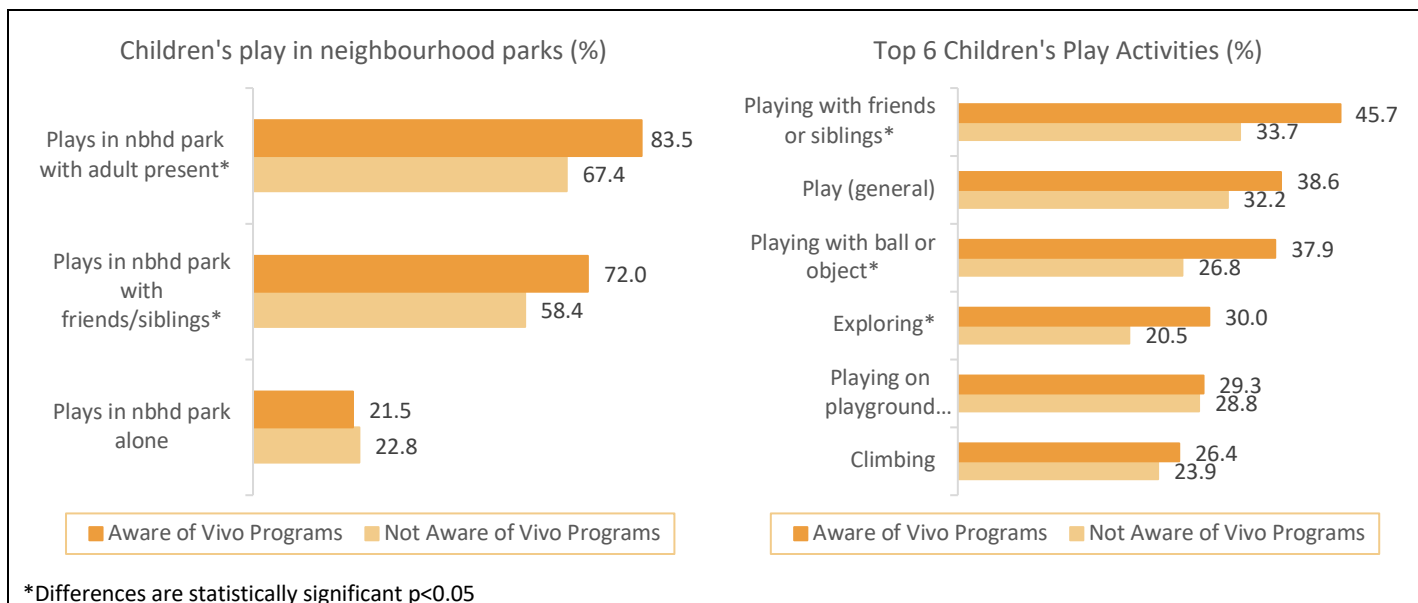
<b>CHILDREN (n=345)^</b>		
<b>How often does child engage in the following (Always/Frequently/Sometimes):</b>	<b>%</b>	<b>n</b>
Plays, walks, or bicycles in neighbourhood alone	<b>55.7</b>	185
Plays, walks, or bicycles in neighbourhood with friends/siblings	<b>75.1</b>	247
Plays, walks, or bicycles in neighbourhood with adult present	<b>87.9</b>	299
Plays in neighbourhood park/playground alone	<b>22.3</b>	71
Plays in neighbourhood park/playground with friends/siblings	<b>64.0</b>	203
Plays in neighbourhood park/playground with adult present	<b>74.1</b>	237
<b>Types of play activities during last park visit</b>	<b>%</b>	<b>n</b>
Playing with friends or siblings	<b>38.6</b>	133
Play (general)	<b>34.8</b>	120
Playing with ball or object	<b>31.3</b>	108
Playing on playground equipment	<b>29.0</b>	100
Climbing	<b>24.9</b>	86
Exploring	24.3	84
Tag and chase games	23.2	80
Make believe games	16.8	58
Playing with pet	12.5	43
Other	10.4	36
Hiding related games	10.1	35
Making new friends	7.8	27

^Respondents who did not answer question were excluded.

### ***Children’s Outdoor Play by Vivo Awareness and Awareness of Vivo Play Programs***

Respondents who were **aware of Vivo Play Programs** were significantly ( $p<0.05$ ) more likely to report that their children played in neighbourhood parks with an adult present compared to those who were not aware of Vivo Play Programs (83.5% compared to 67.4%) and were significantly ( $p<0.05$ ) more likely to report that their children played in neighbourhood parks with friends or siblings (72.0% compared to 58.4%).

There were also some significant differences in children’s outdoor play activities between those who were **aware of Vivo Play Programs** and those who were not aware of Vivo Play Programs. Respondents who were aware of Vivo Play Programs were significantly ( $p<0.05$ ) more likely to report that their children played with friends or siblings (45.7% compared to 33.7%), played with a ball or object (37.9% compared to 26.8%), and played by exploring (30.0% compared to 20.5%). The complete table for this analysis can be found in **APPENDIX B (Table B7.2)**.



**FIGURE 3.7.1: Children's Outdoor Play by Vivo Awareness and Participation (n=344)**

### 3.8. Neighbourhood Social Connections

Respondents were asked about their social connections with neighbours and their perceptions of their neighbourhood (**Table 3.8.1**). Respondents reported that, on average, they had about 1 close friend in their neighbourhood and that they had about 1 neighbour that they had invited to a family event. They knew an average of 5 neighbours by their first name.

The majority of respondents (82.8%) had positive feelings (delighted, pleased, satisfied) about their neighbourhood, with 14.2% indicating mixed feelings, and 3.0% reporting negative feelings about their neighbourhood.

About three quarters (77.7%) of respondents indicated that the people in their neighbourhood get along and almost three quarters (70.1%) indicated that people are willing to help their neighbours. Fewer respondents felt that they lived in a close-knit neighbourhood (31.9%) or that the people in their neighbourhood shared the same values (36.5%).

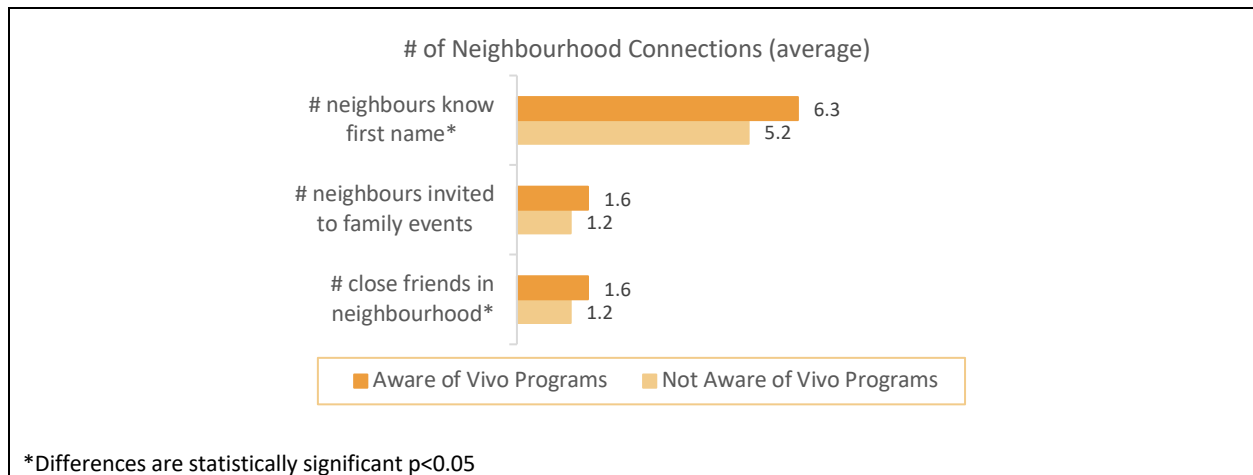
#### ***Neighbourhood Social Connections by Vivo Awareness and Awareness of Vivo Play Programs***

Respondents who were **aware of Vivo Play Programs**, on average, knew the first names of a significantly ( $p<0.05$ ) greater number of neighbours (i.e., those aware of Vivo Play Programs knew the first name of about 6 neighbours, compared to 5 neighbours for those not aware of Vivo Play Programs) and, on average, reported a significantly ( $p<0.05$ ) greater number of close friends in the neighbourhood (two close friends, compared to one close friend) (**Figure 3.8.1**). The complete table for this analysis can be found in **APPENDIX B (Table B8.2)**.

**TABLE 3.8.1: Neighbourhood Social Connections and Perceptions**

ADULTS (n=1124)^		
<b>Social Connections in Neighbourhood</b>	<b>Mean (SD)</b>	<b>n</b>
Number of close friends in neighbourhood	1.3 (2.2)	1066
Number of neighbours know first name	5.4 (4.9)	1060
Number of neighbours invited to family events	1.3 (2.7)	1043
<b>How do you feel about your neighbourhood?</b>	<b>%</b>	<b>n</b>
Delighted/Pleased/Mostly Satisfied	<b>82.8</b>	884
Mixed Feelings	14.2	152
Mostly Dissatisfied/Unhappy/Terrible	3.0	32
<i>Did not answer (n=56)^</i>		
<b>Perceptions of Neighbourhood (Agree/Strongly Agree)^</b>	<b>%</b>	<b>n</b>
People in this neighbourhood are willing to help their neighbours	70.1	749
This is a close-knit neighbourhood	31.9	340
People in this neighbourhood can be trusted	61.9	661
People in this neighbourhood get along	<b>77.7</b>	828
People in this neighbourhood share same values	36.5	388

^Respondents who did not answer question were excluded.



**FIGURE 3.8.1: Neighbourhood Connections by Vivo Awareness and Participation (n=1116)**

#### 4. SUMMARY OF FINDINGS

Results of the online community survey indicate that a high proportion of participants (82.6%) reported awareness of the Vivo Recreation Centre. This level of awareness is consistent with findings from a population level survey conducted among Canadians that focused on assessing prompted awareness of the ParticipACTION campaign (prompted awareness was 82%) (Spence et al., 2009). In comparison to levels of awareness of the Vivo Recreation Centre, only about one quarter of survey participants were aware of the programs offered by Vivo. Levels of awareness of the Vivo Recreation Centre and Vivo Play programs differed by participant characteristics. Adults who were female, younger and who reported children living in the household were more likely to be aware of the Vivo Recreation Centre in comparison to their counterparts. The same demographic characteristics (participants who were female, younger, with children in the household) were associated with significantly higher levels of awareness for the Vivo Play programs. Having more children living in the household was also associated with higher levels of awareness of both the Vivo Recreation Centre and Vivo Play programs. Few participants reported participating in Vivo programs, thus we were unable to perform any detailed analysis on this variable. The survey findings may be useful for informing future marketing strategies focused on increasing awareness of and participation in Vivo programs.

Walking, followed by moderate, and vigorous physical activity were the most commonly reported physical activities undertaken among adults. The survey results suggest that adults who were aware of the Vivo Play Project spent significantly more time walking compared with those who were not aware of the Vivo Play Project. Awareness of physical activity campaigns is associated with increased levels of leisure-time physical activity (Spence et al. 2009). Additionally, evaluation data from the ParticipACTION campaign suggests that 64% of survey respondents reported that the campaign helped them become more active when prompted (Bauman et al., 2004). Although not statistically significant, adults with children in the household who were aware of Vivo Play programs reported higher levels of children's physical activity compared to those who had not heard of Vivo. Studies suggest that availability and access to recreation facilities can support leisure time physical activity (Gidlow et al., 2019; Farneti & Ditch, 2018).

The amount of time adults reported doing sedentary activities, involving sitting and time spent on screen-based activity (combined total average of 8.9 hours/ day) is consistent with other population level surveys conducted in Alberta (i.e., 9.5 hours/ day on weekdays; 8.8 hours/ day on weekends) (Alberta Centre for Active Living, 2017). Findings from the online survey demonstrate that those who were aware of Vivo Play programs reported significantly less time undertaking sedentary activities than those unaware of Vivo play programs. Additionally, those who were aware Vivo Play programs also had children who spent significantly less time sitting or involved in screen activities, in comparison to those who were unaware of Vivo Play Project programs.

Approximately two thirds of survey participants reported visiting a park over the past month before completing the survey. Although the average number of days spent at parks was higher for adults (8.5 days on average) than children (5 days on average), children spent more time (56 minutes on average) at the park during their last visit than adults (50 minutes). Previous studies have identified park proximity and quality as factors related to parks use (McCormack et al., 2010; Kaczynski et al., 2014). For example, park facilities that support children's play, including playgrounds, trees (McCormack et al., 2010), and splash parks (Kaczynski et al., 2014) are important for supporting children's park use. Factors that negatively affect park use in children include age-inappropriate and outdated features that are unstimulating (McCormack et al., 2010). The presence of community groups or social clubs as park users and in park governance, may also influence how people perceive parks. Furthermore, involving community members in park planning processes can enhance resident feelings of ownership toward parks

(McCormack et al., 2010). Interventions, such as the Vivo Play Project, that enhance the quality of local park features to support children's play and that also engage community members in the planning process have the potential to enhance perceptions of parks and encourage park use.

Walking or hiking was the most popular recreation activity reported for both adults and children during their last park visits. Children of adults who were more aware of Vivo Play programs were significantly more likely to spend time walking or hiking than households with adults who were unaware of Vivo Play programs. Play that involved others (e.g., adults, siblings, and friends) was one of the most commonly reported. Related to this, adults who were aware of Vivo Play programs were significantly more likely to have played with kids during their last park visit than those who were unaware of these programs. Participants who were aware of Vivo Play Programs were also significantly more likely to report that their children played with friends or siblings, played with a ball or object, and played by exploring. Children's play involving playground equipment, climbing, and exploring were also reported as popular types of children's play.

The majority of survey participants reported positive feelings about their neighbourhood. Compared with adults who were not aware of the Vivo Play programs, those aware were more likely to know more neighbours by name and also reported having more close friends in the neighbourhood. Finding ways to support positive neighbourhood connections through community engagement is important for supporting resilience in a community (Redshaw & Ingram, 2018). This is especially imperative during the COVID-19 pandemic where social connections have been discouraged due to public health restrictions. Early evidence from Wuhan, China suggests that neighbourhood infrastructure that enhances social connection may help residents deal with the challenges of the COVID-19 pandemic and improve their well-being (Miao et al., 2021).

While not presented in this report, additional data were collected that captured perceived changes in physical activity, sedentary behaviour, and social interaction due to the COVID-19 pandemic among adults (McCormack et al., manuscript in submission) and children (McCormack et al., 2020). For adults, the largest perceived behavioural changes due to the COVID-19 pandemic included increased social distancing, reductions in driving, increased use of screen-based devices and television watching, and decreased social interactions with neighbours (McCormack et al., under review). Impacts of the COVID-19 pandemic on children's physical activity included increased time spent being active at home, with decreases in time spent playing at the park. Changes in sedentary behaviours among children included increased time spent watching television, gaming or computing and using screen-based devices. (McCormack et al., 2020). The survey was conducted within the first three months of the COVID-19 pandemic which may have impacted the findings presented in this report.

#### **4.1. Limitations**

The evaluation has several limitations. Due to the cross-sectional survey design, we cannot infer causality between variables. The data presented represents a snap-shot of measures related to awareness of Vivo, physical activity, sedentary behaviour, parks use, recreational activities, children's outdoor play and social connections, which as previously mentioned was likely *impacted by the COVID-19 pandemic*. The generalizability may be limited by the low response rate, the high education and income levels of the sample, our study inclusion criteria that required respondents have internet access, and the online survey only being offered in English language. Moreover, self-report measures can be impacted by social desirability, reporting bias, and recall errors. Although households were selected at random, members of a household were able to opt in or out of participating, thus self-selection bias may further reduce generalizability of the results.

## **5. CONCLUSIONS**

The online survey provided results about current physical activity, sedentary behaviour, park use, outdoor play, and social connections among households in north central Calgary communities within the catchment area of the Vivo for Healthier Generations Facility. Most households who completed the online survey were aware of the Vivo Recreation Centre, with about one-quarter also reporting awareness of Vivo Play Project programs. Awareness of Vivo Play Project programs were associated with health enhancing behaviours. The survey findings can be used to inform the Vivo Play Project. Community-based interventions, such as the Vivo Play Project, provide opportunities to enhance health and social well-being of adults and children.



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### CERTIFICATION OF INSTITUTIONAL ETHICS APPROVAL

The Conjoint Health Research Ethics Board (CHREB), University of Calgary has reviewed and approved the requested modification to the following research protocol:

Ethics ID: REB19-1910\_MOD2  
Principal Investigator: Gavin McCormack  
Co-Investigator(s): Patricia Katherine Doyle-Baker  
Student Co-Investigator(s):  
Study Title: Evaluation of the Vivo Play Project (North-Central Calgary Community Survey on Physical Activity, Play, Parks Use and Social Connection)  
Sponsor: Canadian Institutes of Health Research  
Vivo for Healthier Generations Society (Vivo)

**Effective:** 21-Jan-2020

**Expires:** 20-Jan-2021

The following documents have been approved:

- Phase A Community Survey\_v.4\_Mar 26.2020, v.4, March 26, 2020
- Protocol for Vivo Play Project\_v2\_Mar 26.2020, v.2, March 26, 2019

The CHREB is constituted and operates in accordance with the current version of the *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (TCPS)*; International Conference on Harmonization E6: Good Clinical Practice Guidelines (ICH-GCP); Part C, Division 5 of the Food and Drug regulations, Part 4 of the Natural Health Product Regulations and the Medical Device Regulations of Health Canada; Alberta's Health Information Act, RSA 2000 cH-5; and US Federal Regulations 45 CFR part 46, 21 CFR part 50 and 56.

#### Restrictions:

**This Certification is subject to the following conditions:**

1. Approval is granted only for the research and purposes described in the application.

2. Any modification to the approved research must be submitted to the CHREB for approval.
3. An annual application for renewal of ethics certification must be submitted and approved by the above expiry date.
4. A closure request must be sent to the CHREB when the research is complete or terminated.

**Approved By:**

Kathleen Oberle, PhD, Vice-Chair , CHREB

**Date:**

5-Apr-2020

*Note: This correspondence includes an electronic signature (validation and approval via an online system).*

## APPENDIX B: SURVEY RESULTS - ALL TABLES

### B1. Sample Characteristics

**TABLE B1.1: Respondent Neighbourhood of Residence (n=1124)**

Characteristic	Responses	n	%
<b>Neighbourhood</b>	<b>Panorama Hills</b>	<b>165</b>	<b>14.7</b>
	Huntington Hills	156	13.9
	Beddington Heights	126	11.2
	Hidden Valley	126	11.2
	Evanston	103	9.2
	MacEwan Glen	81	7.2
	Harvest Hills	78	6.9
	Sandstone Valley	67	6.0
	Sage Hill	49	4.4
	Country Hills	46	4.1
	Nolan Hill	40	3.6
	Kincora	39	3.5
	Sherwood	35	3.1
	Country Hills Village	11	1.0
Other Neighbourhood	2	0.2	
<b>Years in Neighbourhood</b>	Less than 1 year	66	5.9
	<b>1 to 5 years</b>	<b>311</b>	<b>27.7</b>
	6 to 10 years	227	20.2
	11 to 15 years	160	14.2
	More than 15 years	298	26.5
	Did not answer/Don't know	62	5.5

**TABLE B1.2: Respondent Characteristics (n=1124)**

Characteristic	Responses	n	%
<b>Age Group</b>	18 to 29	143	12.7
	<b>30 to 39</b>	<b>294</b>	<b>26.2</b>
	40 to 49	254	22.6
	50 to 59	199	17.7
	60 to 69	166	14.8
	70 to 79	50	4.4
	80+	7	.6
	Did not answer	11	1.0
<b>Gender</b>	Male	424	37.7
	<b>Female</b>	<b>682</b>	<b>60.7</b>
	Other gender	5	0.4
	Prefer not to answer	13	1.2
<b>Relationship Status</b>	<b>Married/Common-Law</b>	<b>783</b>	<b>69.7</b>
	Other Status	279	24.8
	Did not answer	62	5.5
<b>Ethnicity</b>	<b>Caucasian</b>	<b>684</b>	<b>60.9</b>
	Chinese	117	10.4
	Other Asian Ethnicity	98	8.7
	Other Ethnicity	157	14.0
	Multiple Ethnicities	68	6.0
<b>Education</b>	Completed high school or less	151	13.4
	Completed trade/diploma/some uni.	313	27.8
	<b>Completed bachelor's degree</b>	<b>438</b>	<b>39.0</b>
	Completed post graduate degree	162	14.4
	Did not answer	60	5.3
<b>Employment Status</b>	<b>Working full-time</b>	<b>511</b>	<b>45.5</b>
	Working part-time	128	11.4
	Not working	124	11.0
	Student/Homemaker	104	9.3
	Retired	147	13.1
	Other	49	4.4
	Did not Answer	61	5.4
<b>Household Income</b>	Less than \$40,000	49	4.4
	\$40,000 to \$79,999	186	16.5
	\$80,000 to \$120,000	259	23.0
	<b>More than \$120,000</b>	<b>364</b>	<b>32.4</b>
	Refused to answer/Don't know	266	23.7

**TABLE B1.3: Respondent Household Composition (n=1124)**

Characteristic	Responses	n	%
Number of Adults	1	143	12.7
	<b>2</b>	<b>652</b>	<b>58.0</b>
	3 or more	255	22.7
	Did not answer	74	6.6
Child(ren) in Household	Yes	485	43.1
	<b>No</b>	<b>591</b>	<b>52.6</b>
	Did not answer	48	4.3
Child(ren) Under 5 years	<b>0</b>	<b>863</b>	<b>76.8</b>
	1	152	13.5
	2	56	5.0
	3 or more	5	.4
	Did not answer	48	4.3
Child(ren) 5 to 17 years	<b>0</b>	<b>731</b>	<b>65.0</b>
	1	184	16.4
	2	127	11.3
	3 or more	34	3.0
	Did not answer	48	4.3
Dog in Household	Yes	330	29.4
	<b>No</b>	<b>734</b>	<b>65.3</b>
	Did not answer	60	5.3

**TABLE B1.4: Children's Characteristics (n=345)<sup>1</sup>**

Characteristic	Responses	n	%
Age of Child	<b>5 to 9</b>	<b>148</b>	<b>42.9</b>
	10 to 14	109	31.6
	15 to 17	83	24.1
	Did not answer	5	1.4
Gender of Child	<b>Male</b>	<b>185</b>	<b>53.6</b>
	Female	157	45.5
	Did not answer	3	0.9
Child Ethnicity	<b>Caucasian</b>	<b>172</b>	<b>49.9</b>
	Chinese	37	10.7
	Other Asian	42	12.2
	Other Ethnicity	37	10.7
	Multiple Ethnicities	41	11.9
	Did not answer	16	4.6

<sup>1</sup> Respondents answered questions for child in household aged 5 to 17 years. If there was more than one child aged 5 to 17 years in household, child with next upcoming birthday.



## B2. Awareness of Vivo/Programs and Participation

**TABLE B2.1: Vivo Awareness and Participation (n=1124)**

<b>Vivo Awareness/Participation</b>	<b>n</b>	<b>%</b>
<b>Have you heard of or are you aware of Vivo for Healthier Generations (Recreation Centre)?</b>		
Yes	928	82.6
No	188	16.7
<i>Did not answer</i>	8	0.7
<b>Have you heard of or are you aware of the following physical activity programs in your neighbourhood?</b>		
The Vivo Play Project	182	16.2
The Vivo Community Play Hub	165	14.7
The Vivo Play Ambassador Project	99	8.8
GenH Play Project	74	6.6
I've never heard of any of these	827	73.6
<i>Did not answer</i>	8	0.7
<b>Aware of at least one Vivo Program</b>		
Yes, aware of at least one Vivo Program	289	25.7
Not aware of any Vivo Programs	827	73.6
<i>Did not answer</i>	8	0.7
<b>Have you ever participated in any of the following physical activity programs in your neighbourhood?</b>		
The Vivo Play Project	29	2.6
The Vivo Community Play Hub	22	2.0
The Vivo Play Ambassador Project	15	1.3
GenH Play Project	2	0.2
I've never participated in any of these programs	220	19.6
I've never heard of any of these programs/Did not answer	836	74.4
<b>Participated in at least one Vivo Program</b>		
Yes, participated in at least one Vivo Program	68	6.0
Have not participated in a Vivo Program/Did not answer	1056	94.0

**TABLE B2.2: Respondent Demographics by Awareness of Vivo and Vivo Programs**

Respondent Neighbourhood (n=1116)	Total Valid Responses	Aware of Vivo (n=928)		Aware of Vivo Programs (n=289)	
		Mean	SD	Mean	SD
<b>Age of Respondent<sup>1</sup></b>	1110	44.7*	14.1	43.7*	12.7
<b>Number of Adults in Household<sup>1</sup></b>	1048	2.3	0.9	2.3	0.8
<b>Number of Children in Household<sup>1</sup></b>	1116	0.8*	1.0	1.2*	1.1
<b>Gender of Respondent</b>		<b>n</b>	<b>%</b>	<b>n</b>	<b>%</b>
Male	423	333	78.7*	81	19.1*
<b>Female</b>	<b>679</b>	<b>583</b>	<b>85.9*</b>	<b>204</b>	<b>30.1*</b>
Other Gender	5	4	80.0*	1	20.0*
<i>Prefer not to answer (n=9)^</i>					
<b>Relationship Status of Respondent</b>		<b>n</b>	<b>%</b>	<b>n</b>	<b>%</b>
Married/Common-Law	781	660	84.5	221	28.3
Other Status	279	226	81.0	62	22.3
<i>Did not answer (n=56)^</i>					
<b>Ethnicity of Respondent</b>		<b>n</b>	<b>%</b>	<b>n</b>	<b>%</b>
Caucasian	683	567	83.0	167	24.5
Chinese	117	100	85.5	37	31.6
Asian Other	97	84	86.6	29	29.6
Other	151	122	80.8	32	21.3
Multiple Ethnicities	68	55	80.9	24	35.3
<b>Education of Respondent</b>		<b>n</b>	<b>%</b>	<b>n</b>	<b>%</b>
High school or less	150	122	81.3	37	24.7
Trade/diploma/some university	313	261	83.4	80	25.6
Bachelor's degree	437	375	85.8	115	26.3
Post-graduate degree	162	130	80.2	51	31.5
<i>Did not answer (n=54)^</i>					
<b>Employment Status of Respondent</b>		<b>n</b>	<b>%</b>	<b>n</b>	<b>%</b>
Working full-time	511	429	84.0	125	24.5*
<b>Working part-time</b>	<b>128</b>	<b>107</b>	<b>83.6</b>	<b>49</b>	<b>38.3*</b>
Not working	124	97	78.2	32	25.8*
Student/homemaker	104	95	91.3	34	32.7*
Retired	146	117	80.1	26	17.8*
Other	48	42	87.5	17	34.7*
<i>Did not answer (n=55)^</i>					
<b>Household Income</b>		<b>n</b>	<b>%</b>	<b>n</b>	<b>%</b>
Less than \$40,000	49	39	79.6	13	26.5
\$40,000 to \$79,000	186	154	82.8	48	25.9
\$80,000 to \$120,000	258	214	82.9	70	27.0
More than \$120,000	363	309	85.1	94	25.8
Don't Know/Did not answer	260	212	81.5	64	24.7

\*Differences are statistically significant p<0.05  
^Respondents who did not answer question were excluded.  
<sup>1</sup> Results for those *not aware of Vivo*: Age=49.3(15.2), Adults in household=2.1(0.9), Children in household=0.4(0.7) and results for those *not aware of Vivo Programs*: Age=46.0(14.9), Adults in household=2.2(0.9), Children in household=0.6(0.9).

**TABLE B2.3: Child(ren) in Household by Awareness of Vivo and Vivo Programs**

Presence of Child(ren) (n=1116)	Total Valid Responses	Aware of Vivo (n=928)		Aware of Vivo Programs (n=289)	
<b>Child in Household</b>	<b>n</b>	<b>n</b>	<b>%</b>	<b>n</b>	<b>%</b>
Yes	484	437	90.3*	186	38.4*
No	590	461	78.1*	99	16.8*
<i>Did not answer (n=42)^</i>					
Age of Child(ren) in Household (n=484)	Total Valid Responses	Aware of Vivo (n=437)		Aware of Vivo Programs (n=186)	
<b>If yes, Child less than 5 years</b>	<b>n</b>	<b>n</b>	<b>%</b>	<b>n</b>	<b>%</b>
Yes	271	246	90.8	104	38.2
No	213	191	89.7	82	38.5
<b>If yes, Child 5 to 17 years</b>	<b>n</b>	<b>n</b>	<b>%</b>	<b>n</b>	<b>%</b>
Yes	140	124	88.6	46	32.9
No	344	313	91.0	140	40.6
Characteristics of Child 5 to 17 (n=344) <sup>1</sup>	Total Valid Responses	Aware of Vivo (n=313)		Aware of Vivo Programs (n=140)	
		<b>Mean</b>	<b>SD</b>	<b>Mean</b>	<b>SD</b>
<b>Age of Child (5 to 17 only)</b>	339	10.7	4.0	10.5	3.7
<b>Number of Children (5 to 17 only)</b>	344	1.6	0.7	1.7	0.8
<b>Gender of Child</b>	<b>n</b>	<b>n</b>	<b>%</b>	<b>n</b>	<b>%</b>
Male	184	164	89.1	74	40.0
Female	157	146	93.0	66	42.0
<i>Did not answer (n=2)^</i>					
<b>Ethnicity of Child</b>	<b>n</b>	<b>n</b>	<b>%</b>	<b>n</b>	<b>%</b>
Caucasian	172	154	89.5	68	39.5
Chinese	37	35	94.6	18	48.6
Asian Other	41	38	92.7	19	45.2
Other Ethnicities	37	33	89.2	10	27.0
Multiple Ethnicities	41	37	90.2	18	43.9
<i>Did not answer (n=15 )^</i>					
*Differences are statistically significant p<0.05					
^Respondents who did not answer question were excluded.					
<sup>1</sup> If more than one child aged 5 to 17 years in household, child with next upcoming birthday.					

**TABLE B2.4: Respondent Neighbourhood by Awareness of Vivo and Vivo Programs**

Respondent Neighbourhood (n=1116)	Total Valid Responses	Aware of Vivo (n=928)		Aware of Vivo Programs (n=289)	
		n	%	n	%
<b>Neighbourhood of Residence</b>	<b>n</b>	<b>n</b>	<b>%</b>	<b>n</b>	<b>%</b>
<b>Panorama Hills</b>	<b>162</b>	<b>157</b>	<b>96.9*</b>	<b>73</b>	<b>44.8*</b>
Huntington Hills	154	98	63.6*	17	11.0*
Beddington Heights	126	93	73.8*	28	22.2*
Hidden Valley	126	109	86.5*	33	26.4*
Evanston	103	96	93.2*	21	20.4*
MacEwan Glen	80	67	83.8*	16	20.0*
<b>Harvest Hills</b>	<b>77</b>	<b>74</b>	<b>96.1*</b>	<b>31</b>	<b>40.3*</b>
Sandstone Valley	67	58	86.6*	14	20.9*
Sage Hill	49	38	77.6*	13	26.5*
<b>Country Hills</b>	<b>46</b>	<b>45</b>	<b>97.8*</b>	<b>21</b>	<b>45.7*</b>
Nolan Hill	40	32	80.0*	7	17.5*
Kincora	38	28	73.7*	7	18.4*
Sherwood	35	21	60.0*	2	5.7*
Country Hills Village	11	10	90.9*	4	36.4*
Other Neighbourhood	2	2	100.0*	2	100.0*
<b>Years in Neighbourhood</b>		<b>n</b>	<b>%</b>	<b>n</b>	<b>%</b>
Less than 1 year	66	47	71.2*	8	12.1*
1 to 5 years	311	256	82.3*	64	20.6*
<b>6 to 10 years</b>	<b>225</b>	<b>199</b>	<b>88.4*</b>	<b>83</b>	<b>36.7*</b>
11 to 15 years	160	134	83.8*	49	30.6*
More than 15 years	298	250	83.9*	78	26.3*
<i>Did not answer (n=56)^</i>					
*Differences are statistically significant p<0.05					
^Respondents who did not answer question were excluded.					

### B3. Physical Activity

**TABLE B3.1: Physical Activity of Adults and Children**

<b>ADULTS (n=1124)^</b>		
<b>Physical Activity Last 7 Days: Days/Week at least 10 minutes^</b>	<b>n</b>	<b>Mean (SD)</b>
Days/week – walking	1092	4.5 (2.3)
Days/week – moderate physical activity	1092	3.0 (2.3)
Days/week – vigorous physical activity	1081	2.6 (2.2)
<b>Physical Activity Last 7 Days: Minutes/Week^^</b>	<b>n</b>	<b>Mean (SD)</b>
Minutes/week – walking	1124	202.2 (212.7)
Minutes/week – moderate physical activity	1124	127.8 (190.3)
Minutes/week – vigorous physical activity	1124	118.8 (159.7)
<b>CHILDREN (n=345)^</b>		
<b>Physical Activity Last 7 Days: Days/Week</b>	<b>n</b>	<b>Mean (SD)</b>
Days/Week – Moderate-to-vigorous physical activity	333	3.5 (2.4)
<b>Physical Activity in a Typical Week: Days/Week</b>	<b>n</b>	<b>Mean (SD)</b>
Days/Week – Moderate-to-vigorous physical activity	331	4.0 (2.3)

^Respondents who did not answer question were excluded.  
^^Minutes per week were calculated (days/week x usual minutes/day). Missing responses were coded to 0.

**TABLE B3.2: Adult and Child Physical Activity by Awareness of Vivo and Vivo Programs**

Physical Activity Measure	Awareness of Vivo		Awareness of Vivo Programs	
	Aware of Vivo	Not Aware of Vivo	Aware of Vivo Programs	Not Aware of Vivo Programs
<b>ADULTS (n=1116) ^</b>	<b>(n=928)</b>	<b>(n=188)</b>	<b>(n=289)</b>	<b>(n=827)</b>
<b>Physical Activity Last 7 Days: Days/Week</b>	<b>Mean (SD)</b>	<b>Mean (SD)</b>	<b>Mean (SD)</b>	<b>Mean (SD)</b>
Days/week - walking	4.6 (2.3)	4.4 (2.3)	4.8 (2.2)*	4.4 (2.3)*
Days/week – moderate physical activity	3.0 (2.3)	2.8 (2.3)	3.1 (2.3)	2.9 (2.3)
Days/week – vigorous physical activity	2.7 (2.2)	2.4 (2.1)	2.7 (2.2)	2.6 (2.2)
<b>Physical Activity Last 7 Days: Mins/Week</b>	<b>Mean (SD)</b>	<b>Mean (SD)</b>	<b>Mean (SD)</b>	<b>Mean (SD)</b>
Minutes/week – walking	203.4 (207.8)	202.2 (236.5)	229.9 (231.3)*	193.6 (204.8)*
Minutes/week – moderate physical activity	129.7 (191.2)	121.9 (187.3)	141.5 (204.5)	123.9 (185.4)
Minutes/week – vigorous physical activity	121.4 (159.1)	109.4 (164.8)	114.4 (139.6)	121.3 (166.6)
<b>CHILDREN (n=344) ^</b>	<b>(n=313)</b>	<b>(n=31)</b>	<b>(n=140)</b>	<b>(n=205)</b>
<b>Physical Activity Last 7 Days: Days/Week</b>	<b>Mean (SD)</b>	<b>Mean (SD)</b>	<b>Mean (SD)</b>	<b>Mean (SD)</b>
Days/Week – Moderate-to-vigorous physical activity	3.5 (2.4)	3.4 (2.5)	3.6 (2.3)	3.5 (2.4)
<b>Physical Activity in a Typical Week: Days/Week</b>	<b>Mean (SD)</b>	<b>Mean (SD)</b>	<b>Mean (SD)</b>	<b>Mean (SD)</b>
Days/Week – Moderate-to-vigorous physical activity	4.1 (2.2)	3.3 (2.4)	4.1 (2.2)	3.9 (2.3)

^Respondents who did not answer question were excluded.  
\*Differences are statistically significant p<0.05

## B4. Sedentary Behaviour

**TABLE B4.1: Sedentary Behaviour of Adults and Children**

<b>ADULTS (n=1124)^</b>		
<b>Sedentary Behaviour Last 7 Days: Mins/Day</b>	<b>n</b>	<b>Mean (SD)</b>
Minutes/week - Sitting Time	1054	333.9 (215.6)
Minutes/week - Screen Time	1076	198.7 (170.9)
<b>CHILDREN (n=345)^</b>		
<b>Sedentary Behaviour Last 30 days: Hours/Day</b>	<b>n</b>	<b>Mean (SD)</b>
Past 30 days, time sitting and watching TV/videos	340	2.8 (1.6)
Past 30 days, use computer, play video games	340	2.5 (1.8)
Past 30 days, use screen other than computer	339	2.2 (1.8)

^Respondents who did not answer question were excluded.

**TABLE B4.2: Adult and Child Sedentary Behaviour by Awareness of Vivo and Vivo Programs**

<b>Physical Activity</b>	<b>Awareness of Vivo</b>		<b>Awareness of Vivo Programs</b>	
	<b>Aware of Vivo</b>	<b>Not Aware of Vivo</b>	<b>Aware of Vivo Programs</b>	<b>Not Aware of Vivo Programs</b>
<b>ADULTS (n=1116) ^</b>	<b>(n=928)</b>	<b>(n=188)</b>	<b>(n=289)</b>	<b>(n=827)</b>
<b>Sedentary Behaviour Last 7 Days: Mins/Week</b>	<b>Mean (SD)</b>	<b>Mean (SD)</b>	<b>Mean (SD)</b>	<b>Mean (SD)</b>
Minutes/week - Sitting Time	332.6 (215.2)	343.9 (217.8)	290.0 (207.3)*	350.0 (216.5)*
Minutes/week - Screen Time	198.5 (173.6)	200.9 (157.6)	168.1 (152.9)*	209.7 (175.8)*
<b>CHILDREN (n=344) ^</b>	<b>(n=313)</b>	<b>(n=31)</b>	<b>(n=140)</b>	<b>(n=205)</b>
<b>Sedentary Behaviour Last 30 days: Hours/Day</b>	<b>Mean (SD)</b>	<b>Mean (SD)</b>	<b>Mean (SD)</b>	<b>Mean (SD)</b>
Past 30 days, time sitting and watching TV/videos	2.7 (1.6)*	3.4 (1.7)*	2.5 (1.6)*	2.9 (1.6)*
Past 30 days, use computer, play video games	2.4 (1.8)	3.0 (1.9)	2.3 (1.7)	2.6 (1.9)
Past 30 days, use screen other than computer	2.2 (1.8)*	3.0 (1.6)*	2.0 (1.7)*	2.4 (1.8)*

^Respondents who did not answer question were excluded.  
\*Differences are statistically significant p<0.05

## B5. Parks Use

**TABLE B5.1: Parks Use of Adults and Children**

<b>ADULTS (n=1124)^</b>		
<b>Have you visited a park in the last 30 days?</b>	<b>n</b>	<b>%</b>
Yes	745	<b>68.6</b>
No	341	31.4
<i>Did not answer (n=38)^</i>		
<b>Park Visits – Days and Minutes</b>	<b>n</b>	<b>Mean (SD)</b>
Days visited park in last 30 days	714	8.5 (7.9)
Minutes at park during last visit	720	50.5 (36.3)
Minutes of physical activity during last park visit	707	45.0 (31.4)
<b>Was your last park visit in your neighbourhood?</b>	<b>n</b>	<b>%</b>
Yes	797	<b>75.9</b>
No	231	22.0
Other	22	2.1
<i>Did not answer (n=74)^</i>		
<b>Who were you with on your last park visit?</b>	<b>n</b>	<b>%</b>
Alone	220	19.6
Friend(s)	119	10.6
Family member(s)	715	<b>63.6</b>
Pet(s)	231	20.6
Members of an organized group	4	0.4
<b>CHILDREN (n=345)^</b>		
<b>Child Park Visits – Days and Minutes</b>	<b>n</b>	<b>Mean (SD)</b>
Past 30 days, number of days child visited park	332	4.9 (6.4)
Last park visit, number of minutes child spent at park	261	56.2 (41.8)
<b>When child travels to park, how do they get there?</b>	<b>n</b>	<b>%</b>
Walk	209	<b>62.6</b>
Bike	82	24.6
Driven by car	27	8.1
Public transit	2	0.6
Other	14	4.2
<i>Did not answer/Not applicable (n=11)^</i>		
^Respondents who did not answer question were excluded.		

**TABLE B5.2: Adult and Child Parks Use by Awareness of Vivo and Vivo Programs**

Parks Use	Awareness of Vivo		Awareness of Vivo Programs	
	Aware of Vivo	Not Aware of Vivo	Aware of Vivo Programs	Not Aware of Vivo Programs
<b>ADULTS (n=1116) ^</b>	<b>(n=928)</b>	<b>(n=188)</b>	<b>(n=289)</b>	<b>(n=827)</b>
<b>Have you visited a park in the last 30 days?</b>	<b>n (%)</b>	<b>n (%)</b>	<b>n (%)</b>	<b>n (%)</b>
Yes	628 (69.4)	116 (64.8)	199 (69.6)	454 (68.3)
No	277 (30.6)	63 (35.2)	87 (30.4)	253 (31.7)
<i>Did not answer (n=38)^</i>				
<b>Park Visits – Days and Minutes</b>	<b>Mean (SD)</b>	<b>Mean (SD)</b>	<b>Mean (SD)</b>	<b>Mean (SD)</b>
Days visited park in last 30 days	8.3 (7.7)	9.3 (8.6)	7.6 (6.9)	8.7 (8.2)
Minutes at park during last visit	50.9 (36.5)	48.1 (34.9)	52.2 (36.0)	49.9 (36.4)
Minutes of physical activity during last park visit	45.5 (32.0)	42.5 (28.3)	45.2 (31.3)	44.9 (31.5)
<b>Was your last park visit in your neighbourhood?</b>	<b>n (%)</b>	<b>n (%)</b>	<b>n (%)</b>	<b>n (%)</b>
Yes	665 (76.2)	130 (74.3)	222 (79.0)	574 (74.8)
No	193 (22.1)	38 (21.7)	55 (19.6)	175 (22.8)
Other	15 (1.7)	7 (21.7)	4 (1.4)	18 (2.3)
<i>Did not answer (n=74)^</i>				
<b>Who were you with on your last park visit?</b>	<b>n (%)</b>	<b>n (%)</b>	<b>n (%)</b>	<b>n (%)</b>
Alone	<b>172 (18.5)*</b>	<b>48 (25.5)*</b>	49 (17.0)	170 (20.6)
Friend(s)	94 (10.1)	24 (12.8)	26 (9.0)	93 (11.2)
Family member(s)	<b>620 (66.8)*</b>	<b>93 (49.5)*</b>	<b>218 (75.4)*</b>	<b>497 (60.1)*</b>
Pet(s)	194 (20.9)	36 (19.1)	63 (21.8)	167 (20.2)
Members of an organized group	4 (0.4)	0 (0.0)	0 (0.0)	4 (0.5)
<b>CHILDREN (n=344) ^</b>	<b>(n=313)</b>	<b>(n=31)</b>	<b>(n=140)</b>	<b>(n=205)</b>
<b>Child Park Visits – Days and Minutes</b>	<b>Mean (SD)</b>	<b>Mean (SD)</b>	<b>Mean (SD)</b>	<b>Mean (SD)</b>
Past 30 days, number of days child visited park	5.0 (6.5)	4.4 (5.4)	5.6 (6.6)	4.4 (6.3)
Last park visit, number of minutes child spent at park	57.5 (42.6)	40.0 (25.5)	53.1 (37.4)	58.6 (44.8)
<b>When child travels to park, how do they get there?</b>	<b>n (%)</b>	<b>n (%)</b>	<b>n (%)</b>	<b>n (%)</b>
Walk	189 (62.2)	19 (65.5)	86 (61.9)	123 (63.1)
Bike	76 (25.0)	6 (20.7)	40 (28.8)	42 (21.5)
Driven by car	25 (8.2)	2 (6.9)	8 (5.8)	19 (9.7)
Public transit	2 (0.7)	0 (0.0)	1 (0.7)	1 (0.5)
Other	12 (3.9)	2 (6.9)	4 (2.9)	10 (5.1)
<i>Did not answer/Not applicable (n=11)^</i>				
^Respondents who did not answer question were excluded.				
*Differences are statistically significant p<0.05				



## B6. Recreational Activities

**TABLE B6.1: Recreational Activities during Park Visits of Adults and Children**

<b>ADULTS (n=1124)^</b>		
<b>Recreational activities during last park visit</b>	<b>n</b>	<b>%</b>
Walking/Hiking	894	79.5
Playing with kids	241	21.4
Relaxing	202	18.0
Biking	120	10.7
Jogging/running	119	10.6
Wildlife viewing (e.g., bird watching)	100	8.9
Photographing/viewing nature	91	8.1
Sightseeing	64	5.7
Other	64	5.7
Picnicking	53	4.7
Reading	22	2.0
Group sports	16	1.4
Yoga	10	0.9
Swimming	7	0.6
Rollerblading	6	0.5
Fishing	6	0.5
Tennis	3	0.3
Martial Arts	1	0.1
<b>CHILDREN (n=345)^</b>		
<b>Recreational activities during last park visit</b>	<b>n</b>	<b>%</b>
Walking/Hiking	183	53.0
Biking	111	32.2
Jogging/Running	71	20.6
Relaxing	47	13.6
Other	31	9.0
Wildlife viewing	29	8.4
Group sports	28	8.1
Sightseeing	26	7.5
Picnicking	24	7.0
Viewing/Photographing nature	17	4.9
Individual sports	15	4.3
Rollerblading	10	2.9
Reading	8	2.3
Swimming	6	1.7
Martial Arts	3	0.9
Fishing	2	0.6
Tennis	1	0.3
Yoga	1	0.3
^Respondents who did not answer question were excluded.		

**TABLE B6.2: Adult and Child Recreational Activities by Awareness of Vivo and Vivo Programs**

Recreational Activities at Park	Awareness of Vivo		Awareness of Vivo Programs	
	Aware of Vivo	Not Aware of Vivo	Aware of Vivo Programs	Not Aware of Vivo Programs
<b>ADULTS (n=1116) ^</b>	<b>(n=928)</b>	<b>(n=188)</b>	<b>(n=289)</b>	<b>(n=827)</b>
<b>Recreational activities during last park visit</b>	<b>n (%)</b>	<b>n (%)</b>	<b>n (%)</b>	<b>n (%)</b>
Walking/Hiking	743 (80.1)	149 (79.3)	240 (83.0)	653 (79.0)
Playing with kids	<b>221 (23.8)*</b>	<b>18 (9.6)*</b>	<b>94 (32.5)*</b>	<b>147 (17.8)*</b>
Relaxing	170 (18.3)	32 (17.0)	<b>64 (22.1)*</b>	<b>137 (16.6)*</b>
Biking	<b>107 (11.5)*</b>	<b>12 (6.4)*</b>	38 (13.1)	81 (9.8)
Jogging/running	102 (11.0)	17 (9.0)	37 (12.8)	82 (9.9)
Wildlife viewing (e.g., bird watching)	84 (9.1)	15 (8.0)	29 (10.0)	70 (8.5)
Photographing/viewing nature	78 (8.4)	13 (6.9)	29 (10.0)	62 (7.5)
Sightseeing	51 (5.5)	13 (6.9)	19 (6.6)	45 (5.4)
Other	<b>44 (4.7)*</b>	<b>20 (10.6)*</b>	<b>0 (0.0)*</b>	<b>15 (1.8)*</b>
Picnicking	45 (4.8)	7 (3.7)	<b>20 (6.9)*</b>	<b>33 (4.0)*</b>
Reading	16 (1.7)	6 (3.2)	8 (2.8)	14 (1.7)
Group sports	16 (1.7)	0 (0.0)	4 (1.4)	12 (1.5)
Yoga	7 (0.8)	3 (1.6)	3 (1.0)	7 (0.8)
Swimming	7 (0.8)	0 (0.0)	3 (1.0)	4 (0.5)
Rollerblading	6 (0.6)	0 (0.0)	2 (0.7)	4 (0.5)
Fishing	6 (0.6)	0 (0.0)	1 (0.3)	5 (0.6)
Tennis	3 (0.3)	0 (0.0)	1 (0.3)	2 (0.2)
<b>CHILDREN (n=344) ^</b>	<b>(n=313)</b>	<b>(n=31)</b>	<b>(n=140)</b>	<b>(n=205)</b>
<b>Recreational activities during last park visit</b>	<b>n (%)</b>	<b>n (%)</b>	<b>n (%)</b>	<b>n (%)</b>
Walking/Hiking	171 (54.6)	12 (38.7)	<b>87 (62.1)*</b>	<b>96 (46.8)*</b>
Biking	103 (32.9)	8 (25.8)	45 (32.1)	66 (32.2)
Jogging/Running	67 (21.4)	4 (12.9)	34 (24.3)	37 (18.0)
Relaxing	44 (14.1)	3 (9.7)	24 (17.1)	23 (11.2)
Other	<b>23 (7.3)*</b>	<b>7 (22.6)*</b>	10 (7.1)	21 (10.2)
Wildlife viewing	27 (8.6)	2 (6.5)	<b>17 (12.1)*</b>	<b>12 (5.9)*</b>
Group sports	27 (8.6)	1 (3.2)	8 (5.7)	20 (9.8)
Sightseeing	24 (7.7)	2 (6.5)	13 (9.3)	13 (6.3)
Picnicking	23 (7.3)	1 (3.2)	14 (10.0)	10 (4.9)
Viewing/Photographing nature	16 (5.1)	1 (3.2)	10 (7.1)	7 (3.4)
Individual sports	15 (4.8)	0 (0.0)	8 (5.7)	7 (3.4)
Rollerblading	10 (3.2)	0 (0.0)	3 (2.1)	7 (3.4)
Reading	8 (2.6)	0 (0.0)	<b>0 (0.0)*</b>	<b>8 (3.9)*</b>
Swimming	5 (1.6)	1 (3.2)	2 (1.4)	4 (2.0)
Martial Arts	3 (1.0)	0 (0.0)	2 (1.4)	1 (0.5)
Fishing	2 (0.6)	0 (0.0)	1 (0.7)	1 (0.5)

^Respondents who did not answer question were excluded.

\*Differences are statistically significant p<0.05

## B7. Children's Outdoor Play

**TABLE B7.1: Children's Outdoor Play**

<b>CHILDREN (n=345)^</b>		
<b>How often does child engage in the following (Always/Frequently/Sometimes):</b>	<b>%</b>	<b>n</b>
Plays, walks, or bicycles in neighbourhood alone	<b>55.7</b>	185
Plays, walks, or bicycles in neighbourhood with friends/siblings	<b>75.1</b>	247
Plays, walks, or bicycles in neighbourhood with adult present	<b>87.9</b>	299
Plays in neighbourhood park/playground alone	<b>22.3</b>	71
Plays in neighbourhood park/playground with friends/siblings	<b>64.0</b>	203
Plays in neighbourhood park/playground with adult present	<b>74.1</b>	237
<b>Types of play activities during last park visit</b>	<b>%</b>	<b>n</b>
Playing with friends or siblings	<b>38.6</b>	133
Play (general)	<b>34.8</b>	120
Playing with ball or object	<b>31.3</b>	108
Playing on playground equipment	<b>29.0</b>	100
Climbing	<b>24.9</b>	86
Exploring	24.3	84
Tag and chase games	23.2	80
Make believe games	16.8	58
Playing with pet	12.5	43
Other	10.4	36
Hiding related games	10.1	35
Making new friends	7.8	27

^Respondents who did not answer question were excluded.

**TABLE B7.2: Children’s Outdoor Play by Awareness of Vivo and Vivo Programs**

Children’s Outdoor Play	Awareness of Vivo		Awareness of Vivo Programs	
	Aware of Vivo	Not Aware of Vivo	Aware of Vivo Programs	Not Aware of Vivo Programs
<b>CHILDREN (n=344) ^</b>	<b>(n=313)</b>	<b>(n=31)</b>	<b>(n=140)</b>	<b>(n=205)</b>
<b>How often does child engage in the following (Always/Frequently/Sometimes):</b>	<b>n (%)</b>	<b>n (%)</b>	<b>n (%)</b>	<b>n (%)</b>
Plays, walks, or bicycles in neighbourhood alone	167 (55.3)	17 (58.6)	71 (52.2)	114 (58.2)
Plays, walks, or bicycles in neighbourhood with friends/siblings	229 (76.3)	17 (60.7)	110 (80.3)	137 (71.4)
Plays, walks, or bicycles in neighbourhood with adult present	273 (88.3)	25 (83.3)	<b>129 (92.8)*</b>	<b>170 (84.6)*</b>
Plays in neighbourhood park/playground alone	66 (22.7)	4 (14.8)	28 (21.5)	43 (22.8)
Plays in neighbourhood park/playground with friends/siblings	<b>191 (65.6)*</b>	<b>11 (44.0)*</b>	<b>95 (72.0)*</b>	<b>108 (58.4)*</b>
Plays in neighbourhood park/playground with adult present	220 (74.6)	16 (66.7)	<b>111 (83.5)*</b>	<b>126 (67.4)*</b>
<b>Types of play activities during last park visit</b>	<b>n (%)</b>	<b>n (%)</b>	<b>n (%)</b>	<b>n (%)</b>
Playing with friends or siblings	<b>126 (40.3)*</b>	<b>6 (19.4)*</b>	<b>64 (45.7)*</b>	<b>69 (33.7)*</b>
Play (general)	112 (35.8)	8 (25.8)	54 (38.6)	66 (32.2)
Playing with ball or object	101 (32.3)	6 (19.4)	<b>53 (37.9)*</b>	<b>55 (26.8)*</b>
Playing on playground equipment	93 (29.7)	7 (22.6)	41 (29.3)	59 (28.8)
Climbing	79 (25.2)	7 (22.6)	37 (26.4)	49 (23.9)
Exploring	78 (24.9)	6 (19.4)	<b>42 (30.0)*</b>	<b>42 (20.5)*</b>
Tag and chase games	75 (24.0)	5 (16.1)	32 (22.9)	48 (23.4)
Make believe games	56 (17.9)	2 (6.5)	21 (15.0)	37 (18.0)
Playing with pet	39 (12.5)	4 (12.9)	21 (15.0)	22 (10.7)
Other	31 (9.9)	5 (16.1)	11 (7.9)	25 (12.2)
Hiding related games	31 (9.9)	4 (12.9)	14 (10.0)	21 (10.2)
Making new friends	26 (8.3)	1 (3.2)	9 (6.4)	18 (8.8)
^Respondents who did not answer question were excluded.				
*Differences are statistically significant p<0.05				

## B8. Social Connections

**TABLE B8.1: Neighbourhood Social Connections and Perceptions**

ADULTS (n=1124) <sup>^</sup>		
<b>Social Connections in Neighbourhood</b>	<b>Mean (SD)</b>	<b>n</b>
Number of close friends in neighbourhood	1.3 (2.2)	1066
Number of neighbours know first name	5.4 (4.9)	1060
Number of neighbours invited to family events	1.3 (2.7)	1043
<b>How do you feel about your neighbourhood?</b>	<b>%</b>	<b>n</b>
Delighted/Pleased/Mostly Satisfied	<b>82.8</b>	884
Mixed Feelings	14.2	152
Mostly Dissatisfied/Unhappy/Terrible	3.0	32
<i>Did not answer (n=56)<sup>^</sup></i>		
<b>Perceptions of Neighbourhood (Agree/Strongly Agree)<sup>^</sup></b>	<b>%</b>	<b>n</b>
People in this neighbourhood are willing to help their neighbours	70.1	749
This is a close-knit neighbourhood	31.9	340
People in this neighbourhood can be trusted	61.9	661
People in this neighbourhood get along	<b>77.7</b>	828
People in this neighbourhood share same values	36.5	388

<sup>^</sup>Respondents who did not answer question were excluded.

**TABLE B8.2: Neighbourhood Social Connections and Perceptions by Awareness of Vivo and Vivo Programs**

Neighbourhood Connections and Perceptions (n=1116)	Awareness of Vivo		Awareness of Vivo Programs	
	Aware of Vivo (n=928)	Not Aware of Vivo (n=188)	Aware of Vivo Programs (n=289)	Not Aware of Vivo Programs (n=827)
<b>Social Connections in Neighbourhood</b>	<b>Mean (SD)</b>	<b>Mean (SD)</b>	<b>Mean (SD)</b>	<b>Mean (SD)</b>
Number of close friends in neighbourhood	<b>1.4 (2.2)*</b>	<b>0.9 (0.1)*</b>	<b>1.6 (0.1)*</b>	<b>1.2 (0.1)*</b>
Number of neighbours know first name	5.5 (0.2)	5.0 (0.4)	<b>6.3 (0.3)*</b>	<b>5.2 (0.2)*</b>
Number of neighbours invited to family events	1.3 (0.1)	1.3 (0.2)	1.6 (0.2)	1.2 (0.1)
<b>How do you feel about your neighbourhood?</b>	<b>n (%)</b>	<b>n (%)</b>	<b>n (%)</b>	<b>n (%)</b>
Delighted/Pleased/Mostly Satisfied	746 (83.6)	136 (78.2)	241 (84.9)	642 (82.1)
Mixed Feelings	119 (13.3)	33 (19.0)	36 (12.7)	115 (14.7)
Mostly Dissatisfied/Unhappy/Terrible	27 (3.0)	5 (2.9)	7 (2.5)	25 (3.2)
<i>Did not answer (n=50)<sup>^</sup></i>				
<b>Perceptions of Neighbourhood (Agree/Strongly Agree)</b>	<b>n (%)</b>	<b>n (%)</b>	<b>n (%)</b>	<b>n (%)</b>
People in this neighbourhood are willing to help neighbours	627 (70.3)	120 (69.0)	201 (70.8)	547 (69.9)
This is a close-knit neighbourhood	282 (31.6)	57 (32.8)	101 (35.7)	239 (30.6)
People in this neighbourhood can be trusted	562 (63.1)	97 (55.7)	186 (65.7)	475 (60.7)
People in this neighbourhood get along	700 (78.7)	126 (72.4)	230 (81.6)	597 (76.3)
People in this neighbourhood share same values	333 (37.5)	55 (31.6)	104 (36.7)	284 (36.5)

\*Differences are statistically significant  $p < 0.05$  ^Respondents who did not answer question were excluded.