Engaging Community Providers to Create More Active After-School Environments: Results From the Ontario CATCH Kids Club Implementation Project

Erin K. Sharpe, Scott Forrester, and James Mandigo

Background: This paper evaluates the impact of a large-scale, community agency-driven initiative to increase physical activity (PA) in after-school programs in Ontario. In 2008, the YMCA and Boys and Girls Club (BGC) introduced CATCH Kids Club (CKC) into 330 after-school program sites. Methods: This study assessed the impact of the intervention on the quality and quantity of PA using a pretest/posttest quasi-experimental research design with a comparison non-CKC group. Data were collected at baseline (September 2008) and postintervention (May/June 2009) using the System for Observing Fitness Instruction Time (SOFIT). Results: Nearly all sites, with the exception of the BGC baseline program (a sports program) achieved greater than 50% of time spent in MVPA. Significant differences were not found between levels of MVPA at CKC and comparison sites (59.3% vs. 64.2%), or at CKC sites at baseline versus postintervention (59.3% vs. 52.1%). BGC sites had significantly higher levels MVPA in CKC programs than in sports programs (70.8% vs. 35.2%). In postimplementation interviews, leaders reported general support but some mixed reactions related to how the program was received by participants. Conclusions: This paper offers support for PA programs that focus on inclusivity and enjoyment and emphasize the important role of staff competency.

Keywords: physical activity, physical literacy, enjoyment, SOFIT

Interest in the after-school environment as a setting for promoting health and physical activity has been growing for a number of reasons, including a greater recognition of the after-school time period of 3 to 6 PM as a high-risk time for children and youth, the difficulties surrounding implementing health and PA interventions in schools, and the increase in number of children enrolled in after-school programming. Further, because after-school programs typically have multiple program components including homework, snack, and physical activity time, it becomes possible to introduce a multidimensional health intervention that impacts both sides of the energy balance.

As a result, in 2008 in Ontario (Canada), the Ministry of Health Promotion instituted the After-School Strategy, an initiative focused on supporting after-school programming in targeted priority areas across the province for children aged 6 to 12. Funding was distributed to community agencies to develop new or enhanced after-school services focused on physical activity, healthy eating and nutrition, as well as wellness and personal health education. Two of the agencies who were supported in this initiative were the YMCA Ontario and Boys and Girls Club of Ontario. To achieve the strategy aims, the agencies implemented the CATCH Kids Club (CKC) in 330 after-school sites across the province, reaching approximately 8000 children.

CATCH Kids Club is a physical activity and nutrition education program designed for elementary school-aged children (grades K–5) in the after-school environment. The CKC program is based on CATCH (Coordinated Approach to Child Health), a well-researched school-based program that promotes health through a variety of pathways including enhanced physical education, nutrition education, and school food services. Implementation of CATCH within schools has found to be effective at increasing moderate to vigorous physical activity (MVPA) in school PE classes, and reducing fat content in school food services. For more information on CATCH, visit www.catchinfo.org.

The CATCH Kids Club program follows a similar comprehensive model of physical activity, nutrition education and food services, though modified to suit the after-school environment. Nutrition education lessons are shortened, and food service principles applied to a snack component rather than food services. For the PA component, the CKC maintains the CATCH goals of reaching 40% MVPA for a minimum of 30 minutes, and providing students with opportunities to participate and practice skills in a variety of enjoyable physical activities. The CKC PA component consists of following a format that...
includes a warm-up, fitness time, game play, and a cool down. Game play focuses primarily on low-organization, inclusive games such as variations of tag or ball games. Along with an ‘activity box’ (a resource of instructions for leading over 100 activities), CKC sites are equipped with the materials (eg, balls, pylons, scarves) needed to lead the PA program.

The implementation of a health and physical activity-focused initiative at such a broad scale offers some unique opportunities for examining the potential role of after-school programs on promoting health and physical activity. Currently, the literature on after-school health promotion initiatives is sparse, and focuses primarily on small-scale initiatives implemented in highly controlled, researcher-driven settings. In reality, after-school environments are highly variable. After-school agencies have different programmatic aims and offer programs at varying levels of quality. Further, participation of children in after-school programs is highly variable, perhaps ranging from a few hours per week to 3 hours per day. Evaluation of the Ontario CKC initiative helps to develop our understanding of the ‘real world’ outcomes of a large-scale, community agency-led initiative to promote physical activity and health. Further, because the Ontario CKC initiative was implemented by agencies with different program models and mandates, evaluation allows for some comparison of program models in the after-school environment.

This paper reports on the impact of the Ontario CKC implementation project after its first year of implementation. Specifically, this study asked

1. What was the impact of the CATCH Kids Club program on the quantity of physical activity delivered in the YMCA and BGC after-school programs?
2. What was the impact of CKC on the quality of physical activity observed at the YMCA and BGC after-school programs?
3. How effective was the process of implementing CKC for program leaders?

**CATCH Kids Club Implementation**

CATCH Kids Club was introduced into the programming of the community agencies through a phased implementation process, with 76 sites adopting CKC in April 2008, 106 sites in September 2008, and 148 sites in December 2008. Of these 330 sites, 280 were YMCA and 50 were BGC programs. Due to the large number of sites and program staff involved with the program, the agencies adopted a “train the trainers” approach, with the YMCA acting as the lead training and coordination agency. Within each of the 13 YMCA Ontario regions, an individual was selected to serve as the program coordinator and “CATCH champion” for that region. The CKC champions attended a 24-hour CKC Academy training workshop. On-site program leaders were trained in 1 7-hour training session that focused on introducing staff to the goals of CKC (50% MVPA for 30 minutes, variety, skill development, fun) as well as how to implement the CKC model into the after-school setting. In training, leaders practiced different approaches to instructing these components, in particular the games.

The CATCH Kids Club was integrated into the programming of the 2 agencies differently. At the YMCA, the majority of the sites in which CKC was introduced were in schools. Parents generally used these programs a form of after-school child care, and registered their children to attend on certain dates over the course of the school year. At these sites, participants followed a fixed program structure that included a snack, craft activity, compulsory PA time, and free play. The CKC program model was introduced to replace the current structure for the PA component. In the previous PA structure, leaders were required to plan and lead a minimum 30-minute PA program that followed the organizational goals of inclusion and healthy development. The structure and activities that were followed for the program were at the discretion of the leader, however typically leaders planned a series of cooperative games and included some free play time. Program leaders were required to deliver the CKC program a minimum of 3 days per week.

The BGC sites, which tended to be located in larger, out of school recreational centers, followed a program structure more akin to a ‘drop in style’ recreation program. The after-school program included snack, group activity, and homework time. Part of the program time was also dedicated to participation in activity options such as sports, arts, or computers. Children were required to register for their chosen activity, and activities ran on a 13-week cycle. The CATCH Kids Club was introduced into the BGC setting as an additional activity option for participants; thus those who were interested in participating in it would register.

**Methods**

**Research Design and Site Selection**

Similar to previous studies on CATCH and CKC, this study used a baseline/posttest quasi-experimental comparative research design. Of the 330 after-school programs involved in the CATCH Kids Club implementation project, data were collected at 40 sites [22 YMCA and 6 BGC CKC sites, 12 YMCA comparison (non-CKC) sites] at baseline (Sept. 2008) and postintervention (May/June 2009). The study obtained ethics clearance from the Brock University Ethics Review Board in May 2008. Sites were selected in consultation with the 2 community agencies, and attempts were made to capture a proportionally representative sample of the agency sites in terms of time of implementation, program location (eg, school-based or recreation center) and community context (eg, rural vs. suburban vs. urban). However, as a community agency-driven initiative, researcher control over program site and participant selection was limited. The low number
of BGC sites, for example, reflected the agency’s reluctance to participate extensively in the evaluation. Further, matching of CKC and comparison sites was not possible as participant numbers and characteristics were dictated by agency rather than researcher priorities. The participant information and consent process was completed with the assistance of the program leaders at the sites.

Measures

The quantity and quality of physical activity was measured using SOFIT (System for Observing Fitness Instruction Time). SOFIT uses direct observations to obtain a measure of participants’ physical activity levels and lesson context. Levels of physical activity were categorized based on a 6-point scale (lying, sitting, standing, light walking, brisk walking, vigorous activity). Lesson context categories included: general content (organization), knowledge content (instruction), group behavioral management, fitness, skill practice, game play, and free play. Activity and context were measured as percentages of total physical activity time.

Observers were trained in the SOFIT procedure and followed a standard protocol across all sites. Observations of physical activity were collected at each site, before implementation of CATCH Kids Club, and again at postintervention. Three program types were observed: a YMCA CKC group, a YMCA comparison (non-CKC) group, and a BGC group. At baseline no sites had implemented CKC, therefore what was observed were 2 groups YMCA programs that were delivering the standard YMCA PA program and the closest comparison at the BGC sites, which was the sports program option. At postintervention, what was observed were a group of YMCA CKC programs, YMCA comparison programs, and BGC CKC programs.

At baseline, SOFIT observations sampled 247 children, for a total of 3007 observations. At postintervention, 108 children were sampled, for a total of 2652 SOFIT observations. Average SOFIT observer reliabilities were 90.6% agreement for PA levels and 95.3% agreement for lesson context at baseline, and 91.2% agreement for PA levels and 98.4% agreement for lesson context at postintervention. Average length of time for the PA components across the sites was 45 minutes at CKC sites and 43 minutes at YMCA comparison sites.

Data on the process of implementation were collected through structured interviews (20–30 minutes) with 18 program leaders, conducted at postintervention. Questions focused on the implementation process of the CATCH Kids Club, perceptions of how the program was received by the participants, and recommendations for program modifications.

Data Analysis

Data are presented as descriptive statistics with proportions for both participant physical activity levels and lesson context categories. Total MVPA was calculated by summing the proportion of observed instances of students in light and brisk walking and vigorous activity. Differences between proportions of time spent in various physical activity levels and lesson context categories were analyzed using the chi-square statistic for nonparametric data. This analysis was selected due to the categorical nature of the dependent variables and to remain consistent with other research reporting the results of SOFIT data. Qualitative data were coded and thematic categories were established for each of the guiding questions of program strengths and implementation challenges. In the qualitative analysis, data from YMCA and BGC leaders were analyzed together however data included in the report is tagged with the organizational affiliation of the speaker.

Results

PA Quantity: Levels of Physical Activity Across All Sites

Table 1 reports the results of the observations of physical activity time across all study sites. Particularly noteworthy is that across almost all program types, levels of time spent in MVPA exceeded the 50% target set for the project. Beyond this, differences in levels of PA between program types were minimal. At YMCA sites, programs that introduced the CATCH Kids Club showed only a minimal increase in MVPA (7.2%) from baseline to postintervention. Further, at postintervention, CKC sites showed no significant increase in the amount of time spent in MVPA when compared with YMCA comparison sites—in fact, the time spent in MVPA was higher at YMCA comparison sites (64.2% versus 59.3%).

At the YMCA CKC sites, results of the chi-square test indicated a significant association between physical activity levels and time of observation ($\chi^2 = 76.12, P < .001$, Cramer’s V = .145). Examination of the standardized residuals revealed that there was significantly less lying, sitting, standing, and significantly more light and brisk walking at postintervention than at baseline. The chi-square test also indicated a significant association between program type (CKC or comparison) and physical activity levels at postintervention ($\chi^2 = 21.25, P < .01$, Cramer’s V = .09), however not in the expected direction. YMCA CKC sites had significantly more sitting and significantly less brisk walking than YMCA comparison sites.

At BGC sites, observations allow for a comparison between PA levels in the CKC program option and the sports program option. Here, substantial differences can be seen. More than double the proportion of time (70.8%) was spent in MVPA in the CKC program than in the sports program (35.2%). The chi-square test also indicated a significant association between program type and physical activity levels ($\chi^2 = 156.97, P < .001$, Cramer’s V = .392). Examination of the standardized residuals revealed that there was significantly less lying, sitting and standing, and significantly more light and brisk walking and vigorous activity in the CKC program than in the sports program.
Table 1 Quantity and Quality of Physical Activity Time at YMCA and BGC CKC Sites and Control Sites

<table>
<thead>
<tr>
<th></th>
<th>YMCA CKC sites (n = 22)</th>
<th>YMCA control sites (n = 12)</th>
<th>BGC sites (n = 6)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Baseline</td>
<td>Post</td>
<td>Baseline</td>
</tr>
<tr>
<td>Participant physical activity levels</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lying</td>
<td>1.4</td>
<td>1.4</td>
<td>2.2</td>
</tr>
<tr>
<td>Sitting</td>
<td>14.6</td>
<td>11.6</td>
<td>15.7</td>
</tr>
<tr>
<td>Standing</td>
<td>31.9</td>
<td>27.6</td>
<td>28.0</td>
</tr>
<tr>
<td>Light walking</td>
<td>31.9</td>
<td>35.2</td>
<td>32.1</td>
</tr>
<tr>
<td>Brisk walking</td>
<td>12.9</td>
<td>17.1</td>
<td>16.0</td>
</tr>
<tr>
<td>Vigorous activity</td>
<td>7.3</td>
<td>7.0</td>
<td>5.9</td>
</tr>
<tr>
<td>Total MVPA</td>
<td>52.1</td>
<td>59.3</td>
<td>54.0</td>
</tr>
<tr>
<td>Lesson context categories</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General content</td>
<td>20.5</td>
<td>15.7</td>
<td>5.1</td>
</tr>
<tr>
<td>Knowledge content</td>
<td>8.0</td>
<td>6.6</td>
<td>2.3</td>
</tr>
<tr>
<td>Behavior management</td>
<td>1.8</td>
<td>0.6</td>
<td>2.5</td>
</tr>
<tr>
<td>Fitness</td>
<td>5.6</td>
<td>2.2</td>
<td>0.0</td>
</tr>
<tr>
<td>Skill practice</td>
<td>1.1</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Game play</td>
<td>36.2</td>
<td>58.0</td>
<td>16.4</td>
</tr>
<tr>
<td>Free play</td>
<td>26.8</td>
<td>17.0</td>
<td>73.7</td>
</tr>
</tbody>
</table>

PA Quality: Lesson Context

Table 1 also provides a profile of the lesson context or the quality of the physical activity time across the study sites. For the YMCA sites that implemented the CKC program, results of the chi-square test indicated a significant association between timing of program (baseline vs. postintervention) and lesson context ($\chi^2 = 195.81, P < .001, \text{Cramer's V} = .234$) as well as between program type (CKC vs. non-CKC) and lesson context ($\chi^2 = 405.20, P < .001, \text{Cramer's V} = .394$). CKC sites reported significantly less free play and significantly more game play at postintervention than at baseline, and also when compared with non-CKC sites at postintervention. These are associations in the expected direction as the CKC model emphasizes organized game play over free play. However, observations also indicated that while leaders at CKC sites spent less time organizing (general content) and giving instructions (knowledge content) at postintervention than at baseline, they spent significantly more time organizing and instructing (16.3%) than leaders at comparison sites. These associations are not in the desired direction, as time spent in organization and instruction is generally viewed as time taken away from MVPA.

At BGC sites, results of the chi-square test indicated a significant association between type of program (sports versus CKC) and lesson context categories ($\chi^2 = 74.44, P < .001, \text{Cramer's V} = .270$). The largest change in lesson context was observed in the fitness category, whereby the CKC program option spent almost 10% more time involved in fitness activities compared with the sports program option. Time spent in instruction was also 7.4% lower in the CKC program option. Game play was high (average 59.6%) and free play was extremely low (average 1%) at all BGC sites. Across all sites in the study, time spent in skill practice was almost nonexistent.

Also recorded at the sites were the specific CKC activities that were used during the PA time. Overall, a total of 100 different CKC activities were observed at the CKC sites. However, of those activities, only 7 different activities were observed being played more than 1 time. Three activities (dragon tails, octopus, and variations of tag) accounted for 40% of activities observed at the CKC sites. This suggests that while the program materials contain hundreds of activities, only a very small number of these activities were played on a regular basis.

Implementing the CATCH Kids Club Program: Leader Perspectives

In postintervention interviews, leaders were generally positive regarding the addition of the CKC to their program however they had some suggestions for how to improve implementation. For leaders, the main strength of the CKC program was that it expanded their activity repertoire and ability to adapt games to increase PA. As one leader described, “we introduced CATCH by adjusting games that they were already interested in, such as doing jumping jacks in dragon tails when your tail is stolen, and then adding new games from the CATCH program.” Leaders also appreciated that the CKC games were inclusive rather than competitive, and the fact that...
all kids were able to play supported the underlying values of their youth-oriented programs. One BGC leader noted, “before CATCH we would just end with octopus or play sports until they would leave. And at the end, we would say who the winning team of the day was. However, with CATCH everyone has equipment and everyone gets a fair chance to play.”

While leaders appreciated the new resources, they reported that participants had “mixed reactions” to the CKC program, particularly within the YMCA sites where the CKC program replaced the previous PA program model. Some leaders noted that after a transition period, their participants grew to like the program: “They disliked the physical activity part at first, however they have slowly adapted. They now play CATCH games outside and use the equipment from CATCH even when it’s not CATCH time.”

Leaders also found that the program was met with resistance because of the requirement of mandatory participation in adult-led activities. As one leader described, “we are child initiated and teacher directed [and] the children were not given an option on participating in CATCH. It was mandatory, which many of the children did not like.” To balance the requirements of their agency with the wishes of their participants for child-directed play time, many leaders alternated “CKC days” with free-play days, or broke the CKC program down into its components and rotated them through the program on different days. In contrast, attitudes toward the CKC program were overall more positive at the BGC sites, where CKC was introduced as “one more option” available for the participants to choose.

Comments from program leaders also suggested that confidence and training in PA instruction played a factor in the success of the program. As one leader stated, “I don’t really like the physical section of CATCH, because personally I don’t believe I have gotten enough training on it. There are so many activities and games to choose from, but in order to actually get to do the activity or game, it takes us a lot of time trying to figure out how to play it.” Similarly, the development of activities that could be played in the winter and in small spaces was noted, as leaders reported that their sites did not have access to large indoor spaces like gymnasiums.

Conclusions

As a large-scale study of after-school programs in 2 community agencies, these findings offer greater insight on the potential role of after-school programs in promoting physical activity. First, they support the contention that after-school programs make a substantial contribution to the daily physical activity of children. Across the sites observed, the after-school programs provided an average of 25 minutes of time spent in MVPA, nearly one-half of the daily recommendation. This amount is comparable what has been reported in other studies of after-school programs, however at these sites the 25 minutes was achieved in a shorter time period. Further, the time spent in MVPA is substantially higher than what has recently been reported about the PA of the general population of children during the after-school (3–6 PM) time period, in which the average number of minutes spent in MVPA was 10.4.

The finding that so many of the after-school programs observed in this study exceeded the 40% MVPA target is also impressive. This percentage is substantially higher than the 30% range that is commonly reported in observations of PE classes and slightly higher than MVPA rates recorded in youth sports programs. The high percentage may be that the after-school programs in this study, when compared with PE classes or sport programs, are more strongly focused on play, inclusivity and enjoyment rather than skill development or competition, thus games and activities allow for more children to be actively involved for longer periods of time. Further, as was seen at the BGC sites, a play and games-focused PA program may appeal to a different cohort of children than those who are interested in sports, and thus serve as an alternative pathway to PA.

Further, the 50% MVPA is also higher than reports of MVPA in free play oriented settings such as recess time, a finding which suggests that adult leaders do play an important role in increasing the time children spend in MVPA. However, adult involvement is only effective when leaders have the relevant competencies. Consider the findings of a recent study of PA in after school settings, which found that children spent significantly more time in MVPA during free play sessions (69%) than during organized adult-led physical activity sessions (51%). There was also significantly more discouragement of physical activity during organized adult-led sessions (29%) as compared with free play sessions (6%). Issues related to staffing (ie, training, turnover) have been identified in other studies of after-school programs. The findings of this study also suggest that staff comfort and competence was a factor in the success of the CKC program. Even with a small sample, this study found a substantial variance among leaders in terms of their desire to take on the role of champion for promoting healthy and active living as well as buy-in to the CKC program model.

The high levels of PA and the lack of significant difference between the YMCA CKC sites and comparison sites suggests that without the intervention, the agency was already effectively promoting physical activity. In comparison with interventions that introduce a new PA component to the after-school setting, the YMCA already had mandated a PA component and required (and resourced) leaders to plan and deliver a PA program that met organizational goals of healthy child development. Further, the focus on enjoyment and inclusivity in the CKC program is similar to the organizational values and programmatic approach that was currently followed in the YMCA programs.
Over such a background, the effect of introducing a new PA program is likely outweighed by other key factors such as staff competence and attitude toward instructing physical activity. Instructors at the comparison sites, for example, may have received formalized training in other relevant areas (eg, Early Childhood Education, physical education, kinesiology, recreation studies, community health). As a result, they may have been already offering quality programs that promote child health. Or, perhaps the 7-hour CKC training was not effective at promoting the general principles behind the CKC program, and instead focused too heavily on the structure of the CKC PA program. Interviews with leaders suggest that while some leaders recognized that CKC was a set of general principles that could be adapted and integrated into the current practices, others viewed it as a rigid programmatic structure.

Overall, the findings of this study show that interventions implemented on a large scale and led by ‘real world’ agencies can be highly effective at achieving high targets. The findings also show the impact of mandated, well-planned, and well resourced PA. However, instead of providing support for a specific after-school PA intervention, these findings offer support for any PA program that focuses on inclusivity and enjoyment and is delivered by competent leaders. Recommendations to further promote PA in after-school settings are to advocate for mandated PA, and support initiatives through staff training on pedagogical strategies for how to use differentiated instruction, to help leaders better modify the program components to fit the development abilities, needs, and interests to the participants.

Acknowledgments

Research funding support was provided by the Ontario Ministry of Health Promotion and the Public Health Agency of Canada.

References