

**Proposal for a Research and Demonstration Project to  
Develop an Initiative that will Maximize Children's Physical Activity in the  
Ethno-racially and Socio-economically Diverse Population of Toronto**

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## **I Background**

The Physical Activity Working Group of the Toronto Cancer Prevention Coalition was formed in September 1999. The Working Group is comprised of representatives from 10 key organizations in Toronto (Appendix A). In 1999 their mandate was to review the recommendations of the Report of the Ontario Task Force on the Primary Prevention of Cancer (1995) in the area of physical activity, recommend ways to obtain a commitment to action and develop proposals for inter-governmental and community partnerships through which specific projects can be planned and implemented.

The 1995 task force recommendations were intended to increase physical activity and active living across Ontario's population, with emphasis on mandatory daily physical activity for children from the primary through secondary grades. Working Group members reviewed and reconsidered these recommendations and concluded that efforts in primary prevention should begin in the early childhood years. Hence they decided to focus their efforts on exploring the position that:

The design and implementation of action strategies which support the development of young children into physically active adolescents and adults be established as the priority for cancer prevention efforts in relation to physical activity.

The Working Group began with a review of the literature during the Winter of 1999/2000 to identify physical activity interventions which have worked to increase children's physical activity, and documented the key factors contributing to program effectiveness. In the spring of 2000, they conducted a community needs assessment to determine the extent of the problem of physical inactivity among children in the ethno-racially diverse City of Toronto, as well as, perceptions of ways the problem should be addressed. In the summer of 2000, they hired a consulting company (Smaller World Communications) to provide support in conceptualizing an initiative that would incorporate the most effective methods of increasing children's physical activity, being sensitive to cultural diversity and realistic enough that it could be implemented by school communities across Toronto.

The initiative was initially conceptualized based on the literature review and community needs assessment. The draft initiative was reviewed through community consultations with both Toronto school boards, community organizations and parents of six different cultural groups. Results of the community consultations were used to revise the conceptualization of the initiative and develop a research component for the project.

## II Specific Aims of the Initiative

National studies have found that 60% of Canadian children do not meet average fitness standards and childhood obesity has doubled since 1980 (Ontario Physical and Health Education Association). Lack of physical activity undermines children's lifelong health, because it increases children's risk of developing cancer, heart disease, diabetes and osteoporosis in adulthood. The Canadian Council on Social Development reports that two-thirds of Canadian children and youth are not physically active enough for optimal growth and development (Ross and Roberts, 1999).

Children are growing up in a 'culture of inactivity' in which close to 65% of adult Ontarians are inactive; and television, computers, cars, busy schedules, safety concerns and sedentary parental/adult modeling discourage children from being active (Hansen, 1998). This "culture of inactivity" will likely become more entrenched with the growth of information technology and automation. The aim of this project is to counter-act the trend of inactivity to a "culture of activity" and develop an intervention that will maximize children's (3-8 years) physical activity in the ethno-racially and socio-economically diverse population of Toronto.

The City of Toronto, has approximately 363,330 children (under 12 years) and approximately 37% of these children live in low-income families (income for a family of four is below \$32,759) (Toronto Children's Services, 1999). In addition, the City of Toronto is comprised of many different cultural groups speaking over 35 different languages (Toronto Children's Services, 1999). The ethno-racial diversity presents unique challenges to the creation of opportunities for children's physical activity; activities and resources appropriate for one culture may not be for another; and barriers faced by one community may not be faced by another. The intervention also aims to ensure access and equity for all children to be physically active. A key component of the intervention is to identify activities and resources that are appropriate for the ethno-racial and social-economic diversity of the City of Toronto, and to identify and reduce or eliminate barriers to physical activity.

### Rationale for Target Group

The focus on young children (3-8 years) was selected because of the importance of establishing "active" behaviour patterns early in life. Research findings of the Minnesota Heart Health Project (Kelder, Perry, Klepp and Lytle, 1994) and The Effects of Daily Primary School Physical Education on Physical Activity during Adult Life (Trudeau, Laurencelle, Tremblay, Rajic and Shephard, 1999) supports the need for early childhood intervention. This is also in keeping with the philosophies of other programs geared to children's health (Canada's Action Program for Children (CAPC) and Ontario's Better Beginnings/Better Futures Initiatives). Focusing on young children will increase the likelihood of continued participation in physical activity into adolescence.

Although the focus of the project is on young children (3-8 years), it is recognized that children's growth and development is highly influenced by parent/family attitudes and behaviours on physical activity, and by the attitudes of their community at large. Thus, the initiative

incorporates programs and activities geared towards the entire family (children, parents, grandparents, and caregivers) through community mobilization and engagement.

A literature review identified school-based initiatives that have been effective at increasing physical activity among children, however, the current climate of the educational system in Toronto and the need to provide opportunities to be active close to children's homes requires a community approach with strong interagency collaboration. The Ontario Active Schools Initiative is an intervention model that supports inter-sectoral collaboration and community-based planning, in addition to maximizing young children's skills, confidence and habits to sustain physical activity throughout the life cycle. The Ontario Active Schools Initiative has been considered in the conceptualization of the intervention for the research and demonstration project.

### **III Objectives of the Research and Demonstration Project**

The primary objective of the research and demonstration project is to extensively monitor and evaluate the implementation of an intervention to maximize physical activity in children ages 3-8 in ethno-racially and socio-economically diverse communities. Evaluation results will identify barriers and facilitators for Toronto communities to increase children's participation in physical activity.

Secondly, in the first year the project will assess the feasibility of measuring the impact of the intervention on the children and the learning environment. In the second and third year formal outcome evaluation will begin.

Thirdly, the research and demonstration project will assess the sustainability of the intervention by continually monitoring the communities and the resources required to keep children participating in physical activity into the fourth and fifth year.

## IV Preliminary Work Conducted

### a. *Background Literature*

#### **Statement of the Problem**

Physical inactivity has been identified as a risk factor for chronic diseases including cancer and cardiovascular disease (Kohl, LaPorte, and Blair, 1988). The U.S. Surgeon General's report on Physical Activity and Health suggests that the children, in addition to adults, accrue health benefits from physical activity (U.S. Department of Health and Human Services, 1996). Recent studies have also suggested that patterns of physical activity in childhood may persist into adulthood (Dennison, Straus, Mellitis and Charney, 1998; Trudeau et al., 1999). Furthermore, there is evidence that the physical activity levels of parents have a positive influence on the activity of young children (Moore, Lombardi, White, Campbell, Oliveria and Ellison, 1991). Thus, establishing an active lifestyle during childhood may contribute to the continued participation in physical activity into adolescence and adulthood. In addition, involving parents in an initiative to establish increased physical activity in children may increase the benefits for children.

In Canada, it is estimated that two-thirds of children and youth aged 5-17 are not physically active enough for their future health and well-being (Canadian Fitness and Research Institute, 1997). This low estimate of physical activity levels in Canada is of great concern. Thus, developing an intervention that promotes physical activity in children, and hence encourages an active lifestyle for them and their families is desirable.

There are many factors that create barriers or facilitators to participation in physical activity in children and parents. Facilitators to participation in physical activity identified in the 1997 *Physical Activity Monitor* survey of Canadians include providing a supportive infrastructure and supportive services for physical activity. Facilitators identified by respondents were access to safe streets and public places, affordable facilities, services and programs, paths trails and green spaces, convenient transport, and instruction and coaching. In this survey, two thirds of respondents reported that information and advice about physical activity is an important support to promote physical activity (Canadian Fitness and Research Institute, 1997). Thus, mobilizing the community to show families how to incorporate physical activity into daily activities, how to choose appropriate activities and where to find information about the provision of support services would be helpful in facilitating the increase in physical activity participation.

Facilitators that specifically help children to be physically active identified in the 1997 *Physical Activity Monitor* survey of Canadians are similar to those that help increase participation in physical activity in general. Access to safe streets and other public places were reported as being very important to the majority of parents, followed by access to school-based physical activity and sports facilities, services and programs. Access to outdoor spaces where children can be active and access to paths, trails and green spaces and having someone to take the children to and from activities were also viewed as very important by many parents. Other facilitators identified include the availability of teams, groups or other children with whom their child could participate in physical activity, affordable coaching, instruction and classes, access to facilities,

services and programs outside school and convenient public transportation. Thus, the environment of children, provision of facilities, opportunities, services, programs and instruction can facilitate increased physical activity in children.

### **Physical Activity Interventions**

Two methods were used to determine the intervention studies reviewed. Computerized searches of medical and social science databases were conducted including MEDLINE, Cumulative Index to Nursing and Allied Health Literature (CINAHL), Social Science and Citation Index and Educational Resource Information Centre (ERIC). As well, reference lists in each article identified above were evaluated for relevant studies.

Intervention studies published between 1986 and 1999 using the following inclusion criteria:

- a measure of physical activity,
- a quantitative assessment of physical activity,
- an experimental design or quasi-experimental design with an appropriate comparison or control group,
- participants who were 3 to 8 years of age;
- participants in longitudinal studies who were children or adolescents and
- population based studies (were undertaken in schools and other community settings)

Using this criteria, eight intervention studies were reviewed. All interventions were conducted primarily in a school setting. The intervention components, methods of measurements, and results are described in the next section.

### ***Components***

The literature examining interventions that promote physical activity at an early age (3-8 years) are generally multicomponent programs that incorporate physical activity, health education, diet, smoking prevention and family components (e.g., Donnelley, Jacobsen, Whatley, Hill, Swift and colleagues 1996; Harrell, McMurray, Gansky, Bangdiwala and Bradley, 1999; Simons-Morton, Parcel, Baranowski, Forthofer, and O-Hara 1991). The physical activity components of the interventions varied by study (e.g., Parcel, Simons-Morton, O-Hara, Baranowski and Wilson, 1989; Nader, Stone, Lytle, Perry, Osganian, and colleagues, 1999), but interventions primarily involved increased physical activity instruction and programs given to children at school. For example, in one intervention, an adaptation of Sports, Play and Active Recreation for Kids (SPARKS) was used. SPARKS is a physical activity program that aims to increase physical activity for both motor skill development and fitness. Lessons consist of three 30-minute physical education sessions per week during school time and exercise breaks during classroom time (Parcel et al., 1989). In another intervention, a unit of American Indian games traditional for each of the Pathways nations was included to increase physical activity and fitness (Caballero, Davis, Davis, Ethelbah, Evans and colleagues, 1998; Going, Levin, Harrell, Stewart, Kushi, and colleagues, 1999). In another program, physical education enhancement occurred throughout the three years of the program, aimed to increase the amount of enjoyable moderate to vigorous physical activity during physical education classes at school to 40% of the classes (Nader et al., 1999; Edmundson, Parcel, Feldman, Elder, Perry and colleagues, 1996).

Interventions incorporated active community involvement by including not only children, but also teachers, parents and the community at large in education and organization of community activities (e.g., Macaulay, Paradis, Potvin, Cross, Saad-Haddad and colleagues, 1997). One intervention incorporated community activities such as the planning and creation of a recreation path, organization and implementation of a mile run, walk and run club, line dancing courses, community logo contests, and media promotion of physical activity (Macaulay et al., 1997).

Families have also been part of some interventions to encourage family participation in physical activity. For example, in the Child and Adolescent Trial for Cardiovascular Health project (CATCH), activity packets that required adult participation and complemented the school curricula were sent home from school with children. Score cards to record points for completing home activities were used for giving small rewards to encourage family participation. Children also invited family members to a “family fun night” of activities (Nader et al., 1999; Edmundson et al., 1996). The fun nights involved dances performed by the students, games and healthy foods.

### ***Program Evaluation***

An intervention study may result in a change in health outcomes or physical activity levels if the process of implementing the intervention is successful. Thus, many intervention studies first evaluated the implementation and process of developing an intervention before assessing outcomes (Caballero et al, 1998; Macaulay et al., 1997). Some also addressed the feasibility of measuring outcome variables (Caballero et al, 1998; Macaulay et al., 1997). The implementation of one intervention was examined by tracking activities that took place during the intervention period (including the frequency, number of activities and target population) (Macaulay et al., 1997). Process evaluation was also used to provide the basis for determining the degree of program implementation and barriers to a program’s success. In one study, the objectives of a process evaluation were to examine: 1) training process and content, 2) the implementation of the intervention components within and between sites, 3) the attitudes of school personnel to the intervention, 4) the exposure of staff, family and students to the intervention components, 5) the role of staff and other factors that may have affected program implementation at each site (Caballero et al., 1998).

### ***Physical Activity Measurement***

Physical activity may be measured in intervention studies using a variety of indirect methods such as self-report and direct methods such as pedometers and tri-axial accelerometers. Also physical activity levels may be assessed in school (e.g., Donnelley et al., 1996), outside of school (e.g., Harrell et al., 1999), on children (e.g., Harrell et al., 1999), on parents (Robinson, 1999) and parents’ proxy reporting of their child’s physical activity levels (Manios, Kafatos and Codrington, 1999). Direct methods of measuring physical activity levels are generally expensive and more intrusive (e.g., heart rate monitoring and direct observation) than indirect methods of measurement (e.g., self report) (Caballero et al., 1998). Thus, indirect methods are often used to measure physical activity, particularly in children. Caballero and colleagues (1998) developed a specially designed 24-hour physical activity recall questionnaire to assess the frequency and type of activities children participated in. In another intervention, children were asked to report the

number of times they performed a list of 27 activities during a 7-day period. They were also asked about their participation in organized sports, television watching and use of video games (Macaulay et al, 1997).

Direct methods may also be used to measure physical activity. In the intervention studies reviewed, direct observation and use of accelerometers were specific methods used. In one study the Children's Physical Activity Observation Form was used by observers who observed children's participation in physical activity on randomly selected days over a 2-month period each spring. Observers recorded the type and intensity of physical activity on a minute-by-minute basis. In another study, the researchers adopted the use of tri-axial accelerometer to measure the amount of activity children do on a daily basis (Caballero et al., 1998; Moore et al., 1991). Tri-axial accelerometers measure acceleration in three planes and thus are more sensitive to horizontal movement than pedometers (Caballero et al., 1998). Accelerometers have been used to measure activity levels of young children and their parents (Moore et al., 1991).

Physical Fitness is also often measured in physical activity intervention studies. One intervention study utilized the 9 minute run to assess physical fitness (Nader et al., 1999), another utilized the 1-mile run/walk test (Macaulay et al., 1997) and another utilized the 20 minute endurance run (Robinson, 1999; Manios et al., 1999; Manios, Kafatos and Mamalakis, 1998).

In addition, knowledge, attitudes and behaviour are often measured before and after an intervention. In one study, children were asked to report knowledge, attitudes and behaviour in four main categories: physical activity self-efficacy, social support for physical activity, perceived barriers to activity and physical self-perception (Caballero et al., 1998). Other studies have incorporated questionnaires that deal with self-efficacy of children (Macaulay et al., 1997; Parcel et al., 1989) and perceived parental support (Macaulay et al., 1997).

Other measures collected in physical activity intervention studies included percent body fat (Caballero et al., 1998), weight (Macaulay et al., 1997), height (Macaulay et al., 1997), skin fold thickness (Macaulay et al., 1997), aerobic power (Harrell et al., 1998), body mass index (Harrell et al., 1998), blood pressure (Harrell et al., 1998), sit and reach test (Manios et al., 1999), sit ups completed in 30 seconds (Manios et al., 1999), handgrip test (Manios et al., 1999) and standing broad jump test (Manios et al., 1999).

### ***Outcomes from previous studies***

#### *Longitudinal Studies*

Longitudinal studies that track physical activity and education in childhood to adult life showed that childhood physical activity related to activity in adult life. For example, physical activity education in primary school significantly affected the exercise habits of women (Trudeau et al., 1999). In another study, physically active adults had significantly better childhood physical fitness test scores (i.e., Youth Fitness Test: 45m (50 yard) dash, standing broad jump, sit-ups (maximum number), pull-ups (maximum number), shuttle run, and 548.6 m (600 yard) run). than inactive adults (Dennison et al., 1988), and adults who were most active in sports had been above average in sports in school (Kuh and Cooper, 1992).

### *Physical Activity*

Significant increases in physical activity were found in all 3 studies that measured physical activity during physical education classes (Donnelley et al., 1996; Nader et al., 1999; Parcel, 1989; Simons-Morton et al., 1991;). Three of the 6 intervention studies that measured physical activity outside of school also reported significant improvements (Harrell et al., 1999; Manios et al., 1999; Luepker, Perry, McKinlay, Nader, Parcel and colleagues (1996). Harrell et al. (1999) found that there was greater physical activity, greater knowledge about heart health, reduction in skinfolds and an increase in predicted aerobic power in intervention group compared to the control. Manios et al. (1999) reported an increase in health knowledge, physical activity and fitness levels in the intervention group compared to a control. The positive findings of this study were attributed to the school-based intervention and to seminars targeted to parents with a high participation rate. In addition, teachers were given structured resources to reduce the variability of student instruction between intervention schools. Luepker et al. (1996) reported that intervention students had significantly more daily vigorous activity than controls. This intervention showed that policies and practices of schools can be changed without an influx of new resources (including both money and time). Intervention staff provided teacher training and some follow-up support. This intervention reported significant improvements for 3 years post intervention (Nader et al., 1999).

An intervention study in Nebraska showed that physical activity levels outside of school were significantly lower in the intervention group compared to the control group (Donnelley et al. 1996). The investigators concluded that children may have compensated for lack of activity in school by being more physically active outside of school.

In two intervention studies reviewed, there was no statistically significant difference in physical activity outside of school between intervention and control group children (Robinson, 1999; Simons-Morton et al., 1991). Parent proxy reporting of their children's physical activity levels was used to measure physical activity in the Stanford Obesity Program (Robinson, 1999), but parents may not be able to provide accurate assessments of their children's physical activity behaviours if the children are not in the parents' care during the day.

### *Physical Fitness*

Simons-Morton et al. (1991) reported significantly greater participation in aerobic exercises in the intervention group compared to the control group. However, many other intervention studies reported no significant changes in fitness measures (Donnelley et al., 1996; Harrell et al., 1999; Manios et al., 1999; Nader et al., 1999; Robinson, 1999). The lack of change in these measures may be due to the inability of the measures to detect change or that the physical activity intervention was inadequate in intensity, duration or frequency to effect changes in fitness. Researchers need to address these issues in future intervention studies on the effects of physical activity and physical fitness (Pender, 1998).

### *Family Component*

Only one study reviewed had available results for a family component. In this study, there was no apparent additive effect as a result of the family intervention upon the determinants of

physical activity behaviours. Luepker, Perry, McKinlay, Nader, Parcel and colleagues (1996) and Edmundson et al., (1996) suggest that a family program may not have sufficient power to influence the additional effects of the determinants of physical activity behaviours. It may require longer duration of greater parental involvement to show changes in impact. Alternatively, the family program may not have been sufficiently implemented by parents. Future studies should address these challenges. Another consideration may be measuring the baseline levels of parental physical activity and health behaviours. One intervention study did show that children of active parents were 5.8 times more likely to be active than children of inactive parents (Moore et al., 1991). This may be due to parents being seen as role models for their children, the tendency to share activities with their children, and be supportive in the children's activities or due to a genetic predisposition toward being more or less physically active. Regardless of the mechanism, this study supports the assertion that parents who are more physically active are more likely to have children who are physically active.

### ***Intervention Implications and Gaps in Existing Knowledge***

The results of intervention studies show that physical education programs in schools were effective in increasing children's physical activity. The reviewed studies suggest that the school is a potentially important site for increasing physical activity. Some researchers suggested that to improve the impact of the school on physical activity levels, substantial staff training should accompany policy changes regarding vigorous physical activity. The purpose of the training in addition to education, would be to influence the interest and motivation of teachers to implement the intervention (Parcel et al., 1989; Simons-Morton et al., 1991). As well, researchers recommended the inclusion of intervention components that address teacher and staff incentives for program implementation (Parcel et al., 1989).

The intervention studies were less conclusive regarding the effectiveness of physical education programs in increasing children's physical activity outside of school. Adequate sensitivity of measures is critical in assessing the effects of any intervention program. Studies that found no intervention effect on measures of outside physical activity suggest that the importance of an active lifestyle was not fully integrated into the children's every day life and outside school physical activity was not adequately measured. Future studies need to evaluate the implementation and process of an intervention prior to assessing outcomes. In addition, the feasibility of collecting outcome data on children should be assessed prior to conducting a full-scale outcome evaluation.

Studies of current physical activity in adults who either were involved as children in a physical activity intervention in primary school or who were tested for their physical activity as children suggest that there is a positive long-term effect on current physical activity, particularly in women. The findings from tracking or longitudinal studies of adults who had physical fitness tests as children are convincing regarding the long-term effects of physical activity in childhood. Moreover, there is evidence that suggests that there is positive influence of parents' activity level on their young children (Moore et al., 1991). Thus, we agree with Kelder et al., (1994) that "consolidation of health behaviours begins prior to sixth grade and the intervention in early grade school are warranted before behaviour patterns are difficult to change (Kelder et al., 1994, pp. 1125).

The review of intervention studies suggests that:

- 1) increasing physical fitness frequency and duration may lead to an increase in physical activity;
- 2) incentives for teachers and staff are likely to increase the effectiveness of program implementation;
- 3) family and community components may increase the effectiveness of an intervention involving 3 to 8 year olds since family members are so influential in children's lives (but studies indicate that this component must be of long enough duration and sufficiently implemented to be successful);
- 4) cultural relevance is a factor that needs to be integrated into interventions that include children from diverse cultural and socio-economic backgrounds (Macaulay et al., 1997). Belief and values of the cultures represented in the community population need to be integrated in order to foster family and community empowerment and ownership.

However, most of the studies reviewed did not measure process (how well the initiative was implemented). Two studies discussed process in some detail (Cabellero, 1998; Macaulay, 1997), but they lacked adequate documentation on process measures that could provide clear direction on what does and does not work well, and more importantly why not. In order to create an intervention that can be effectively implemented across diverse communities we need a clear understanding of the factors essential for program implementation. We also need to build in a method for providing continuous feedback on what does and does not work so that the intervention can be responsive to the needs of each community.

In conclusion,

- school-based studies have been shown to be partly effective in increasing physical activity among children
- future physical activity interventions should start in the early school years
- physical activity interventions should be implemented in school and outside of school for at least one year
- physical activity interventions should incorporate:
  - a multicomponent approach
  - beliefs and values of the cultures represented in the population
  - implementation (extent that a program conforms to original plan) and process evaluation (assess the delivery and usage of the program under normal operation) to ensure the intervention is operating as intended prior to outcome evaluation (examining impact on participants relative to baseline characteristics and to a comparison group)
  - validated assessment instruments to detect changes in physical activity level
  - follow-up evaluation years after the intervention ends.

### ***b. Community Needs Assessment***

Thirty interviews were conducted during March and April 2000 with key informants from both mainstream organizations, and smaller community based agencies across the City of Toronto. Key informants were selected by members of the Toronto Cancer Prevention Coalition's Physical Activity Working Group. Based on their knowledge of Toronto's community services system, Working Group members selected seven mainstream organizations with a City-wide service mandate to offer children's physical activity as a component of their programming. Working Group members also identified the appropriate staff to be interviewed in these organizations. In addition, the Working Group Convenor, whose background is in community development, selected fourteen community based organizations, which offer a children's physical activity program component. In making this selection, the Convenor consulted with community development specialists within the City of Toronto and with staff of the Toronto Association of Neighbourhood Centres/Coalition of Neighbourhood Centres. The Convenor went through the complete Directory of Community Services (the Blue Book 2000) compiled by Community Information Toronto to ensure that selected agencies served ethno-racially diverse communities, and represented geographic areas across the entire City of Toronto. The Convenor then telephoned the Executive Directors of the fourteen agencies to invite their participation in the community needs assessment, and to have them identify the appropriate staff to be interviewed.

Overall, sixteen interviews were conducted with staff of mainstream community organizations, and fourteen with staff of grass-roots community based agencies. The findings of the needs assessment and the literature review guided the Physical Activity Working Group to develop the framework for an intervention.

### ***c. Development of the Intervention and Community Consultation Sessions***

In August 2000, the working group hired Smaller World Communications (SWC) to assist with the development of the intervention and the design for the research and demonstration project.

Consultants from SWC worked closely with the Working Group, using a formative evaluation approach to develop the intervention. The consultants organized the development process into three phases 1) Initial project design; 2) Community consultation sessions and 3) Final project design.

During the initial project design the consultants reviewed all previous work completed by the Working Group (literature review and community needs assessment), the Ontario Physical Activity Strategy, demographic information for the City of Toronto provided by Toronto Public Health's Social Epidemiologist, and information on existing physical activity programming in Toronto schools and community agencies. A detailed review of the Ontario Active Schools Initiative was also conducted. The review focused on identifying:

- ***barriers*** to participating in physical activity programs so that the design could address those barriers with specific recommendations

- **best practice** in the area of physical activity programming for children with an emphasis on diversity so that the initial design would build on proven theories, strategies, and resources
- **gaps in existing knowledge** on the subject so that the project could incorporate research activities to contribute to filling those gaps
- the **target population** to ensure appropriate stakeholder participation including a thorough review of demographic data on the City of Toronto and **key stakeholders and potential partners**
- **physical activity in the community**: the number and type of schools, community agencies, and other organizations active in the area of physical activity in the City of Toronto

The consultants facilitated a series of meetings with the Working Group to formulate the scope of the initiative, objectives, target audiences, program activities, and aspects of the research component.

Potential locations (neighbourhood communities) for the research and demonstration project were selected using agreed upon criteria described in the following section and short listed to four sites including Rexdale Thistletown, Black Creek, Downtown/Trinity Niagara and Scarborough (described below). Organizations in these neighbourhoods were approached to participate in the community consultation phase of the project design.

Consultation sessions were conducted with both school boards (Catholic and Public), community leaders and schools in three communities, Home Visitors from the Family Home Visitor Program at Toronto Public Health, and parents from six different cultural groups. The services of a plain language/literacy consulting firm were used to ensure that the information materials used to conduct the parent groups were easily understandable. The parents groups were conducted by trained facilitators, in the language of the parent group. The consultations were used both to generate interest and obtain feedback on the proposed project.

The initial design was revised based on the feedback received in the community consultations to formulate the final intervention project outlined in the following section. Details on all aspects of the development process can be found in the attached report (Development of an Intervention to Maximize Children's Physical Activity in the Ethno-racially and Socio-economically Diverse Population of Toronto).

## V Project Outline

### *a) Description of Intervention*

This intervention utilizes a community development approach to maximize physical activity in ethno-racially and socio-economically diverse communities of Toronto.

The overall approach of the intervention encompasses the following elements:

1. includes and maximizes inter-sectoral collaboration (i.e., collaboration between different agencies and community groups),
2. has a strong commitment by members of the communities selected,
3. requires no significant infusion of new resources,
4. is intended to be adaptable to school communities across Toronto and
5. is coordinated by a community facilitator

The program logic model in Appendix C illustrates how the program activities link to the expected short-term and long-term outcomes. Program logic models assist program planners and deliverers in visualizing a program and are useful tools for clarifying objectives, revealing issues of implementation, and setting priorities in evaluating planning. (Myers, 1999; Rossi, Freeman and Lipsey, 1999; Rush and Ogbourne, 1991). The logic model is organized to explain the strategies of the program, target groups, program activities, short-term outcomes, intermediate outcomes, long-term outcomes and goals.

The intervention is organized into six strategies. Strategies are a way of categorizing activities into meaningful groups. They can also be called program components (Dwyer and Makin, 1997). The following outlines each of the six strategies, which groups they are targeting, the rationale for their inclusion in the initiative and corresponding program activities.

#### **Strategy 1. Engage the Community.**

Leaders from community organizations and parents/caregivers/extended family are the target groups of this strategy. The main program activities in this strategy involve engaging and mobilizing community members in a variety of ways and to explore ways for organizations to work together to coordinate services, activities and programs.

The term community refers to groups that are generally thought to be geographically based, but may also be grouped because of shared interests or characteristics such as ethnicity, sexual orientation, or occupation (Fellin, 1995). Community building, related to the strategy identified in the logic model, refers to the ways that people who consider themselves a community engage together in a process of change (Minkler and Wallerstein, 1997). Participation of citizens in a process of change engages the community members as equals and enables them to take part in decision making in the institutions, programs and environments that influence them (Heller, Price, Reinharz, Riger and Wandersman, 1984). Participation may involve being an advisor on a board or committee, policy maker on a neighbourhood council that influences local policy, member of a local community organization that develops and offers neighbourhood activities or

may provide input through processes of outreach or consultation. Citizen participation may result in benefits at the community, interpersonal and individual levels. For example, the literature has shown that participation is related to improvements of the community or neighbourhood (e.g., Yin and Yates, 1974), stronger interpersonal relationships (e.g., Woodson, 1981) and feelings of personal efficacy (Zimmerman and Rappaport, 1988). Empowerment is a closely related concept to personal efficacy or confidence and refers to citizens who gain mastery over their lives and the lives of their communities (Rappaport, 1984).

### **Strategy 2. Assess the Community**

Community stakeholders are the target group of this strategy, and the main program activity involves conducting a community assessment. A community assessment is the systematic appraisal of the type and scope of an unmet need in a community, the characteristics and preferences of the intended target group of the initiative, and the nature and scope of existing services directed at this target group (Myers, 1999). The community assessment is essential to ensure the initiative is customized to the unique needs of each of the communities. An important element of the assessment is the identification of access barriers to participation in physical activity, which may be unique to each community, and documentation of the physical activity programs already available in the community.

### **Strategy 3. Address access barriers**

After identifying the barriers to participation in physical activity. The community will select 3 to 5 of the top barriers and implement activities to address these barriers. This strategy of addressing access barriers was identified as a direct result of the community consultation sessions. Barriers were identified by both community staff representatives and parents, and although all barriers may not be eliminated, it is important that each community prioritize the key barriers that affect participation in physical activity in the community and attempt to address these barriers throughout the initiative.

### **Strategy 4. Promote benefits of physical activity and opportunities to be active**

The target group of the promotion of benefits of physical activity and opportunities to be active include children age 3-8 years of age, teachers, children's program workers and parents/caregivers/extended family. Through this strategy community members will become more aware of physical activity programs available in the community and the importance of participating in physical activity. The main activities include disseminating the Family Fit Kit through schools and community organizations, promoting the importance of physical activity and the programs and services offered using a variety of channels, disseminating promotional materials and conducting one high visibility event each year to promote the initiative.

### **Strategy 5. Educate and build skills of leaders**

The target groups of educating and building skills of leaders include teachers, children's program workers and parents/caregivers/extended family. The program activities identified for this strategy include supporting and training the target groups to offer programs, services or activities to children, and to participate in physical activity with children. In addition, supporting and encouraging the use of ethno-rationally appropriate activities are also part of the program activities.

The capacity of an individual which refers to the abilities of individuals to be able work to produce particular outcomes (Blank, Leveque, and Winter, 1993) is an important aspect of this strategy. Capacity building refers to building skills, knowledge and institutions (Kwapong and Lesser, 1990). It was clear from the community needs assessment that physical activity programs are more likely to be successful if they are lead by people who live and work in the community.

Under this strategy each community with the assistance of a community outreach worker and trainers from the Toronto Public Health Department and the Active Living Community Action Project will implement a number of activities.

**Strategy 6. Expand and offer inclusive programs where needed.**

As a final strategy the communities will expand and offer inclusive programs to engage all children in participating in physical activity. The target groups of expanding and offering inclusive programs include children ages 3-8, other children and siblings and parents/caregivers/extended family. Inclusive programs are physical activity programs designed to be sensitive to ethno-racial and socio-economic diversity. Not only are they designed to include children, but also often include parents, siblings and extended family. These types of programs have been asserted to result in greater participation of diverse cultural groups (Caballero et al., 1998).

The program activities should be based on the community assessment results. It is recommended that the programs are expanded or enhanced to include inclusive programs/activities for children aged 3-8 before, during and after school. A list of activities developed based on the research conducted in the communities to date can be found in Appendix E. Furthermore, schools need to determine activities that they may undertake to show commitment to daily physical activity.

***b) Communities and Participants***

**Communities**

Locations (neighbourhoods) identified for implementation of the intervention were selected based on criteria obtained from the 1996 Census (Statistics Canada, 1996). All locations met the following criteria:

- Ethnicity: 5 or more ethnic groups, with diversity in languages
- Proportion of Children: 20% more children in the community than the Toronto average
- Children living in poverty: 20% higher than the average proportion of children living in poverty in Toronto

In addition, neighbourhoods were selected from different geographical areas across the City of Toronto. Neighbourhood boundaries were selected based on ward boundaries and included an area with at least one Catholic and Public Elementary School.

The locations selected include:

- Rexdale Thistletown (Ward 5)\*
- Black Creek (Ward 7)

- Downtown (Ward 24) and Trinity Niagara (Ward 20)\*
- Scarborough Highland Creek (Ward 16)\*

Three of the above four sites participated in the community consultation sessions(\*). All expressed interest in participating in the project.

### **Participants**

The target groups for the intervention include children ages 3-8, other children and siblings and parents/caregivers/extended family. Formative and process measures will be collected on all target groups and community organizations.

Students in grades one and three will be measured for the outcome evaluation. Children will be randomly selected (n=500) in the first year prior to implementation of the intervention. After the third year of the intervention, the grade ones (never measured) and threes (measured in grade one) will be tested.

To avoid seasonal variation when collecting data, students will be randomly selected and measurement will take place using “rolling measures” (i.e., measuring a group of students at 3-4 different times of the year). This will reduce the burden of collecting all the data at one time on the data collectors and will also reduce the burden of data collection on the schools.

### ***c) Research and Evaluation Questions***

The research and evaluation questions are organized in five main areas: program adoption, reach, resource utilization, short-term outcomes and the feasibility of measuring long-term outcomes.

#### **1. Program Adoption**

Is the intervention realistic for a community to adopt, if not, why?

What barriers did each community identify? Were there any improvements proposed?

What activities did each school adopt to show commitment to daily physical activity? What challenges and/or barriers did schools face in offering these activities?

Who was involved in the project and why did they choose to be involved?

What was the level of involvement of those who got involved in the project?

What programs and activities were adopted by each community?

What programs were identified as inclusive of ethno-racial and socio-economic groups? Which programs identified as inclusive of ethno-racial and socio-economic groups were implemented?

What challenges and/or barriers were faced during implementation?

What was the high profile event or activity planned by each community each year?

## 2. Reach

Did the intervention reach the broader community including diverse ethno-racial groups, parents and children?

Did the intervention reach and draw local / municipal media? Did the initiative reach the child-care providers and parents/caregivers/extended family?

Did the intervention reach the diverse population of children in each community?

Was the intervention important? Did it make a difference in the community?

## 3. Resource Utilization

What resources were needed for the intervention (i.e., time, staff, money, facilities, etc...) ?

Were the teachers, community leaders and parents/caregivers/extended family trained to offer physical activity programs? Who trains the teachers, community leaders and parents/caregivers/extended family?

## 4. Short-term Outcomes

Did the intervention increase the frequency of physical activity participation?

Did the intervention increase the physical activity participation rates for various programs?

Did the intervention increase the number of physical activity programs offered?

Did the intervention increase the diversity of physical activity participation?

Did the intervention increase the commitment of schools to physical activity?

## 5. Measuring and Monitoring Long-term Outcomes

What was the response rate of the measurement of long-term outcomes?

How much did the measurement of long-term outcomes cost in terms of money, time, staff?

How long did fitness testing take per student?

How long did the questionnaires take for children to complete?

What were children's and parents' impressions of the measurement tools utilized?

What were some of the impacts to the learning environment? Are they measurable?

Did the intervention increase the level of fitness of children compared to baseline?

Did the intervention increase the self-esteem of children compared to baseline levels?

Did the intervention affect the learning environment in positive ways?

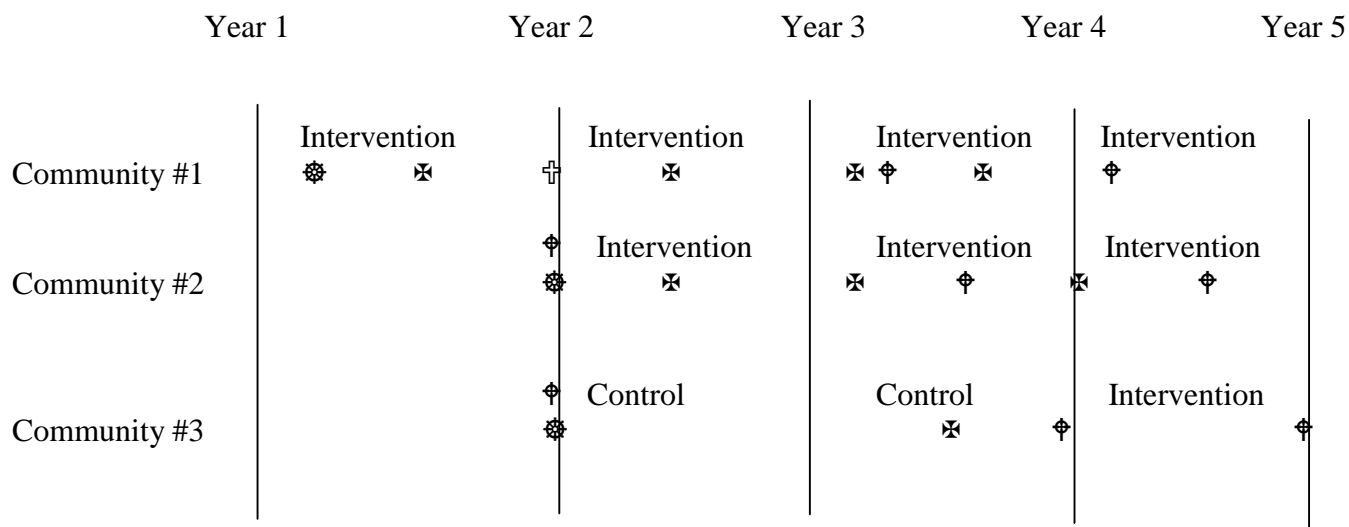
### *d) Research and Evaluation Design*

The evaluation is designed over a five year period and is illustrated in Figure 1. During the first year, one community will take part in the intervention to further develop the intervention and to test the feasibility of the measurement tools and of measuring the outcomes. The tools and outcome measurements will be revised prior to year two to reflect the findings of the pilot.

During the second and third years, the pilot community will continue the intervention, another community will begin the intervention and a third community will serve as a comparison group. During this time period, the intervention will be monitored for process and outcome measures.

After the intervention period is complete, the comparison community will receive support to offer the intervention. The communities that received the intervention will be monitored to determine whether the intervention is sustainable over the long term.

**Figure 1. Illustration of Evaluation Design.**



**Legend**

- ⊗ Needs Assessment
- ⊗ Process Measures
- ⊕ Outcome Feasibility
- ⊕ Outcome Measures

***e) Methods and Procedures***

Each community will receive the support of a half time outreach worker/facilitator to lead and assist with the intervention implementation, gain community support for the research and liase with the research study team.

A research study team, external to the project will be hired to undertake the following tasks.

- Finalize the creation of all data collection tools
- Organize the data collection process
- Collect all data
- Analyse results
- Prepare periodic reports

The methods, procedures and measures for the initial pilot phase of the project (Fall 2001 – June 2002) will be finalized in consultation with the selected community in the Spring/Summer 2001.

## Appendix A: List of Working Group Members

### TORONTO CANCER PREVENTION COALITION PHYSICAL ACTIVITY WORKING GROUP

NAME	POSITIONS OR AFFILIATION
<b>Andy Anderson</b>	Ontario Institute for Studies in Education (OISE/UT)/Heart and Stroke Foundation Dept. of Curriculum, Teaching and Learning Physical and Health Education
<b>Dr. Maru Barrera</b> <i>Co-Convenor</i>	Behavioural Psychologist, Hospital for Sick Children
<b>Michelle Brownrigg</b>	Ontario Physical and Health Education Association (OPHEA)
<b>Sandra Ceolin-Celestini</b>	Program Standards & Development Officer, Toronto Parks & Recreation
<b>Jennifer Cowe Bonne</b>	Ontario Physical and Health Education Association
<b>John Dwyer</b>	Program Evaluation Specialist, Toronto Public Health
<b>Margaret Good</b>	Community Facilitator, Ontario Active Living Community Action Project
<b>Barbara Hansen</b> <i>Co-convenor</i>	Health Education Consultant, Toronto Public Health
<b>Dan Koenig</b>	Acting Coordinator, Physical Health and Outdoor Education, Toronto Catholic District School Board
<b>Carol MacDougall</b>	Toronto Public Health
<b>Carol Rocks</b>	Physical and Health Education, Toronto District School Board
<b>Deborah Young</b>	Program Manager, Toronto Children's Services
<b>Tim Rees*</b>	Coordinator, Access and Equity Unit, Strategic and Corporate Policy Division – Chief Administrator's Office, City of Toronto *(July – December 2000, Provision of expertise regarding access and equity issues in the development of the project design)

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