CHEO Research Institute
Healthy Active Living and Obesity Research

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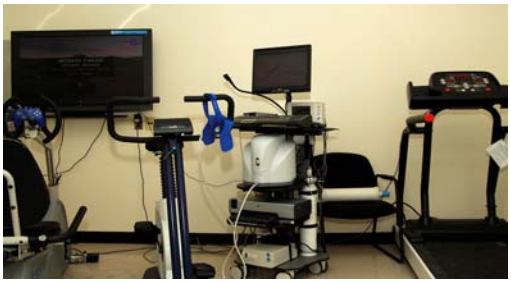
Healthy Active Living and Obesity Research Group

ANNUAL REPORT
2008



CHEO Research Institute
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Welcome from the Director

The obesity crisis, from conception to adulthood, shows no sign of retreating. In fact, the health consequences of prolonged exposure to environments that result in lifestyle patterns with sustained positive energy balance are increasingly overwhelming the capacity of the Children's Hospital of Eastern Ontario (CHEO). Not only is the number of patients increasing, but so too is the complexity of their complications. The demand is exceeding the resources available to provide care and challenging the methods and models of care traditionally provided.

The Healthy Active Living and Obesity Research Group (HALO) at the CHEO Research Institute continues to provide leadership in generating strategies to overcome the challenges associated with the clinical treatment of obesity. HALO also provides national and international leadership in the prevention of pediatric obesity and the promotion of healthy active living.

2008 was a very exciting, productive and successful year for HALO. The HALO Group continued to grow with an increase of 2.5 fulltime equivalent positions. This staff expansion was necessary to meet the research demands and successes of HALO. Highlights for the HALO group in 2008 included the successful release of the 2008 Active Healthy Kids Canada Report Card; the advancement of the KIDS-CAN Research Alliance with data collection in Kenya; and the initiation of health promotion outreach activities. Please read about these accomplishments in the highlights section below.

All indices of success demonstrated significant improvement in 2008. Throughout the report there are figures illustrating productivity trends from 2006-2008. Over this three year period as HALO was becoming established remarkable increases have been seen in grants applied for, grants received, presentations and publications. This success is attributed to the ability and commitment of the HALO faculty, staff, students and volunteers, and the institutional support received from CHEO, the CHEO Research Institute, the University of Ottawa, Active Healthy Kids Canada and other strategic partners as identified in the Report.

This Annual Report provides a catalogue of the activities and contributions of HALO in 2008 and is intended to inform partners, stakeholders, funders, potential students and staff, and other interested parties about our Group. It also serves as a means for HALO to archive its work and facilitate assessments within and between years. Comments and suggestions on the Annual Report are always welcome. The Annual Report is available in print form upon request and also on our website at www.cheori.org/halo

I hope you enjoy reading our Annual Report. If you have any questions, suggestions or opportunities for HALO, please do not hesitate to contact us.

Best wishes for a healthy, active 2009.

Dr. Mark Tremblay
Director, Healthy Active Living and Obesity Research Group (HALO), CHEO-RI
Professor/Scientist, Department of Pediatrics, University of Ottawa
Chief Scientific Officer, Active Healthy Kids Canada

Healthy Active Living and Obesity Research Group (HALO)

Vision Statement: HALO will provide national leadership and research excellence in healthy active living for the prevention and treatment of obesity in children and youth.

Mission Statement: HALO will establish a multidisciplinary centre of excellence in healthy active living and obesity research in children and youth that will:

- Significantly contribute to the understanding of healthy body weights and the prevention of obesity.
- Develop and evaluate innovative strategies to treat and manage obesity and its related health consequences.
- Ultimately reduce the overall prevalence of obesity and its social burden.

Lines of business:

1. **Research**
   - Evaluation of current and future childhood obesity treatment options.
   - Identification of environmental, behavioural and biologic predictors of obesity and physical inactivity, their interactions, enablers and inhibitors.

2. **Leadership**
   - Development of innovative strategies to prevent and treat childhood obesity and inactivity.

3. **Training**
   - Creation of a nationally recognized training centre for future researchers and health professionals interested in the prevention and treatment of childhood obesity and inactivity.
   - Development, promotion and utilization of effective knowledge translation, transfer and exchange strategies to increase the uptake of prevention and treatment options reducing future disease burden.

4. **Partnerships**
   - Cultivation of municipal, provincial, national and international partnerships to create, promote, implement and evaluate the effectiveness of healthy active living and obesity prevention and treatment programs aimed at achieving positive health outcomes in children and youth.

5. **Advocacy**
   - Professional, informed and authoritative voice for healthy active living and obesity research in children and youth.

6. **Good Governance**
   - Exemplary administrative and governance practices
   - Effective, efficient and transparent policies and procedures

Healthy Active Living and Obesity Research Group

Dr. Kristi Adamo earned an Honours B.Sc. degree in Human Kinetics and a M.Sc. degree specializing in exercise physiology through the University of Guelph Department of Human Biology and Nutritional Sciences. During this time she had the distinct opportunity to train at the Copenhagen Muscle Research Centre and August Krogh Institute in Denmark. Prior to commencing her doctoral work, Dr. Adamo worked for several years at the University of Ottawa Heart Institute Prevention and Rehabilitation Centre in the area of primary and secondary prevention of cardiovascular disease. This experience spurred her interest in inter-individual response to treatment intervention and led to her doctoral studies, completed through the University of Ottawa's Faculty of Medicine, Department of Cellular and Molecular Medicine, focusing on gene-environment interaction in diabetes and obesity. Dr. Adamo also spent a brief time as a Post-Doctoral Fellow with the obesity research group at the CHEO RI. Dr. Adamo holds an academic appointment as Adjunct Professor in the School of Human Kinetics at the University of Ottawa, is a Research Scientist with a multi-disciplinary background and is a founding member of the Healthy Active Living and Obesity (HALO) Research Group recently established at the CHEO Research Institute. She played a key role in the planning and development of this research team and through CFI/ORF funding, Dr. Adamo has been able to equip HALO's metabolic lab. Kristi's most successful genetic experiment yet resulted in the birth of her daughter *Kysia* in July of 2007.

Dr. Rachel Colley is a Junior Research Scientist with the HALO group. She holds a Bachelor of Science and a Bachelor of Physical and Health Education (Honours) from Queen's University. Rachel completed her PhD in Brisbane, Australia in 2007 at the Queensland University of Technology. She then came to Ottawa in August 2007 to complete a 1-year postdoctoral fellowship with the HALO group, under the supervision of Dr. Mark Tremblay. She brings experience to the group in applied exercise physiology with specific skills in the measurement of physical activity, resting and exercise energy expenditure and body composition. Rachel's PhD thesis explored compensatory weight loss behaviours and the effect of exercise on non-exercise activity thermogenesis (NEAT) in obese individuals. Rachel is currently the research coordinator and lead writer for the Active Healthy Kids Canada Report Card on Physical Activity for Children and Youth. She also works part-time at Statistics Canada leading the development of the physical activity data analysis for the Canadian Health Measures Survey. Rachel is seeking operating grant funding to implement a lifestyle intervention program for obese adolescents at CHEO.

Dr. Gary Goldfield has an Honour's Bachelor of Arts degree in Psychology, a master's degree in Experimental Psychology, and a doctorate in psychology from Carleton University. Dr. Goldfield completed a post-doctoral fellowship in Behavioural Medicine at the State University of New York at Bufffalo. Dr. Goldfield is presently a clinical scientist and one of the founders of the Healthy Active Living and Obesity Research Group at the Children's Hospital of Eastern Ontario Research Institute. Dr. Goldfield is also an Assistant Professor of Human Kinetics and Pediatrics at the University of Ottawa, and is an Adjunct Research Professor of Psychology at Carleton University. Dr. Goldfield is the recipient of a New Investigator Award from the Canadian Institutes of Health Research, and holds several peer-reviewed grants from various funding agencies. Dr. Goldfield is also a registered psychologist who practices in the community of Ottawa and sees children, adolescents and

adults. He is also a member of the Ottawa Academy of Psychologists, the Canadian Psychological Association, and the North American Association for the Study of Obesity (NAASO). Dr. Goldfield has published widely in the areas of child obesity, physical activity, behavioural psychology, and eating behaviour.

Dr. Stasia Hadjiyannakis received her medical degree from the University of Toronto (1996) and completed her pediatric residency at Queen's University with an endocrine fellowship at McGill University. She worked as a Visiting Professor at the University of California San Francisco (2003) where she received more in-depth training in the area of pediatric obesity and lipid disorders. Stasia is currently the Chief of the Division of Endocrinology at the Children's Hospital of Eastern Ontario (CHEO) and an Assistant Professor of Pediatrics at the University of Ottawa. She has been an active member of the Department of Pediatrics at CHEO in the division of endocrinology since November 2001 and is the Medical Director of the Pediatric Obesity and Lipid Clinics. Her clinical, advocacy and research interests are in the area of pediatric obesity and related co-morbidities such as metabolic syndrome, dyslipidemia, Type 2 diabetes and polycystic ovarian syndrome. Her research interests are in examining the dynamic interplay between behavioural/psychosocial, genetic and intrauterine factors in predicting risk for obesity related co-morbidities.

Tina Hutchinson graduated from Carleton University with a Bachelor of Arts degree in Mass Communications; Tina then married and moved to Hamilton, Ontario with her husband Mark. With years of experience in retail pharmacy and retail management Tina relocated to Ottawa, Ontario. Tina joined HALO in the summer of 2007 and provides financial and administrative support to the group's Director, Dr. Mark Tremblay, and the rest of the dynamic Healthy Active Living and Obesity Research Group.

Dr. Meghann Lloyd is a Junior Research Scientist in the HALO group. Dr. Lloyd earned a B.Kin (Honours) degree from Acadia University and an M.A. from McGill University. She then completed her Doctoral work at the University of Michigan in the Division of Kinesiology; specifically within the Center for Motor Behavior and Pediatric Disabilities. She then completed a short post-doctoral fellowship in Michigan before moving to back to Canada to join the Healthy Active Living and Obesity Research Group (HALO). Dr. Lloyd's research takes a multidisciplinary approach to investigate the physical activity and motor development of infants and young children with and without disabilities. Dr. Lloyd's current research within HALO at the Children's Hospital of Eastern Ontario Research Institute focuses on developing a comprehensive assessment tool of physical literacy – The Canadian Assessment of Physical Literacy. This will provide information to both educators and medical professionals about the status of physical literacy in Canadian children. Future research will further investigate the factors that influence early physical activity, to prevent obesity from emerging in the preschool age range, for children with and without Down syndrome.

Jane Rutherford completed a BSc. in Nutritional and Nutraceutical Sciences and an MSc. in Human Biology and Nutritional Sciences from the University of Guelph. Jane's previous work experience includes coordinating human exercise research trials, working in cardiac and musculoskeletal injury rehabilitation as an exercise physiologist and sharing her passion for health promotion by working as a Fitness Consultant. Joining the Healthy Active Living and Obesity Research Group in the role of Research Coordinator in the fall of 2006 allowed her to combine her love of research with her passion and skills for motivating and encouraging people to live healthy lives. Leading by example, Jane recently completed her 11th marathon and plays competitive field hockey in the summer. In a volunteer capacity, Jane is a regular *Running Room* presenter – giving talks to its running / walking clinics on general and sport specific nutrition, and is a Fitness Instructor at the YMCA/YWCA.

Dr. Mark Tremblay has a Bachelor of Commerce degree in Sports Administration and a Bachelor of Physical and Health Education degree from Laurentian University. His graduate training was from the University of Toronto where he obtained his M.Sc. and Ph.D. from the Department of Community Health, Faculty of Medicine with a specialty in exercise science. Dr. Tremblay is the Director of the Healthy Active Living and Obesity Research Group (HALO) at the Children's Hospital of Eastern Ontario Research Institute and Professor of Pediatrics in the Faculty of Medicine, University of Ottawa. Dr. Tremblay is a Fellow of the American College of Sports Medicine, a Fellow of The Obesity Society, former Dean of Kinesiology at the University of Saskatchewan and is currently the Chief Scientific Officer of Active Healthy Kids Canada. Dr. Tremblay was the Scientific Director for the Canadian Health Measures Survey currently being conducted by Statistics Canada and currently Chairs its Expert Advisory Committee. Dr. Tremblay has published extensively in the areas of childhood obesity, physical activity measurement, exercise physiology and exercise endocrinology. Dr. Tremblay's most productive work has resulted from his 20-year marriage to his wife Helen, yielding four wonderful children.

Wai-May Wong has an Honours Bachelor of Science degree in Life Sciences and a Bachelor of Education from Queen's University. Teaching biology and chemistry to high school students was a rewarding and positive learning experience for her. She also realized through alternative teaching practicums that her skills as an educator would fit well with her passions in health care and research. Wai-May is enthusiastic to be working with the dynamic HALO group, as she continues to learn about different research methods, while becoming aware of the complex issues surrounding childhood obesity.

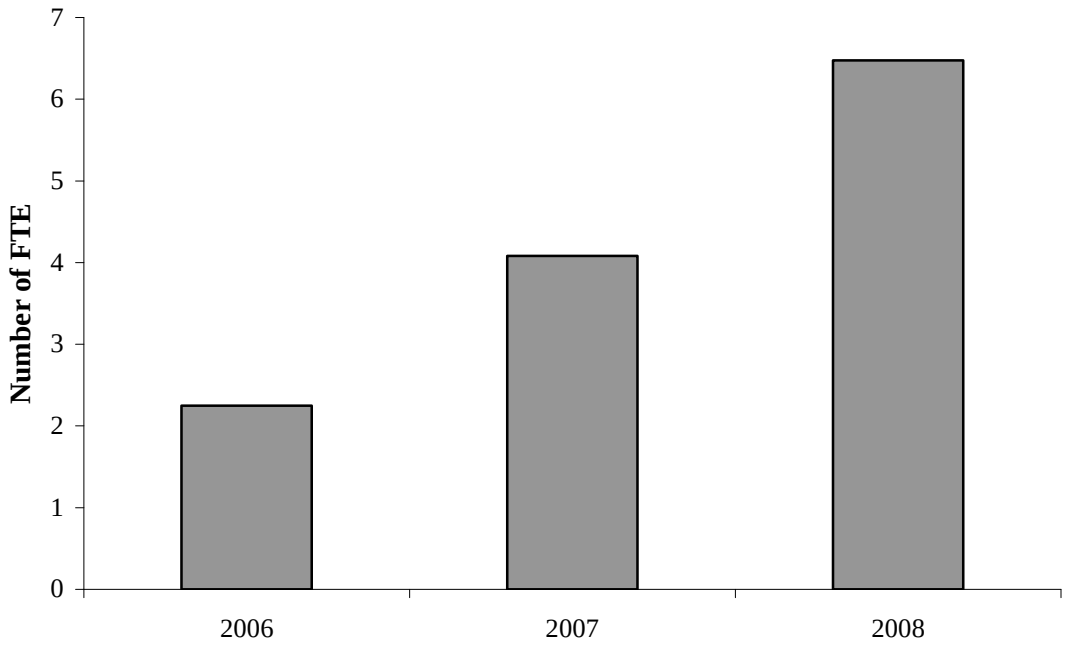


Figure 1. Number of Full Time Equivalent (FTE) positions in HALO Research Group from 2006 to 2008. Between 2006 and 2007, and between 2007 and 2008, there was an 81% and 59% increase, respectively, in FTE.

Students and Trainees

Cynthia Colapinto - Ph.D. Supervisor, (Dr Mark Tremblay),
Research Program: Canadian Health Measures Survey, Assessment of Folic Acid Supplementation in Canadian Women of Child-bearing Age (CIHR Fellowship in Public Health)

Zach Ferraro - Ph.D. Supervisor, (Dr Kristi Adamo),
Research Program: IGF-proteins, fetal/placenta weight ratio, and maternal obesity (PhD candidate)

Stephanie Prince Ware - Ph.D. Co-Supervisor, (Dr Mark Tremblay),
Research Program: Physical Activity, Built Environment and Population Health (Ontario Graduate Scholarship)

2008 Highlights

Active Healthy Kids Canada's Report Card

Active Healthy Kids Canada's (AHKC) Report Card on Physical Activity for Children and Youth ("Report Card") is an evidence-informed communications and advocacy piece designed to provide insight into Canada's "state of the nation" each year on how, as a country, we are being responsible in providing physical activity opportunities for children and youth.

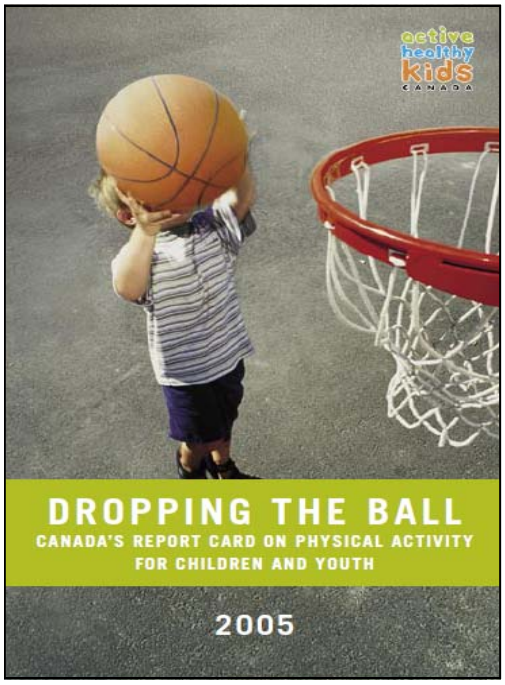
In May 2005, the first annual Report Card was released with an overall grade of D. The 2005 Report Card sounded the alarm and underscored the need for action. The 2006-2008 Report Cards maintained a failing grade of D; however they included new data, additional indicators and specific Recommendations for Action. The Recommendations for Action identified what changes could be made amongst various stakeholder groups to improve the grade.

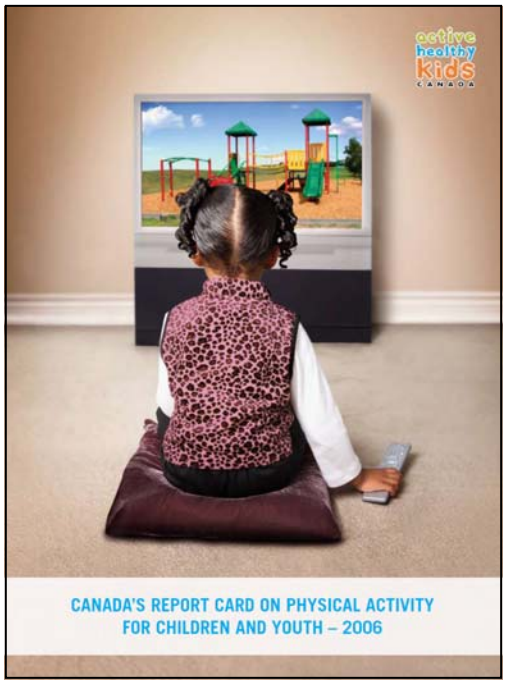
The development of the content for each annual Report Card is supported by the work of a Research Work Group, for which Dr. Mark Tremblay, has been the Chair to date. The Research Work Group includes an interdisciplinary selection of experts that are responsible for identifying and ranking Report Card indicators based on available data, research and key issue areas that can be graded nationally. As part of the development process the Research Work Group also accesses additional experts/researchers to fill issue specific gaps as applicable. Once gathered, the raw report card data is organized into a detailed version (long form) of the Report Card and condensed to produce a summary (short form) Report Card. The summary report card is very concise and is designed to be a compelling communication piece, while the more detailed version provides the evidence base for indicator grades. The promotion and distribution of the Report Card involves a variety of communication methods, ranging from media distribution to direct mail dissemination and via various stakeholder networks.

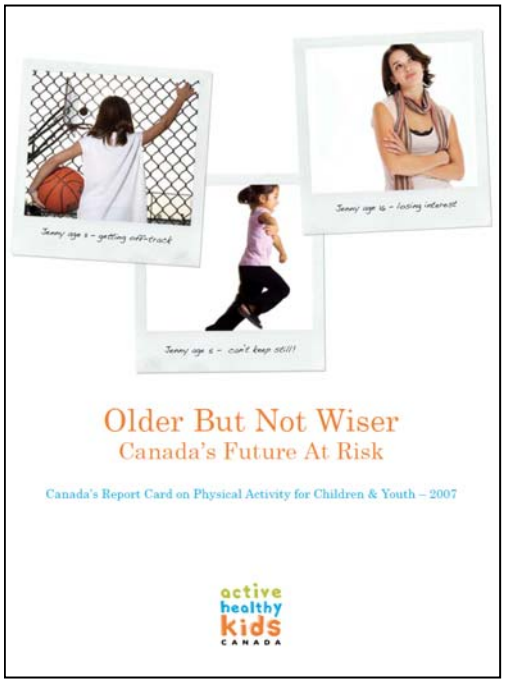
In 2008, the content development process and the activities of the Research Work Group were managed by CHEO-HALO through a strategic partnership with AHKC. Under the guidance of Mark Tremblay, Rachel Colley led the development, analysis and writing of the long form Report Card in 2008 and will continue in the same capacity for the 2009 Report Card. In addition, CHEO-HALO supported a number of knowledge exchange and consultation activities for AHKC. In essence, HALO is the 'knowledge partner' of AHKC and provides specialized expertise in the area of physical activity for children and youth.

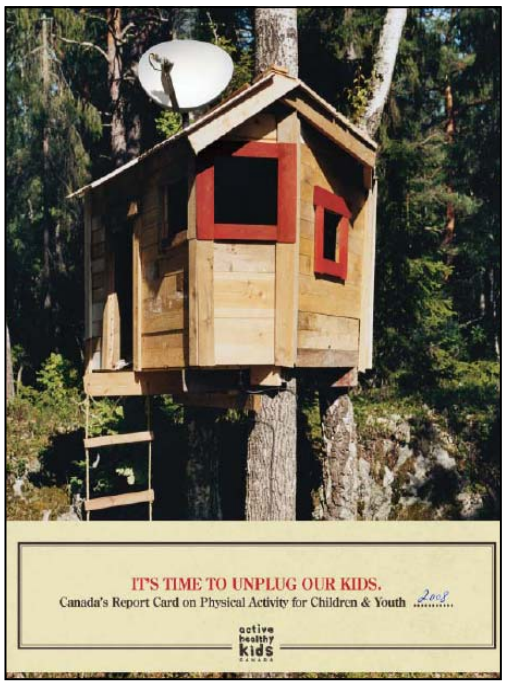
The Active Healthy Kids Canada Report Card receives significant media exposure with over 150,000,000 media impressions in 2008 - CHEO-HALO is acknowledged on all report cards and most media interviews, generating tremendous positive exposure for CHEO and HALO.

Canada's Report Card on Physical Activity for Children and Youth









Who is Active Healthy Kids Canada?

Established in 1994, Active Healthy Kids Canada (AHKC) is a national organization with a passionate voice for the development of active healthy children and youth in Canada. AHKC is focused on making physical activity a major priority in the everyday lives of Canadian families and is committed to providing expertise and direction to policymakers and the public on increasing and effectively allocating resources and attention toward physical activity for children and youth.

The HALO team at CHEO is one of the key strategic partners of Active Healthy Kids Canada, along with ParticipACTION:

Kenyan International Development Study – Canadian Activity Needs Research Alliance (KIDS-CAN)

Background

Kenya is a country where traditionally most children live an active lifestyle and thus have been protected from the childhood obesity pandemic. Currently, their growing affluence and global economic and technological influences place them at-risk of transitioning to more obesity-promoting environments and behaviours common-place in North America.

As developing nations become more prosperous, they acquire some of the benefits along with some of the problems of industrialized nations. A series of changes in the diet and nutrition patterns, and a shift away from the high energy expenditure activities such as farming, mining, and forestry towards more sedentary occupations, together with less active modes of transportation and activity patterns during leisure hours, are contributing to the "nutrition and physical activity transition". According to the International Obesity Task Force, 0.7 percent of children in Africa are showing features of malnutrition, but over 3 percent are exhibiting signs of obesity.

Kenya, like many other African nations, is undergoing such a transition. While technologies such as computers, the internet, satellite TV, cell phones and other similar emerging technologies took decades to permeate North American society, all of these 'electronic age' items are becoming available very quickly in Kenya. Unfortunately these conveniences of modern life are associated with a more sedentary lifestyle that carries with it a substantial health burden.

Who are we?

We have been collaborating with a research team from Kenyatta University in Nairobi for the past 2 years attempting to establish a research program related to the correlates of child obesity (e.g. physical activity, fitness and nutrition). Establishing this partnership to compare lifestyle factors in school age children is a form of capacity building though which we will learn from each other about the cultural differences contributing to daily physical activity and eating patterns.

Vincent Onywera, Keren Mburugu, **Kristi Adamo**, **Mark Tremblay**, Judith Waudo, Bill Sheel, Mike Boit (left to right)

Objectives of the establishment of this international collaboration

- To promote and facilitate research in the area of determinants/predictors of child obesity
- To exploit the timing of the current childhood obesity crisis in Canada, the nutrition and activity transition threat in Kenya and the implementation of the Canadian Health Measures Survey
- To develop a research exchange program that will allow for the training and support of young researchers/trainees who are interested in this area of study
- To develop and foster a long-term international partnership to promote the generation of relevant data on child obesity-related factors and effectively disseminate this information
- To serve as a model (or nucleus) for expansion of international partnership to other countries

Key Milestones

✓ **March 2007**
- We received CIHR-International Opportunities Partnership funding to initiate and formally establish the partnership and hold knowledge exchange meetings in both Canada and Kenya.

✓ **June 2007**
- Kenyan contingent of the KIDS-CAN Research Alliance traveled to Canada to visit the CHEO RI in order to discuss/develop the team's future research agenda.
- A formal Memorandum of Agreement was signed by the CHEO RI and Kenyatta University formalizing the Research Alliance
- The Canadian KIDS-CAN meeting coincided with the *International Conference on Physical Activity and Obesity in Children* held in Toronto where we had the opportunity to present our research partnership and capacity building framework to the broader pediatric obesity audience.

✓ **November 2008**
- The Canadian group visited various regions of Kenya to facilitate partnership development with local officials, communities and schools
- The KIDS-CAN team gathered a small amount of pilot data from school-aged children in Kenya.

  2 Urban schools in Nairobi:
  - St. Mary's Sportsview Academy
  - Kenyatta University Primary

  2 Rural schools in Rift Valley:
  - Fluorspar Academy (Kerio Valley)
  - Kabirrisang Primary (Nandi Hills)

Data Collected

Anthropometry: Height, weight, waist circumference, triceps & sub-scapular skinfolds

Fitness: Aerobic - 20 m shuttle run, Flexibility - sit and reach test, Strength - hand grip dynamometry

In addition to the direct measures of anthropometry and fitness, we also collected information from parents on children's sedentary behaviours, physical activity, and health promoting behaviours and their perceptions about physical activity and nutrition.

- ✓ **January 2009**
  - o First abstract submitted and accepted for presentation at the Canadian Obesity Network's - National Obesity Summit to be held in May in Kananaskis, Alberta.

    K.B. Adamo, A.W. Sheel, V. Onywera, J. Waudo, M. Boit, **W-M. Wong**, and **M. Tremblay**. Is there evidence for the Nutrition/Physical Activity Transition in Kenya? A KIDS-CAN Research Alliance- pilot study

Current Research Initiatives

1. Appetite Signaling Proteins and Energy Intake in Obese Adolescents with Binge Eating Disorder: A Pilot Study

Principal investigator: **Dr. Kristi Adamo**
Co-investigators: **S. Hadjiyannakis, G. Goldfield,** E. Doucet

Funding Source: Children's Hospital of Eastern Ontario Research Institute ($30,000)

Description: The increasing prevalence of obesity in youth is due to positive energy balance resulting from increased energy intake vs. energy expenditure. Our "toxic environment", characterized by an overabundance of palatable food rich in fat and sugar, encourages over-eating. Appetite regulation and the control of food intake are thereby of great scientific interest and clinical relevance. Feeding behaviour is the result of complex interactions between genetic, biological, environmental and psychosocial factors. From a biological perspective, food intake is controlled by hunger and satiety signals. The signals are generated in peripheral organs, such as the digestive tract and adipose tissue, and in the brain itself. Hunger and satiety signals generated by the GI tract, including ghrelin, PYY, and GLP-1, have been implicated in the short-term regulation of food intake. The primary objectives of this study are to assess whether there are differences in the temporal patterns of ghrelin, PYY, and GLP-1 and sensations of satiety following a standardized test meal between obese adolescents with and without binge eating disorder (BED). Secondary objectives are to evaluate whether there are baseline differences between fasting levels of ghrelin (hunger stimulating peptide) and PYY, GLP-1 (satiety hormones) in obese adolescents with BED vs. obese adolescents without BED; determine whether the levels of signaling proteins released after a standard meal predict the sensation of satiety and fullness and/or the amount of food the adolescent will consume when provided with *ad libitum* access.

Status: The project is underway anticipated completion in 2009.

2. Physiological and psychological predictors and determinants of metabolic complications of pediatric obesity: A Cohort Study

Principal investigator: **Dr. Kristi Adamo**
Co-investigators: **S. Hadjiyannakis, G. Goldfield,** S. Dagenais

Funding Source: Canadian Diabetes Association ($49,730)

Description: This study is an exploratory, prospective, observational cohort feasibility study of obese children attending the CHEO Pediatric Endocrinology Clinic. It is expected to generate data and hypotheses that will be used to inform sample size calculations in future studies. For this initial study, children will be recruited over one year and followed for a period of one year after recruitment. The initial plan is to gather clinical data obtained during a comprehensive patient assessment protocol to determine the feasibility of enrolling a larger group of patients into a long-term study with the goal of answering important research questions aimed at improving patient care in this population. There will be 4 dimensions related to child obesity being assessed bi-annually in the children visiting CHEO's Pediatric Endocrinology Clinic. These include: i) Biomarkers & Clinical Markers- plasma, serum and urine factors as well as abdominal ultrasound and sleep study, ii) Body Composition- height, weight, BMI, and body fat, iii) Physical Activity, Fitness & Nutrition- 7-day physical activity recall & accelerometry, VO2 peak, Resting Energy Expenditure and dietary intake, iv) Psychosocial & Behavioural Factors- eating behaviour and

food practices, quality of life, depression, anxiety, stress, self-esteem, and coping. Ultimately, it is our intent to systematically evaluate the population visiting this clinic to determine the prevalence of and predictors of various obesity related co-morbidities. These data will aid us in developing an effective course of action for the management of obesity and related co-morbidities at the CHEO Pediatric Endocrinology Clinic.

Status: Active recruitment and assessment underway. The pilot project is expected to be completed by 2010.

3. Feasibility and Short-term Efficacy of the GameBike to Increase Physical Activity in Obese Adolescents

Principal investigators: **Dr. Gary Goldfield and Dr. Kristi Adamo**
Co-investigators: **S. Hadjiyannakis,** S. Bouchard, J. Lapierre

Funding Source: Canadian Diabetes Association ($150,000) and Children's Hospital of Eastern Ontario Research Institute ($30,000)

Description: The primary objective is to evaluate the feasibility of using the GameBike to increase physical activity in obese youth aged 13-17 years. While quantitative measures of feasibility including compliance, attrition, and safety/tolerability are important and will be measured, the primary objective will be to evaluate the degree to which the GameBike, a recumbent bicycle interfaced with a PlayStation, increases energy expenditure (kcal) during 2 weekly laboratory exercise sessions over a 10-week study period when compared to a cycling to music control group. Also measured and compared in both groups before and after the intervention will be aerobic fitness, body composition, free living physical activity, sedentary behaviour, diet, and psychosocial functioning.

Status: Anticipated completion March 2009.

4. Kenyan International Development Study - Canadian Activity Needs (KIDS-CAN) Research Alliance

Principal investigator: **Dr. Mark Tremblay**
Co-investigators: **K. Adamo**, W. Sheel, V. Onywera, M. Boit, J. Waudo

Funding Source: Canadian Institutes of Health Research - International Opportunities Partnership ($25,000)

Description: Kenya is a country where traditionally most children live an active lifestyle and thus have been protected from the childhood obesity pandemic. Currently, their growing affluence and global economic and technological influences place them at-risk of transitioning to more obesity-promoting environments and behaviours common-place in North America. However no data currently exist regarding obesity prevalence, fitness levels or physical activity patterns in their pediatric population. Thus the Canadian contingent of the KIDS-CAN Research Alliance (Tremblay, Adamo, Sheel) visited Kenya in November 2008 for meetings with University and Government officials (Education, Statistics, Health) and to collect pilot data on body composition, aerobic fitness, strength and flexibility at 2 urban and 2 rural schools. Data were also collected from parents on their health beliefs and physical activity patterns. We hope to extend this project and gather similar data on a nationally representative sample in Kenya and compare to our Canadian population.

Status: Pilot data collection complete. Follow-up grant submissions are being prepared for continuation and the development of an International Ambassadors Team is underway.

5. Active Healthy Kids Canada 2008 Report Card

Principal investigator: **Dr. Mark Tremblay**
Co-investigator: **R. Colley**

Funding Source: Active Healthy Kids Canada ($136,000)

Description: Active Healthy Kids Canada's Report Card on Physical Activity for Children and Youth ("Report Card") is a research-based communications and advocacy piece designed to provide insight into Canada's "state of the nation" each year on how, as a country, we are being responsible in providing physical activity opportunities for children and youth.

The development of each annual Report Card is largely supported by the work of a Research Work Group. The Research Work Group includes an interdisciplinary selection of experts that are responsible for identifying and ranking Report Card indicators based on available data, research and key issue areas that can be graded nationally. As part of the development process the Research Work Group also accesses additional experts/researchers to fill issue specific gaps as applicable. Once gathered, the raw report card data are organized into a detailed version (long form) of the Report Card and condensed to produce a summary (short form) Report Card. The Healthy Active Living and Obesity Research Group at the CHEO-Research Institute has entered into a strategic partnership agreement whereby the HALO research group serves as the knowledge and research engine for Active Healthy Kids Canada, including the writing of the Report Card. HALO leads the development, coordination, data gathering, evidence synthesis and expert response related to the Report Card preparation and release.

Status: The project began September 1st, 2007 and the report card was released in May 2008.

6. Maternal Obesity Management - the MOM trial *(PILOT)*

Principal investigator: **Dr. Kristi Adamo**
Co-investigators: E. Keely, M. Walker**, S. Hadjiyannakis, G. Goldfield,** N. Barrowman, G. Tawagi, J. Sylvain
Collaborators: A. Gruslin, F. Tesson

Funding Source: Canadian Institutes of Health Research Team Grant ($300,000)

Description: Obesity is our society's most prevalent public health problem. It affects Canadians of all ages, ethnicity and socioeconomic status and it is very important to address obesity as early as possible because the longer it persists the harder it is to treat. Prevention is therefore the key. Current evidence is pointing towards pregnancy as an incredibly critical period in the programming of downstream child obesity and later adult obesity and therefore a potentially valuable prevention target. Approximately 40% of pregnant women are carrying more weight than is considered healthy. A woman's weight status prior to pregnancy and the amount of weight she gains over this period is linked to her baby's birthweight as well as weight status in childhood, adolescence and beyond. The goal of this specific study is to test whether a structured physical activity and nutrition program offered to overweight or obese women over the course of their pregnancy will help to limit the amount of weight they gain during this time and, if this lifestyle

program will result in fewer of these women giving birth to very large babies. Being overweight and gaining more weight than recommended also puts women at risk of other pregnancy-related complications such as gestational diabetes and post-partum weight retention that can affect the health of their babies and their own long-term health. We will explore the affect this intervention has on these outcomes as well. We hope that adopting healthy exercise and dietary behaviours during pregnancy will assist overweight and obese women halt the cycle of obesity.

Status: The MOM trial intervention handbook has been finalized, exercise leaders are being trained, and the dietitian has been hired. The project is awaiting final REB approval prior to beginning recruitment. A RCT outline, for the larger multi-centre trial, was submitted to CIHR in the fall of 2008 and we intend to address the feedback and submit the full proposal in September 2009 provided we have applicable pilot data on recruitment rates and intervention compliance.

7. Prevalence of Markers of Insulin Resistance among Offspring Exposed to Gestational Diabetes: A 13 to 17 Year Follow-Up Study of a RCT Cohort (GDM)

Principal investigator: **Dr. Stasia Hadjiyannakis**
Co-investigators: T. Pinto, **K. Adamo, J. Rutherford**, J. Malcolm, E. Keely, **G. Goldfield**, I. Gaboury, M. Lawson

Funding Source: Children's Hospital of Eastern Ontario Research Institute ($28,912)

Description: Gestational Diabetes Mellitus (GDM) is defined as "carbohydrate intolerance of variable severity with first recognition during pregnancy". There is increasing evidence to suggest that offspring of women with GDM are at an increased risk of long-term consequences such as obesity and abnormalities of glucose metabolism including Type 2 Diabetes. This study aims to determine whether differences in the prevalence of markers of insulin resistance and body composition exist in a cohort of offspring of women with GDM when compared to a control group matched for age, sex, pubertal stage and BMI. Offspring (aged 13-17 years of age) of mothers with GDM will be examined for markers of insulin resistance [increased waist circumference, hypertension, hypertriglyceridemia, low HDL-cholesterol, impaired glucose tolerance, impaired fasting glucose] and body composition as measured by percent body fat (DEXA), abdominal obesity (waist circumference) and compared to a matched control group. The possibility of prenatal and postnatal interventions, targeting known modifiable risk factors could play an integral part in preventing or attenuating this epidemic of obesity and Type 2 Diabetes.

Status: Funding and ethics was secured to extend the study to include the mothers of the offspring.

8. CIHR Team in Critical Periods of Body Weight Regulation: A Women's Health Perspective SOMET: Sherbrooke-Ottawa-Montréal Emerging Team

Team Lead: Denis Prud'homme
Co-Principal Investigators: **K. Adamo** (PI for Critical period of Pregnancy and early childhood- the MOM trial described above), E. Doucet and R. Rabasa-Lhoret (PIs for perimenopause), M. Brochu (PI for post-menopause/aging) and D. Stacey (PI for Knowledge translation)
Co-investigators: I. Strychar, F. Tesson, J-M Lavoie, A. Dumas, **G. Goldfield**, **S. Hadjiyannakis**, E. Keely, M. Walker

Funding Source: Canadian Institutes of Health Research (CIHR) ($2,500,000 over 5 years)

Description: The proposed CIHR Team is a multidisciplinary research group that will investigate the problem of body weight regulation in women during three critical periods: gestation/post-partum, peri-menopause and menopause years. The objectives are to: (1) understand the complex interactions between the bio-psycho-social-cultural and environmental factors underlying body weight regulation in overweight and obese women with and without glucose intolerance, (2) develop and evaluate integrative obesity prevention and treatment approaches, specific to these critical periods, with the combined expertise of an inter-professional health team and institutional partners using new multi-level intervention programs, (3) develop practical planning tools to promote the adoption of new knowledge into practice. The findings of this research program will improve the health of Canadians and the Canadian health care system.

The specific aim of the gestation/postpartum piece is to determine the effect of a structured physical activity and nutritional intervention provided to overweight/obese pregnant women on gestational weight gain, gestational diabetes, infant birth weight, post-partum weight retention, and longitudinal child BMI.

Status: The TEAM grant was awarded in 2008 and the co-PIs have been working towards finalizing research interventions and study details, creating standardized SOMET documentation and protocols, and solidifying partnerships. Central and peripheral staff members have been hired and REB submissions have been completed for 2 of the 3 studies. The SOMET lecture series has been formally established with National and International speakers providing research seminars and presentations via satellite on a regular basis.

9. Champlain Healthy School-Aged Children: Parental Attitudinal Survey

Principal Investigators: Champlain Healthy School-Aged Children Initiative working group (**K. Adamo** – CHEO/HALO representative)

Funding Sources: Eastern Ontario Health Unit ($15,000), Leeds Grenville & Lanark Health Unit ($5,000), City of Ottawa ($15,000), Heart & Stroke Foundation Ontario ($20,000), Champlain LHIN ($15,000), University of Ottawa Heart Institute ($15,000), Children's Hospital of Eastern Ontario ($15,000) (Total:$115,000)

Description: Recent projects:

- Parental attitudinal survey: The survey was conducted jointly on behalf of several regional partners, namely the University of Ottawa Heart Institute (UOHI), the 4 Champlain District Public Health Units (City of Ottawa, Renfrew County & District, Eastern Ontario, and Leeds, Grenville & Lanark), the Heart and Stroke Foundation of Ontario (HSFO), and CHEO. The survey targeted 1940 parents of children aged 4 to 12 across the Champlain District and was conducted via telephone. The intent was to better understand parental perceptions, knowledge, and behaviours surrounding childhood overweight/obesity and related physical activity and healthy eating habits.
- School-based Policy Framework Project: the CCPN commissioned Silta Associates to produce a framework outlining the need for school-based policies covering healthy eating and physical activity in the 9 school boards in the Champlain District.
- The Champlain Declaration - A Call to Action for Physically Active & Healthy Eating Environments in Schools: Following the framework project the Champlain declaration was conceived whose vision is for the nine School Boards in the Champlain District of

Ontario, in partnership with the Champlain Cardiovascular Disease Prevention Network (CCPN), to commit to creating healthy school environments so that school-aged children (aged 4 to 18) in the Champlain District can be physically active and can make healthy food choices at school on a daily basis.

Status: The survey was completed and results presented at the Champlain Healthy School Aged Children Summit held in October 2007. A manuscript highlighting the results of this parental survey (K. Adamo as lead) is in review with the journal *Applied Nutrition, Physiology and Metabolism*. A local communications campaign is currently being planned that will base much of its direction on the results of the survey.

The Champlain Declaration: A Call to Action for Physically Active & Healthy Eating Environments in Schools (English and French) has been approved, in principle, by all nine Champlain Directors of Education. Signatures are currently being gathered, and a final version will be produced and disseminated soon.

10. Family-Based Behavioural Treatment of Childhood Obesity via Internet: A Randomized Controlled Trial

Principal Investigator: **Dr. Gary Goldfield**
Co-Investigators: P. McGrath, **S. Hadjiyannakis**, R. Sigal

Funding Source: Heart & Stroke Foundation of Canada ($100,000)

Description:
Background: Because obese children are more likely to become obese adults than lean children, and research shows that obesity treatment in adults is largely ineffective in the long-term, intervention during childhood is critical to prevent adult obesity and related diseases. Family-based behavioural treatment for childhood obesity has been proven to be the treatment of choice, but this method of service delivery is labor-intensive, designed for small numbers of families, and not widely available. The deficits in service provision are striking when one considers that 25% of children are overweight or obese, yet there are only a few multidisciplinary childhood obesity clinics in Ontario. This discrepancy between the supply and demand for comprehensive child obesity treatment highlights the need to explore alternative methods of service provision. Rapid increases in access to the Internet make it a viable medium of public health intervention, but no studies have used this medium to deliver child obesity treatment.

Objectives: The primary objectives of this study are to evaluate the feasibility as well as the effects of a comprehensive family-based behavioural intervention for childhood obesity delivered via Internet and an education-control delivered by Internet on percent body fat measured using BIA in 8-12 year old overweight or obese children. Secondary objectives include evaluating the effects of the intervention on children's BMI, waist and hip circumference, and quality of life in children and parents will also be examined.

Study Design/Intervention: Parallel group randomized controlled trial conducted at a single site (CHEO). Forty children (and parents) will be randomized in equal numbers to family-based behavioural intervention via Internet or Internet-based education-control. The behavioural intervention will deliver behaviour modification in eating and activity behaviours through multiple forms of interactive media, including regular (3x/week) contact and individualized feedback from a therapist and dietitian using email, chat rooms for social support/education, videographic instruction on behaviour modification techniques, and education modules in healthy eating and

active living available for downloading (in modular format) on our secure website. The education-control group will just receive education in healthy eating and active living available for downloading on a separate secure website. The intervention period will last 3 months, with a follow-up assessment at 6-months post-randomization.

Status: The treatment materials and pilot testing of the website are being conducted. Planning for recruitment and baseline assessment is underway. It is estimated that the study will be completed by December 2009.

11. Physical Activity Measurement and Guidelines Project

Principal investigator: **Dr. Mark Tremblay**
Co-investigators: Steering Committee through the Canadian Society for Exercise Physiology

Funding Source: Public Health Agency of Canada ($213,000 administered through the Canadian Society for Exercise Physiology)

Description: This project builds on the substantial work already done on the "future of physical activity measurement and guidelines" project. It utilizes the intellectual capital summarized in the foundation document (Canadian Journal of Public Health 98(suppl.2), 2007; Applied Physiology, Nutrition and Metabolism 32(suppl.2E), 2007) as it was intended and serves to meet or advance several needs related to public health in Canada. The development and dissemination of the existing Physical Activity Guides and the recent foundation document is the result of an effective and productive partnership between the Canadian Society for Exercise Physiology (CSEP) and the Public Health Agency of Canada (PHAC). This partnership is well positioned and qualified to continue to lead this project which clearly falls under federal responsibility, with leadership being provided by Dr. Mark Tremblay of the Healthy Active Living and Obesity Research Group at the Children's Hospital of Eastern Ontario Research Institute.

Over the past several decades habitual physical activity among Canadians has almost certainly decreased, and the consequences of this reduced physical activity include obesity and increased prevalence of chronic disease. Canada's Physical Activity Guidelines provide an indication of the minimal level of regular physical activity for health, but the Guides do not suitably address all subpopulations in Canada. The CSEP is proposing to revise and expand the guidelines to take into consideration the growing body of scientific knowledge associated with recommendations for the quality and quantity of physical activity to promote and maintain health and promote healthy body weights. The current guidelines require further assessment to determine whether they need to be updated and the gaps in target populations need to be examined to determine future needs. The gaps include: young children (2-5 years of age), older youth (15-19 years of age), and special populations like Aboriginals and Canadians with physical disabilities. The project includes not only updating and expanding the current guidelines (using careful evaluation of the research literature and collaboration with international colleagues) but also exploring and launching new initiatives to get this essential information to the general public. If supported by a comprehensive, integrated, sustained strategy to encourage and support physical activity, this initiative has tremendous potential to enhance the health of Canadians by guiding them towards an appropriate amount of habitual physical activity.

Status: Phase 3 of this project is nearing completion and funding requests for phase 4 will be submitted to the Public Health Agency of Canada in February, 2009.

12. Built and Social Environmental Determinants of PA and Obesity in Ottawa Neighbourhoods

Principal investigators: **Drs. Mark Tremblay** and Denis Prud'homme
Co-investigators: **S. Prince** and **R. Colley**

Funding Source: Faculty of Health Science and CHEO-Research Institute partnership grant ($14,986)

Description: This research project will look at the potential influences of the built and social environments on objectively measured physical activity, overweight and obesity in parents and children across 86 City of Ottawa neighbourhoods. The project is a cooperative venture involving City of Ottawa Public Health and the Ottawa Neighbourhood Survey under the direction of Dr. Elizabeth Kristjansson (School of Psychology), the University of Ottawa, Dr. Denis Prud'homme, Faculty of Health Sciences and Dr. Mark Tremblay from the CHEO Research Institute. The pilot data will identify whether possible cross-sectional relationships exist between the built and social environments and physical activity and overweight/obesity in parents and children in the City of Ottawa.

Status: This project just received notice of funding in late 2008 and is just beginning.

13. Folic Acid fortification policy in Canada: Evidence from the Canadian Health Measures Survey

Principal investigators: **Drs. Mark Tremblay** and Debbie O'Connor
Co-investigator: **C. Colapinto** and L. Dubois

Funding Source: Canadian Institutes of Health Research Fellowship in Public Health for Cynthia Colapinto ($220,000)

Description: For her dissertation research, Cynthia Colapinto plans to use the Canadian Health Measures Survey data to examine folic acid supplementation and folate-rich food intake in a nationally representative sample of women of child-bearing age; compare these reported intakes to directly measured red blood cell folate (and other direct measures indicators); examine these levels and responses with international datasets; and determine the prevalence of women at risk of having neural-tube defects in future births while controlling for a variety of socio-demographic confounders. The overarching aim of the research is to help inform policy related to the recommended dose of folic acid supplementation for women of childbearing age.

Status: Cynthia has just started her doctoral studies. CIHR operating grant funding is being sought to further support this research

14. Canadian Assessment of Physical Literacy

Principal investigator: **Dr. Meghann Lloyd**
Co-investigator: **M. Tremblay**

Funding Source: Multiple Sources (total of $155,000)

Description: The purpose of this project is to improve the quality of the surveillance and monitoring of childhood physical activity, fitness, obesity, and motor behaviours in Canada.

Physical literacy is a construct which captures the essence of what a quality physical education or a quality community sport / activity program aims to achieve. It is the *foundation* of characteristics, attributes, behaviours, awareness, knowledge and understanding related to healthy active living and the promotion of physical recreation opportunities. Physical literacy is deemed to have four core domains, **a) physical fitness** (cardio-respiratory, muscular strength and flexibility), **b) motor behaviour** (fundamental motor skill proficiency), **c) physical activity behaviours** (objectively measured daily activity), and **d) psycho-social/cognitive factors** (awareness, knowledge and understanding).

The aim of this project is to develop a comprehensive tool to measure physical literacy in Canadian schools thus allowing education and health experts to better understand the quality and effectiveness of current physical education programming. The collection of high quality surveillance data on childhood physical activity, fitness, obesity, and motor behaviours in Canada will facilitate the understanding around the moderators and mediators of physical activity and how these relate to obesity. Initially the CAPL will be designed for children in grades 4-6; subsequent versions will assess the other grade levels. In addition to large scale surveillance and monitoring the tool will also facilitate the evaluation of future changes and interventions in physical education. The tool will provide critical information to both health and education specialists about the state of the childhood inactivity and how this relates to the obesity crisis in Canadian children and will ultimately help direct future interventions. Childhood obesity is a multi-dimensional problem and will take a comprehensive, multi-disciplinary approach to fully understand and correct. Despite attention and efforts to slow the childhood obesity epidemic, very little progress has been realized. Part of the problem is a lack of well-measured data on the contributors to obesity, in particular physical inactivity; a behaviour that is affected by many factors including motor skills, fitness and psycho-social characteristics.

Status: Awaiting final REB approval in order to begin recruitment.

Summary of Research Funding, Grants and Awards

Grants applied for in 2008

Name of the PI(s)	Organization / Agency	Title of Submission	Status
Adamo (PI)	Canadian Institute of Health Research (CIHR) Through University of Ottawa / Team Grant	CIHR Team in Critical Period of Body Weight Regulation: A Women's Health Perspective (The MOM Study)	Successful
Adamo (PI)	Canadian Foundation for Innovation (CFI) – Infrastructure Operating Fund	Childhood Obesity Research Group	Successful
Adamo (PI)	Canadian Institute of Health Research (CIHR)	New Investigator Salary Award- Childhood Obesity Development and Progression: From Conception to Adulthood	Pending
Adamo (PI)	Ministry of Research and Innovation (MRI) (Ontario) – Early Researcher Award	Tackling the childhood obesity epidemic-starting with MOM	Pending
Adamo (PI)	Canadian Institute of Health Research (CIHR) – RCT outline	Maternal Obesity Management. A pregnancy specific RCT – the MOM trial	Pending (Full submission – Sep. 2009)
Adamo (for **Zach Ferraro**)	Canadian Institute of Health Research (CIHR)	Doctoral Research Award Application – Exploring maternal obesity and the intrauterine environment- can attenuation of gestational weight gain through a lifestyle intervention reverse programming of pediatric obesity?	Pending
Colley	Canadian Institute of Health Research (CIHR) – Institute of Nutrition, Diabetes & Metabolism (INMD) Travel Award	Based on competitive application funds provided towards expenses relating to the European Congress on Obesity (Geneva, Switzerland)	Successful
Colley	Canadian Diabetes Association (CDA)	Scholar Award – The promotion of non-exercise activity thermogenesis (NEAT) to increase total energy expenditure and prevent behaviour compensation in obese adolescents at risk of developing type 2 diabetes	Pending
Katz (Co-PI) **Colley** (Co-PI)	Canadian Lung Association	Co-existent Obstructive Sleep Apnea and Obesity: Finding NEAT targets for intervention	Pending
Colley (PI)	Children's Hospital of Eastern Ontario Research Institute (CHEO-RI)	The promotion of non-exercise activity thermogenesis (NEAT) to increase total energy expenditure and prevent behaviour compensation in adolescents with the metabolic syndrome	Unsuccessful

Goldfield (PI) Doucet (Co-PI)	Canadian Institute of Health Research (CIHR)	Effects of Methylphenidate on Body Weight in Obese Adults: A Randomized double-blind, Placebo-controlled trial	Unsuccessful
Lloyd (PI) **Tremblay**	Children's Hospital of Eastern Ontario Research Institute (CHEO-RI) Start-up / Feasibility Funds	Assessment of Physical Literacy: Feasibility and Pilot Study	Successful
Lloyd (PI)	Canadian Institute of Health Research (CIHR)	New Investigator Award – Priority Announcement for the Institute of Human Development, Child and Youth Health	Pending
Lloyd (PI)	Children's Hospital of Eastern Ontario Research Institute (CHEO-RI) Summer Studentships 2009	Assessment of Physical Literacy: Feasibility and Pilot Study: Summer Studentship	Pending
Lloyd (PI) **Tremblay**	Canadian Institute of Health Research (CIHR) Operating Grant – Priority Announcement for New Investigators	Creation of a Canadian Assessment of Physical Literacy: Development and Validation	Pending
Tremblay (PI)	Active Health Kids Canada (AHKC)	2009 Report Card Development and Support	Successful
Tremblay (PI)	Public Health Agency of Canada	Technical Paper for the WHO on Physical Activity Indicator	Successful
Tremblay (PI) **Lloyd**	Public Health Agency of Canada through AHKC	Physical Literacy Test Development	Successful
Tremblay (PI) **Lloyd**	Ontario Physical and Health Education Association	Physical Literacy Test Development	Successful
Tremblay (PI) **Lloyd**	Ottawa Catholic School Board	Physical Literacy Test Development	Successful
Tremblay (Co-PI) Prud'homme (Co-PI)	University of Ottawa and Children's Hospital of Eastern Ontario	Built and Social Environmental Determinants of Physical Activity and Obesity in Ottawa Neighbourhoods	Pending
Tremblay (for Michelle Stone)	Heart and Stroke Foundation of Ontario	Post-doctoral Research Award Application – Harmonizing child health measurements through effective knowledge translation among Canadian obesity networks	Pending
Tremblay **Adamo** (for Michelle Stone)	Canadian Diabetes Association (CDA)	Post-doctoral Fellowship Application – Harmonizing health measurements for overweight and obese children and youth through effective communication and knowledge translation among obesity clinicians and researchers in Canada	Pending

Tremblay (for Richard Larouche)	Canadian Institute of Health Research (CIHR)	Doctoral Research Award Application – Impact of Non-exercise activity thermogenesis (NEAT) and daily active commuting on physical activity, fitness and obesity: A randomized controlled trial	Pending
Tremblay (for Richard Larouche)	Fonds de la recherché en santé du Quebec	Doctoral Scholarship Application – Impact of daily active commuting on aerobic capacity, cholesterol and obesity: A randomized controlled trial	Pending
Tremblay (for Pilar Rodriguez)	CAMBIO – IDRC	Visiting Fellowship Application – Childhood Physical	Pending

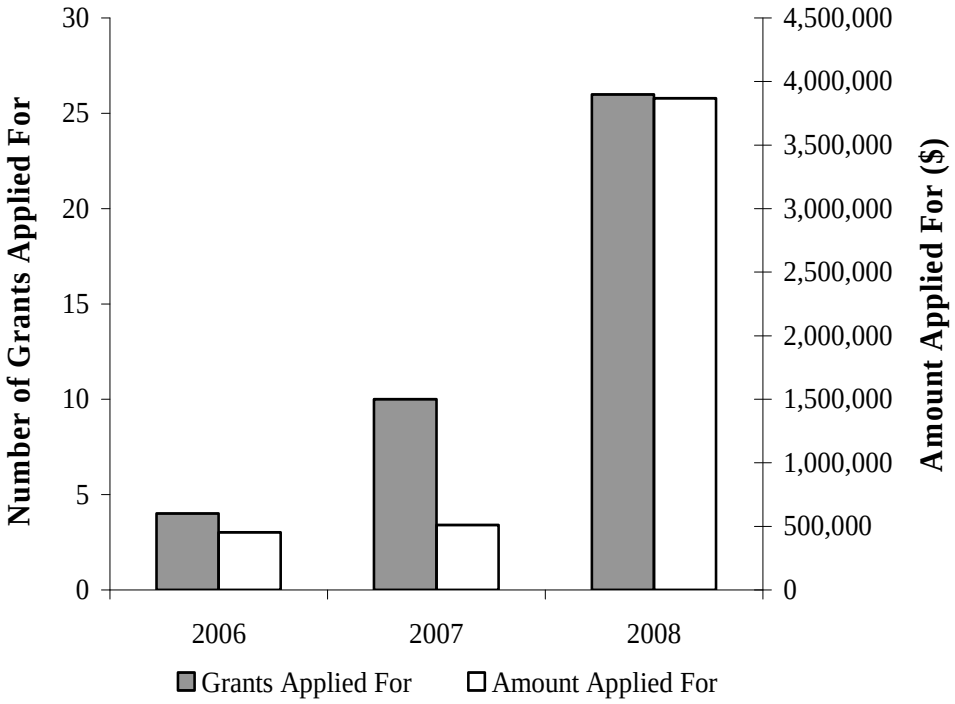


Figure 2. Number of grants applied for and amount of funds applied for as principal or co-principal investigator by HALO Research Group from 2006 to 2008. Between 2006 and 2007, there was a 150% increase in the number of grants applied for and a 13% increase in the amount applied for. Between 2007 and 2008, there was a 160% increase in the number of grants applied for and a 657% increase in the amount applied for.

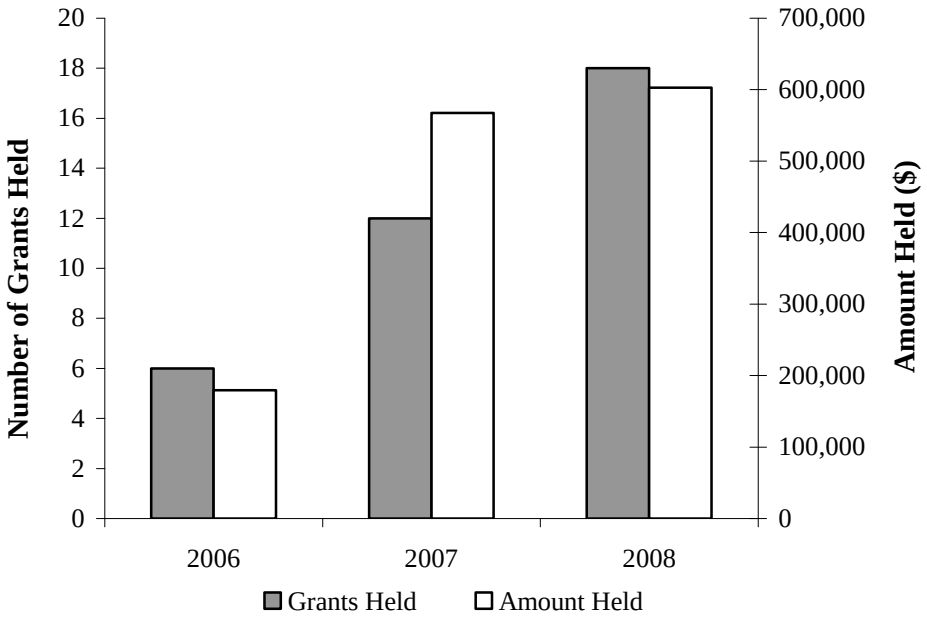


Figure 3. Number of grants held and amount of funds held as principal or co-principal investigator by HALO Research Group from 2006 to 2008. Between 2006 and 2007, there was a 100% increase in the number of grants held and a 217% increase in the amount held. Between 2007 and 2008, there was a 50% increase in the number of grants held and a 6% increase in the amount held.

Peer-reviewed, Refereed Publications

1. **K.B. Adamo**, **S.A. Prince**, A.C. Tricco, S. Connor-Gorber, **M.S. Tremblay**. A comparison of indirect versus direct measures for assessing physical activity in the pediatric population: A systematic review. **International Journal of Pediatric Obesity** Aug(on line), 1-26, 2008.

2. **K.B. Adamo** & F. Tesson. Gene-Environment interaction and the metabolic syndrome. Genetic effects on environmental vulnerability to disease. **Novartis Foundation Symposia Series Ed**. Michael Rutter. Wiley, John & Sons, 293: 103-119, 2008. (Book Chapter).

3. R.M. Angulo-Barroso, A. Burghardt**, M. Lloyd,** D.A. Ulrich. Physical activity in infants with Down Syndrome receiving a treadmill intervention. **Infant Behavior and Development** 31(2) 255-269, 2008.

4. J. Cameron, **G.S. Goldfield**, E. Doucet**.** The effects of prolonged caloric restriction leading to weight loss on food hedonics and reinforcement. **Physiology & Behaviour** 94(3):474-80, 2008.

5. **R.C. Colley**, A. Hills, T. O'Moore-Sullivan, J. Prins, I. Hickman, N. Byrne. Variability in adherence to an unsupervised exercise prescription in obese women. **International Journal of Obesity** 32(5): 837- 844, 2008.

6. S. Connor Gorber, M. Shields, **M.S. Tremblay**, I. McDowell. The feasibility of establishing correction factors to adjust self-reported estimates of obesity in the Canadian Community Health Survey. **Health Reports** 19(3):71-82, 2008.

7. S. Connor Gorber, **M.S. Tremblay**, N. Campbell, J. Hardt. The accuracy of self-reported hypertension: a systematic review and meta-analysis. **Current Hypertension Reviews** 4:36-62, 2008.

8. **Z. Ferraro** & **K.B. Adamo**. Pediatric Obesity: It's time for prevention before conception. Can maternal obesity program prevent pediatric obesity? **Clinical Medicine: Pediatrics** 2:37-46, 2008.

9. **G.S. Goldfield** & A. Lumb. Smoking, dietary restraint, and gender on the relative reinforcing value of snack food in university students. **Appetite** 50(2-3):278-89, 2008.

10. **G.S. Goldfield**, **K.B. Adamo, J. Rutherford**, C. Legg. Stress and the relative reinforcing value of food in female binge eaters. **Physiology & Behaviour** 93(3): 579-587, 2008.

11. **G.S. Goldfield**, R. Mallory, D. Prud'homme, **K.B. Adamo**. Gender differences in response to a physical activity intervention in obese children. **Journal of Physical Activity and Health** 5(4): 592-606, 2008.

12. E.J. Keely, J.C. Malcolm, **S. Hadjiyannakis**, I. Gaboury, G. Lough, M.L. Lawson. Prevalence of Metabolic Markers of Insulin Resistance in Offspring of Gestational Diabetes Pregnancies. **Pediatric Diabetes** 9:53-59, 2008.

13. C.L. Lorello, **G.S. Goldfield**, E. Doucet. Methylphenidate hydrochloride increases energy expenditure in healthy adults. **Obesity** 16(2): 470-472, 2008.

14. **S.A. Prince**, **K.B. Adamo**, M.E. Hamel, J. Hardt, S. Connor-Gorber, M.S. Tremblay. A comparison of direct versus self-report measures for assessing physical activity in adults: a systematic review. **International Journal of Behavioral Nutrition and Physical Activity** Nov 6;5(1):56, 2008.

15. **S.A. Prince**, I. Janssen, J.E. Tranmer. Influences of body mass index and waist circumference on physical function in older persons with heart failure. **Canadian Journal of Cardiology** 24(12): 905-911, 2008.

16. **S.A. Prince**, I. Janssen, J.E. Tranmer. Self-measured waist circumference in older patients with heart failure: a study of validity and reliability using a Myotape. **Journal of Cardio-pulmonary Rehabilitation & Prevention** 28(1): 43-7, 2008.

17. A.W. Probert, **M.S. Tremblay,** S. Connor Gorber. Desk Potatoes – The Importance of Occupational Physical Activity on Health. **Canadian Journal of Public Health** 99:311-318, 2008.

18. L.B. Sherar, D.W. Esliger, A.D.G. Baxter-Jones, **M.S. Tremblay.** Response to Letter to the Editor regarding "Age and gender differences in youth physical activity: Does physical maturity matter? **Medicine and Science in Sports and Exercise** 39:830-835, 2007". **Medicine and Science in Sports and Exercise** 40(5):980, 2008.

19. M. Shields, S. Connor Gorber, **M.S. Tremblay**. Associations between obesity and morbidity: effects of measurement methods. **Obesity Reviews** 9:501-502, 2008.

20. M. Shields and **M.S. Tremblay**. Sedentary behaviour and obesity among Canadian Adults. **Health Reports** 19(2):19-30, 2008.

21. M. Shields and **M.S. Tremblay**. Screen time among Canadian adults: a profile. **Health Reports** 19(2):31-43, 2008.

22. M. Shields, S. Connor Gorber, **M.S. Tremblay**. Estimates of obesity based on self-report versus direct measures. **Health Reports** 19(2):61-76, 2008.

23. M. Shields, S. Connor Gorber, **M.S. Tremblay**. Effects of measurement on obesity and morbidity. **Health Reports** 19(2):77-84, 2008.

24. **M.S. Tremblay** and M. Shields. Applying the New WHO Child Growth Standards in Canada: What is our Prevalence of Obesity? **Children and Exercise XXIV: Proceedings of the 24th Pediatric Work Physiology Meeting**, Routledge, U.K., p. 119-122, 2008.

25. **M.S. Tremblay**. Initiatives Related to Childhood Obesity and Inactivity in Canada: Year 2007 in Review. **Children and Exercise XXIV: Proceedings of the 24th Pediatric Work Physiology Meeting,** Routledge, U.K., p. 111-114, 2008.

26. **M.S. Tremblay**, M. Brownrigg, R. Deans. Active Healthy Kids Canada Report Card on Physical Activity for Children and Youth. **Children and Exercise XXIV: Proceedings of the 24th Pediatric Work Physiology Meeting**, Routledge, U.K., p. 115-118, 2008.

27. S. Tremblay and **M.S. Tremblay**. Statistical Methods for Constructing Canadian Growth Charts. **Proceedings of the 2007 American Statistical Association Joint Statistical Meeting – Health Policy Statistics** 1534-1540, 2008.

28. **M.S. Tremblay**, D.W. Esliger, J.L. Copeland, J.D. Barnes, D.R. Bassett**.** Moving Forward by Looking Back: Lessons Learned from Lost Lifestyles. **Applied Physiology, Nutrition and Metabolism** 33:836-842, 2008.

29. **M.S. Tremblay.** Moving Forward by Looking Back: Physical Activity Across the Ages. **Applied Physiology, Nutrition and Metabolism** 33:817-818, 2008.

30. D.A. Ulrich, **M. Lloyd**, C. Tiernan, J. Looper, R.M. Angulo-Barroso. The effects of intensity of treadmill training on developmental outcomes and stepping in infants with Down Syndrome. **Physical Therapy** 88(1) 114-122, 2008.

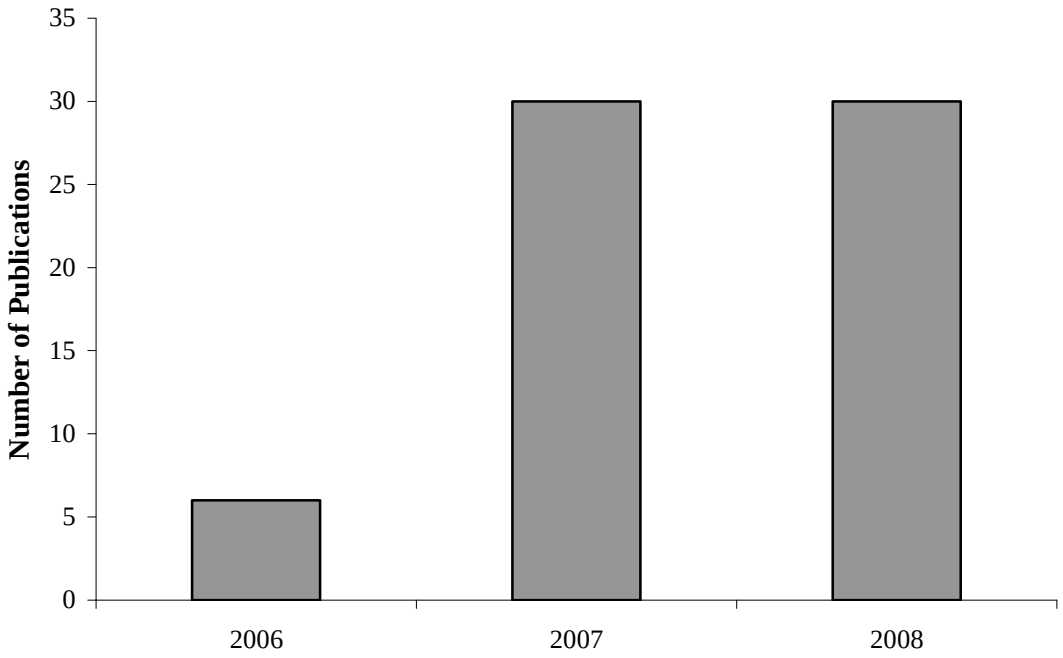


Figure 4. Number of peer-reviewed, refereed publications by HALO Research Group from 2006 to 2008. Between 2006 and 2007, and between 2007 and 2008, there was a 400% and 0% increase, respectively, in number of publications.

Non-Peer-Reviewed Publications

1. **R.C. Colley, M.S. Tremblay**, S. Connor Gorber. Development of Analysis Procedures for the Objective Measurement of Physical Activity Patterns Using Accelerometry in the Canadian Health Measures Survey. **Statistics Canada Fellowship Program Final Report** (148 pages), 2008.

2. **R.C. Colley**. Active Healthy Kids Canada It's Time to Unplug Our Kids – Canada's Report Card on Physical Activity for Children & Youth. Toronto: **Active Healthy Kids Canada**. 2008.

3. **S.A. Prince**. Canada's 2008 Report Card on Physical Activity for Children and Youth**.** Toronto, ON: **Active Healthy Kids Canada**. 2008. [Contributor/writer of Built Environment chapter].

4. **M.S. Tremblay, R.C. Colley, S.A. Prince**. Technical Paper on the WHO Physical Activity Indicator Proposed as a Method of Measuring Progress towards the Bangkok Charter for Health Promotion in a Globalized World*.* Commissioned report for the **Public Health Agency of Canada**. (85 pages), 2008.

Published Abstracts

1. **K.B. Adamo**, **S.A Prince**, A.C. Tricco, S. Connor-Gorber , **M.S. Tremblay**. A comparison of indirect vs. direct measures for assessing physical activity in the pediatric population: A systematic review. **North American Society for Pediatric Exercise Medicine,** Colorado Springs, Denver 2008.

2. **K.B. Adamo**, & F. Tesson. Gene-Environment Interaction and the Metabolic Syndrome. Understanding. How Gene-Environment Interactions Work to Predict Disease. **Novartis Foundation & University of Otago**, Dunedin, 2008.

3. A.S. Alberga, R.J. Sigal, D. Prud'homme, G.P. Kenny, **G.S. Goldfield**, **S. Hadjiyannakis.** Sex Differences in Abdominal Adiposity & Aerobic Fitness in Obese Adolescents Aged 14 to 18 Years Old: Preliminary Results. Poster Presentation at the 1st Canadian Obesity Student Meeting. Published in the conference program p. 47 (Abstract 20D). **Université Laval**, Quebec, 2008.

4. **R.C. Colley**, A. Hills, N. King, N. Byrne. Potential determinants of a compensatory response to exercise in obese women. **International Journal of Obesity**. 32 (Suppl 1): S28, 2008.

5. R.A. Hawes, **M.S. Tremblay**, S. Connor Gorber, I. McDowell. Historical trends in overweight, obesity and adiposity: International comparisons of direct measures from Canada and the United States, 1959-2005. **International Journal of Obesity** 32(S1):S185, 2008.

6. J.E. Hornyak, **M. Lloyd**, C. Tiernan, & D.A. Ulrich. The Benefits of Learning How to Ride a Two Wheel Bicycle in Children with Down syndrome**. Archives of Physical Medicine and Rehabilitation**, 89(11), E5, 2008.

7. C. Jiménez-Rivera, I. Gaboury, **S. Hadjiyannakis**. Factors contributing to transaminitis in obese and overweight pediatric patients. **Canadian Journal of Gastroenterology** 22 SA:118ª 2008.

8. **M. Lloyd**, & D.A. Ulrich. Physical activity of 3-5 year old children with and without Down syndrome. **Journal of Sport and Exercise Psychology** 30(Supplement):S52, 2008.

9. **S.A. Prince**, **M.S. Tremblay**, S. Connor Gorber, **K.B. Adamo**, M. Hamel. A comparison of direct vs self-reported measures for assessing physical activity in adults: a systematic review. **International Congress on Physical Activity and Public Health Book of Abstracts**, p. 66, 2008.

10. **S.A. Prince**, **M.S. Tremblay**, S. Connor Gorber, **K.B. Adamo**, M. Hamel, J. Hardt. A comparison of direct vs. self-reported measures for assessing physical activity in adults: a systematic review. **Canadian Obesity Network 1st Student Meeting Book of Abstracts**, 2008.

11. Z. Solh, J.L. Platt, **K.B. Adamo**, E. Boyd, E. Orrbine, E. Cummings, C.M.A. LeBlanc. Practicing What We Preach: A Look At Healthy Active Living Policy and Practice in Canadian Pediatric Hospitals. **Ontario Medical Association of Sports Medicine**, Toronto, Canada, 2008.

12. **M.S. Tremblay**, M. Brownrigg, R. Deans. Active Healthy Kids Canada Annual Report Card on the Physical Activity of Children and Youth: 2005-2007. **International Congress on Physical Activity and Public Health Book of Abstracts**, p. 275, 2008.

13. **M.S. Tremblay.** Canadian Physical Activity Guidelines Project: Process, Outcomes and Aspirations. **International Congress on Physical Activity and Public Health Book of Abstracts,** p. 100, 2008.

14. J.D. Willms, **M.S. Tremblay**, **R.C. Colley**. How do kids spend their time after school? **North American Society for Pediatric Exercise Science**. Colorado Springs, CO. 2008.

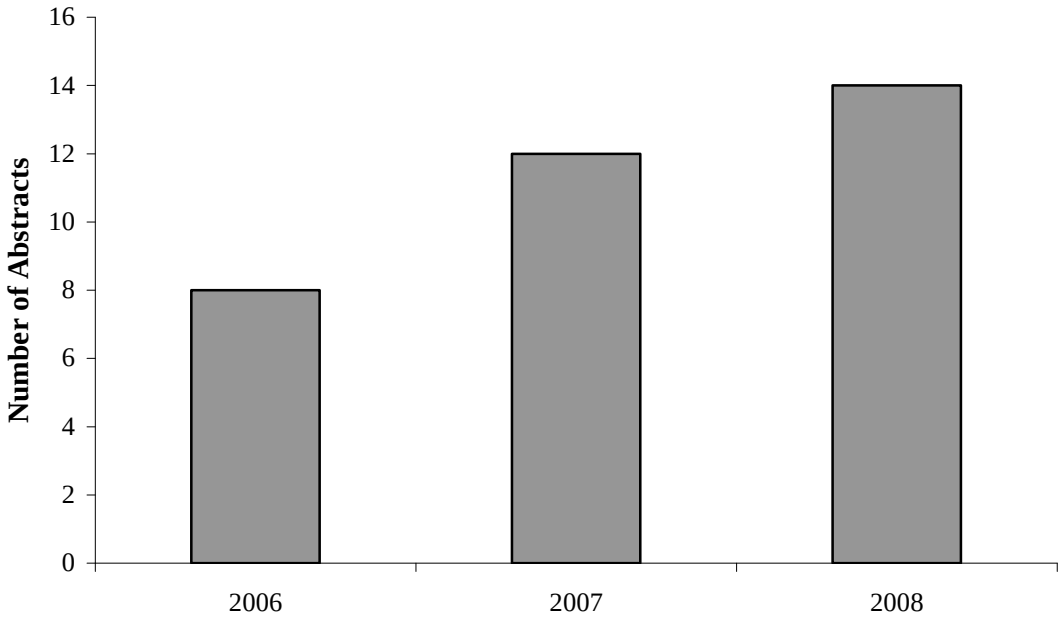


Figure 5. Number of published abstracts by HALO Research Group from 2006 to 2008. Between 2006 and 2007, and between 2007 and 2008, there was a 50% and 17% increase, respectively, in number of published abstracts.

Conference and Invited Presentations

1. **K.B. Adamo**. Diabetes & Exercise. **Kenyatta University** (Nairobi Kenya), 2008.

2. **K.B. Adamo.** CHEO's Healthy Active Living and Obesity Research Group. **University of Ottawa School of Human Kinetics** (Ottawa), 2008.

3. **K.B. Adamo, S.A. Prince,** A.C. Tricco, S. Connor Gorber, **M.S. Tremblay**. A Comparison of Indirect versus Direct Measures for Assessing Physical Activity in the Pediatric Population: A Systematic Review. Presentation at the **1st Annual CHEO Clinical Research Day** (Ottawa), 2008.

4. **K.B. Adamo, S.A. Prince,** A.C. Tricco, **M.S. Tremblay**, S. Connor Gorber. Comparing indirect and direct measures for assessing physical activity in the pediatric population: a systematic review. Presentation at the **North American Association for Pediatric Exercise Medicine Annual Conference** (Colorado Springs), 2008.

5. A. Brennan, D. Quirk Baillot, **G.S. Goldfield,** C. Van Lerberghe, N. Obeid, C. Peeters, H. Nguyen, B. Remy, M.F. Flament. Weight status, ideal-actual weight discrepancy, eating and weight control behaviours: A comparative study between French and American adolescents. **29th Annual Research Day of the University of Ottawa Department of Psychiatry** (Ottawa), 2008.

6. **R.C. Colley.** Childhood Obesity: Why does it happen and what can we do about it? Symposium: Maternal & Fetal/Neonatal Implications of Obesity at the **32nd Annual Perinatal Investigators Meeting** (Kingston), 2008.

7. **R.C. Colley.** Childhood Obesity – Risk Factors and Prevention Strategies **Yellowknife Health and Social Service Authority** (Yellowknife, NWT), 2008.

8. **R.C. Colley**. Why is it so hard to lose weight? Behavioural compensation for exercise in overweight and obese individuals **Children's Hospital of Eastern Ontario Research Institute Rounds** (Ottawa) 2008.

9. **R.C. Colley.** Potential determinants of a compensatory response to exercise in obese women. **European Congress on Obesity** (Geneva, Switzerland), 2008.

10. **R.C. Colley.** Development of analysis procedures for the objective measurement of physical activity patterns using accelerometry in the Canadian Health Measures Survey **Statistics Canada - Government of Canada** (Ottawa), 2008.

11. **R.C. Colley.** Quantifying the effect of exercise on total energy expenditure in obese women – Summary of PhD Work. **Canadian Research Institute for Social Policy (CRISP) University of New Brunswick** (New Brunswick), 2008.

12. **R.C. Colley, M.S. Tremblay**. Active Healthy Kids Canada Report Card on Physical Activity for Children and Youth: Provincial/Territorial Consultation. Presentation at the **Active Healthy Kids Canada 2008 Stakeholder Symposium** (Hockley Valley, ON), 2008.

13. **R.C. Colley, M.S. Tremblay**. The Importance of Advocating for the Role of Physical Activity in the Health of Children and Youth: A Summary of Findings and Recommendations from Canada's Report Card on Physical Activity for Children and Youth. Presentation at the **1st Annual CHEO Clinical Research Day** (Ottawa), 2008.

14. S. Connor Gorber, M. Shields, **M.S. Tremblay**, I. McDowell. Adjusting self-reported estimates of obesity: the feasibility of establishing correction factors. Presentation at the **24th International Methodology Symposium** (Gatineau), 2008.

15. S. Connor Gorber, M. Shields, **M.S. Tremblay**, I. McDowell. Correcting self-reported estimates of obesity: can we more closely approximate measured values? Presentation at the **Canadian Public Health Association Annual Conference** (Halifax), 2008.

16. G. Faulkner, C. McCloy, **M.S. Tremblay**, ParticipACTION Research Team. Baseline Capacity Assessment of the "New" ParticipACTION: a qualitative study of Canadian organizations. Symposium presentation at the **International Society for Behavioural Nutrition and Physical Activity annual conference** (Banff), 2008.

17. M. Flament, R. Flewelling, A. Buchholz, K. Henderson, **G.S. Goldfield**, K. Matheson, G. McVey. Research on Eating and Adolescent Lifestyles in Ontario – A Prospective Longitudinal School-Based Study (REAL study). **The Provincial Centre of Excellence for Child and Youth Mental Health Research Day**, (Mississauga), 2008.

18. **G.S. Goldfield**. Child obesity and Physical Activity in Obese Children. **B'Nai B'Rith of Ottawa Committee** (Ottawa), 2008.

19. **G.S. Goldfield**. The Rising Tide of Child obesity. **Parent teachers association group** (Ottawa), 2008

20. **S. Hadjiyannakis**. Obesity: The Nature Side of the Debate, Research Rounds, **Children's Hospital of Eastern Ontario** (Ottawa) 2008.

21. **S. Hadjiyannakis**. Do the Canadian Diabetes Association (CDA) Guidelines Identify Impaired Glucose Tolerance (IGT) and Type 2 Diabetes Mellitus in High-Risk Chidlren? **Children's Hospital of Eastern Ontario Clinical Research Day** (Ottawa), 2008.

22. **S. Hadjiyannakis**. The Healthy Active Living and Obesity Research Group (HALO) and CHEO's Clinical Obesity Program: **An Ideal Partnership, Childhood & Adolescent Obesity Conference** (Vancouver), 2008.

23. **S. Hadjiyannakis**. Healthy Weight Strategies for Families and Youth. **YMCA Healthy Kids Day Carlingwood YMCA** (Ottawa), 2008.

24. **S. Hadjiyannakis**. Pulling the Curtain Back on Type 2 Diabetes Mellitus in Children and Youth. **57th Annual Refresher Course for Family Physicians**, Ottawa Hospital, Civic Campus (Ottawa), 2008.

25. **S. Hadjiyannakis**. Pediatric Obesity: Sounding the Alarm, **Academy of Medicine Ottawa Clinical Day** (Ottawa), 2008.

26. J.E. Hornyak, **M. Lloyd,** C. Tiernan & D.A. Ulrich**.** The Benefits of Learning How to Ride a Two Wheel Bicycle in Children with Down syndrome. **American Academy of Physical Medicine & Rehabilitation Annual Assembly** (San Diego), 2008.

27. **M. Lloyd.** Canadian Assessment of Physical Literacy: Development, feedback and discussion. **Quality Daily Physical Education Conference** (Gananoque), 2008.

28. **M. Lloyd.** Age of walking predicts preschool physical activity in children with Down syndrome. **Children's Hospital of Eastern Ontario Clinical Research Day** (Ottawa), 2008.

29. **M. Lloyd** & D.A. Ulrich. Manipulating environmental conditions to influence jumping in 4 year old children with and without Down syndrome: An exploratory study. **North American Federation of Adapted Physical Activity Symposium** (Indianapolis), 2008.

30. **M. Lloyd** & D.A. Ulrich. Physical activity of 3-5 year old children with and without Down Syndrome. **North American Society for the Psychology of Sport and Physical Activity** (Niagara Falls), 2008.

31. A.B. Lumb, **G.S. Goldfield**, & M. Gick. Determinants of the relative reinforcing value of food. Paper presented at the **2008 Annual Convention of the Canadian Psychological Association** (Halifax), 2008.

32. S.J. Norwood, A. Buchholz, A. Bowker, K. Henderson, **G.S. Goldfield,** M. F. Flament. Gender differences in self-silencing behaviours as predictors of eating pathology among adolescents. **Academy of Eating Disorders: International Conference on Eating Disorders** (Cancun, Mexico), 2008.

33. S.J. Norwood, A. Buchholz, K. Henderson, M. Flament, **G.S. Goldfield.** Self-silencing among females and males: Examining the psychometric properties of the STSS-A among adolescents. **69th Annual Convention of the Canadian Psychiatric Association** (Halifax), 2008.

34. S. Norwood, A. Buchholz, K. Henderson, **G.S. Goldfield,** M.F. Flament M.F. Self-silencing in females and males: Examining the psychometric properties of the STSS-A among adolescents. **29th Annual Research Day of the University of Ottawa Department of Psychiatry** (Ottawa), 2008.

35. N. Obeid, M.F. Flament, A. Buchholz, K. Henderson, **G.S. Goldfield**. The adolescent male divide: The muscular ideal versus the thin ideal. **Academy of Eating Disorders: International Conference on Eating Disorders** (Cancun, Mexico), 2008.

36. N. Obeid, K. Henderson, A. Buchholz, **G.S. Goldfield**, C. Moore, M. Taljaard, M.F. Flament M.F. Self-reported versus objective measures of weight and height in adolescents: Implications for eating disorders and obesity research. **29th Annual Research Day of the University of Ottawa Department of Psychiatry** (Ottawa), 2008.

37. R. Plotkikoff, I. Todosijczuk, M. Pickering, S. Cragg, **M.S. Tremblay**, ParticipACTION Research Team. Baseline Physical Activity Promotion Capacity Available to the "New" ParticipACTION: a quantitative survey of Canadian organizations. Symposium presentation at the **International Society for Behavioural Nutrition and Physical Activity annual conference** (Banff), 2008.

38. **S.A. Prince**, **M.S. Tremblay**, S. Connor Gorber, **K.B. Adamo**, M. Hamel, J. Hardt. A comparison of direct vs self-reported measures for assessing physical activity in adults: a systematic review. Presentation at the **1st Canadian Obesity Student Meeting** (Quebec City), 2008.

39. **S.A. Prince**, **M.S. Tremblay,** S. Connor Gorber, **K.B. Adamo,** M. Hamel. A comparison of direct vs self-reported measures for assessing physical activity in adults: a systematic

review. Presentation at the **International Congress on Physical Activity and Public Health** (Amsterdam, The Netherlands), 2008

40. **J. Rutherford**. Stopping the Downward Spiral: Effective Intervention and Prevention Strategies. **Physical Activity Network – Renfrew County Conference** (Renfrew), 2008.

41. M. Shields, S. Connor Gorber, **M.S. Tremblay**. Quantifying the bias in reported and measured obesity. Presentation at the **Canadian Public Health Association Annual Conference** (Halifax), 2008.

42. M. Shields, S. Connor Gorber, **M.S. Tremblay**. Obesity and morbidity: comparison of reported and measured estimates and the links between obesity and disease. Presentation at the **Canadian Public Health Association Annual Conference** (Halifax), 2008.

43. J.C. Spence, M. Clark, **M.S. Tremblay**, ParticipACTION Research Team. ParticipACTION Brand Awareness and Baseline Data. Symposium presentation at the **International Society for Behavioural Nutrition and Physical Activity annual conference** (Banff), 2008.

44. E.C. Squires, N. Obeid, N. V. Giasson, A. Byrne, A**.** Buchholz, K. Henderson, **G.S. Goldfield,** R. Flewelling, K. Matheson, M.F. Flament. Research on eating and adolescent lifestyles in Ontario – A propective longitudinal school-based study (REAL study). **29th Annual Research Day of the University of Ottawa Department of Psychiatry** (Ottawa), 2008.

45. C. Tiernan, R. Angulo-Barroso, **M. Lloyd**, H. Neary & D. Ulrich. Examining effects of treadmill training in infants at risk for neuromotor delay. **North American Federation of Adapted Physical Activity Symposium** (Indianapolis), 2008.

46. **M.S. Tremblay**. Childhood Obesity in Canada: Current Initiatives and Future Directions. Invited Pediatric Grand Rounds presentation at the **Children's Hospital Université Laval** (Quebec City), 2008.

47. **M.S. Tremblay**. Canada's Physical Activity Guidelines Project: An Overview. Workshop presentation at the **Chronic Disease Prevention Alliance of Canada Third National Conference** (Ottawa), 2008.

48. **M.S. Tremblay**. Automation, Mechanization, Digitization: How our changing world is changing us. Invited university-wide public lecture **Kenyatta University** (Nairobi, Kenya), 2008.

49. **M.S. Tremblay**. Inactivity-promoting alterations in the lives of children and youth. Invited issue expert presentation at the **2008 McGill Health Challenge Think Tank: Active Living and Energy Balance** (Montreal), 2008.

50. **M.S. Tremblay**. Pediatric Obesity in Canada: Are we making any progress and where do we go from here? Invited keynote address at the **6th Lawson Foundation Diabetes Workshop**, (Montreal), 2008.

51. **M.S. Tremblay**, M. Shields, S. Connor Gorber. Addressing Obesity – Measuring the truth vs masking the truth. Presentation at the **1st Annual CHEO Clinical Research Day** (Ottawa), 2008.

52. **M.S. Tremblay**. Pediatric Obesity in Canada: Are we making any progress and where do we go from here? Invited presentation at the **Childhood and Adolescent Obesity: How we live, how we learn and how we work Conference** (Vancouver), 2008.

53. **M.S. Tremblay**. Active Healthy Kids Canada Report Card for Children and Youth. Invited presentation at the **Childhood Obesity and Public Health: A Lifespan Approach to Prevention Conference** (Baton Rouge, LA), 2008.

54. **M.S. Tremblay**, K. Murumets, J. Robertson. ParticipACTION: Mass media campaign promoting physical activity. Presentation at the **North American Association for Pediatric Exercise Medicine Annual Conference** (Colorado Springs), 2008.

55. **M.S. Tremblay**. Canadian Health Measures Survey: Background, Overview and Research Opportunities. Invited presentation at the **University of Ottawa, Department of Epidemiology and Community Medicine Seminar Series** (Ottawa), 2008.

56. **M.S. Tremblay**. Introducing HALO: Preventing and Managing Obesity for Populations and Patients. **Children's Hospital of Eastern Ontario Research Institute *Research Rounds*** (Ottawa), 2008.

57. **M.S. Tremblay**. Physical Activity Measurement and Guidelines Project – An Overview. Symposium presentation at the **Canadian Federation of Biological Societies Annual Scientific Conference** (Winnipeg), 2008.

58. **M.S. Tremblay**, S. Connor Gorber. Future opportunities for understanding self-reported vs. measured variables: an update on the Canadian Health Measures Survey. Presentation at the **Canadian Public Health Association Annual Conference** (Halifax), 2008.

59. **M.S. Tremblay**. ParticipACTION: An Overview. Symposium presentation at the **International Society for Behavioural Nutrition and Physical Activity annual conference** (Banff), 2008.

60. **M.S. Tremblay**. Active Healthy Kids Canada Report Card on Physical Activity for Children and Youth. Symposium presentation at the **International Society for Behavioural Nutrition and Physical Activity annual conference** (Banff), 2008.

61. **M.S. Tremblay**. Preventing Childhood Obesity: Big Picture Strategies. Invited keynote address at **Mount Royal College and Alberta Centre for Active Living Physical Activity Forum** (Calgary), 2008.

62. **M.S. Tremblay**. Preventing Childhood Obesity: Big Picture Strategies. Invited keynote address at **University of Alberta and Alberta Centre for Active Living Physical Activity Forum** (Edmonton), 2008.

63. **M.S. Tremblay**. Preventing Childhood Obesity: Big Picture Strategies. Invited lecture to **Alberta Telehealth Network (41 sites - Alberta Centre for Active Living Physical Activity Forum)** (Edmonton), 2008.

64. **M.S. Tremblay**. Physical Inactivity in Canada. Invited presentation at the **Heart and Stroke Foundation of Ontario South Asian Health Symposium** (Brampton), 2008.

65. **M.S. Tremblay**. Overview of Childhood Obesity in Canada. Invited presentation at the **Ontario Ministry of Health Promotion Childhood Obesity Think Tank Forum** (Toronto), 2008.

66. **M.S. Tremblay**, M. Brownrigg, R. Deans. Active Healthy Kids Canada Annual Report Card on the Physical Activity of Children and Youth: 2005-2007. Presentation at the **International Congress on Physical Activity and Public Health** (Amsterdam, The Netherlands), 2008.

67. **M.S. Tremblay.** Canadian Physical Activity Guidelines Project: Process, Outcomes and Aspirations. Symposium presentation at the **International Congress on Physical Activity and Public Health** (Amsterdam, The Netherlands), 2008.

68. **M.S. Tremblay**. Advancing the Future of Physical Activity Measurement and Guidelines Project. Invited presentation at the **3rd B.C. Network for Aging Research Conference: Promoting Active Aging by Connecting BC Researchers and Communities: Towards 2010 and Beyond** (Vancouver), 2008.

69. **M.S. Tremblay**. Is there really an obesity epidemic? Measuring obesity at the population level. Invited presentation at the **CIHR Journalist Workshop – to be or not to be? Is obesity really a question of choice?** (Toronto), 2008.

70. **M.S. Tremblay**. Physical Activity and Obesity in Children. Invited presentation at the **Public Health Agency of Canada Research Forum** (Ottawa), 2008.

71. **M.S. Tremblay**. Setting the Context: childhood obesity, activity and nutrition in Canada. Invited expert presentation at the **Obesity and the Impact of Marketing on Children CDPAC Policy Consensus Conference** (Ottawa), 2008.

72. **M.S. Tremblay**. Canadian Health Measures Survey: Background, Overview and Research Opportunities. Invited **Pediatric Research Rounds, Children's Hospital of Eastern Ontario Research Institute** (Ottawa), 2008.

73. **M.S. Tremblay**. Advocacy and Knowledge Transfer Activities for the Prevention and Treatment of Childhood Obesity. **CAMBIO Research Network Short Course on Obesity** (Guadalajara, Mexico), 2008.

74. **M.S. Tremblay**. Canadian Health Measures Survey: Background, Overview and Research Opportunities. Invited **Pediatric Grand Rounds, B.C. Children's Hospital** (Vancouver), 2008.

75. **M.S. Tremblay**. Canadian Health Measures Survey: Background, Overview and Research Opportunities. Seminar presentation at the **School of Human Kinetics, University of British Columbia** (Vancouver), 2008.

76. **M.S. Tremblay**. Childhood Physical Activity: Important Initiatives, Insights and Issues. Inaugural invited presentation at the **Nipissing University Physical and Health Education Lecture Series** (North Bay), 2008.

77. D. Ulrich, A. Burghardt, **M. Lloyd, &** C. Tiernan. The relationship between anthropometric and fitness variables and physical activity level in youth with Down syndrome. **North American Federation of Adapted Physical Activity Symposium** (Indianapolis), 2008.

78. J.D. Willms, **M.S. Tremblay**, **R. Colley**. How do kids spend their time after school? Presentation at the **North American Association for Pediatric Exercise Medicine Annual Conference** (Colorado Springs), 2008.

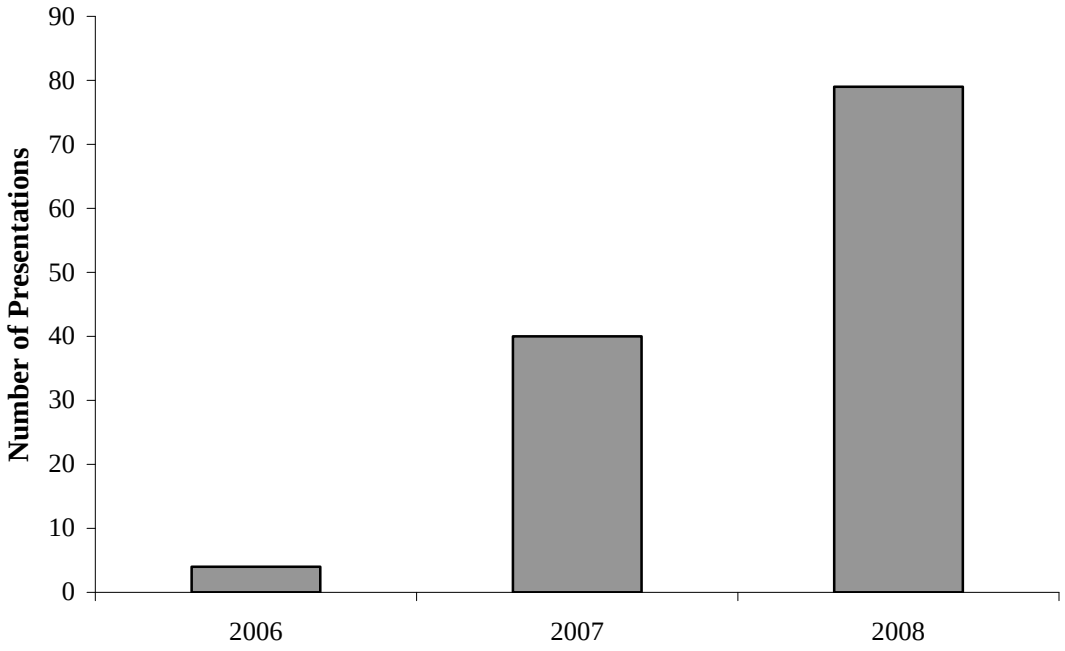


Figure 6. Number of scholarly presentations by HALO Research Group from 2006 to 2008. Between 2006 and 2007, and between 2007 and 2008, there was a 900% and 98% increase, respectively, in number of presentations.

Research, Clinical, Professional and Scholarly Service

Dr. Kristi Adamo

- Reviewer for CFI/Alberta Heritage Foundation
- NLCAHR-CHRSP review of 'Report on Childhood Obesity'
- Champlain Cardiovascular Disease Prevention Network: Champlain Healthy School Age Children Initiative Committee Member
- Member of the Obesity Research Clinical Alliance
- Canadian Obesity Network; Ottawa Chapter Faculty Advisor
- Isabelle Giguere- MSc. candidate School of Human Kinetics – thesis committee member
- *Medicine and Science in Sports and Exercise* (Reviewer)
- *Journal of School Health* (Reviewer)
- *Pediatrics* (Reviewer)

Dr. Rachel Colley

- Panel Member (2008) - Monitoring, Surveillance and Evaluation Expert Panel for the Champlain Cardiovascular Disease Prevention Network (CCPN)
- Scientific Committee Member (2008) - The Canadian Assessment of Physical Literacy
- *Medicine and Science in Sports and Exercise* (Reviewer)
- *Canadian Medical Association Journal* (Reviewer)
- *Applied Physiology, Nutrition & Metabolism* Journal (Reviewer)
- *Research Quarterly in Exercise Science* (Reviewer)

Dr. Gary Goldfield

- Reviewer for Canadian Institutes of Health Research (2 grants)
- Reviewer for Social Science and Humanities Research Council of Canada (3 grants)
- Reviewer for *Canadian Medical Association Journal* (1 paper)
- Reviewer for *Pediatrics* (1 paper)
- Reviewer for *Obesity* (2 papers)
- Reviewer for *International Journal of Obesity* (2 papers)
- Reviewer for *American Journal of Psychiatry* (1 paper)
- Reviewer for *Eating Behaviors* (3 papers)
- Reviewer for *Personality and Social Psychology Bulletin* (1 paper)
- Reviewer for *Health Psychology* (2 papers)
- Reviewer for *Preventive Medicine* (2 papers)
- Reviewer for *Applied Physiology, Nutrition and Metabolism* (1 paper)
- Reviewer for *Journal of Psychosomatic Research* (2 papers)
- Reviewer for CHEO Research Institute Science Sub-Committee (2 grants)
- Reviewer for Alberta Heritage Foundation for Medical Research – Population Health Investigator Review Committee (2 grants)
- Co-Chair – Ottawa Academy of Psychologists Mentorship Group
- Ministry of Research and Innovation YSTOP- Youth Science and Technology Outreach Program
- Member of Planning Committee- First Annual Pediatric Obesity Conference in Vancouver, Oct. 2008

Dr. Meghann Lloyd

- Scientific Reviewer for *Adapted Physical Activity Quarterly* – 4 papers in 2008
- Expert Reviewer for Special Olympics Canada – Active Start
- National Advisory Committee – PHE Canada – Fundamental Motor Skills III – Adapted

- Scientific Officer, Active Healthy Kids Canada – Physical Activity of Children with Disabilities

Dr. Stasia Hadjiyannakis

- *Canadian Diabetes* Peer Review
- Member of Obesity Research Clinical Alliance
- Canadian Obesity Network; Ottawa Chapter Faculty Advisor
- Angela Algebra- MSc. Candidate School of Human Kinetics Advisory Committee

Jane Rutherford

- Regular *Running Room* Expert Speaker – Nutrition, Heart Rate Training, Cross-training techniques
- YMCA/YWCA Group Fitness Instructor
- YMCA/YWCA Y Kids Fit Lifestyle Coach
- YMCA/YWCA Individual Conditioning Coach

Dr. Mark Tremblay

- Reviewer for *Health Reports* – reviewed 3 papers
- Reviewer for *Canadian Journal of Public Health* – reviewed 1 paper
- Reviewer for *Pediatric Exercise Science* – reviewed 2 papers
- Reviewer for *BMC Medical Research Methodology* – reviewed 1 paper
- Reviewer for *Children and Exercise XXIV* (Routledge Book) – reviewed 8 papers
- Reviewer for *Medicine and Science in Sports and Exercise* – reviewed 2 papers
- Chief Scientific Officer, Active Healthy Kids Canada
- Invited member of Silken Lauman's ActiveKids Movement Advisory Team
- Invited member of the Advisory Board of the Learning, Eating, Activity Programme (LEAP) at the University of New Brunswick
- Chair of the preparation and release of the fourth annual Active Healthy Kids Canada Report Card on Physical Activity for Children and Youth including preparation of summary report card, long-form report card, and press conference
- Chair, Future of Canadian Physical Activity Guidelines and Guides Project, supported by the Public Health Agency of Canada in partnership with the Canadian Society for Exercise Physiology
- Scientific Steering Committee for the Public Population Project in Genomics (P^3G) International Consortium
- Provincial Council for Children's Health - Expert Panel on Child and Youth Weight-Related Issues
- Chair, Research Advisory Committee for the Active Healthy Kids Canada Report Card
- Chair, Expert Advisory Committee for the Statistics Canada Canadian Health Measures Survey
- Invited member of the Expert Panel to Develop a Physical Fitness and Physical Activity Measurement Instrument for Students in Grades 6-8. An initiative of the National Dairy Council and the National Football League (Washington, D.C.)
- Chair of workshop on Canada's Physical Activity Guidelines Project: Expanding the Reach and Reducing Inequalities, at the Chronic Disease Prevention Alliance of Canada Third National Conference (Ottawa).
- External referee for tenure and promotion for a candidate from Dalhousie University
- External referee for tenure and promotion for a candidate from The University of Hong Kong
- Chair/Moderator, Free Communication Session: Physical Activity and Body Weight (5 presentations), North American Association for Pediatric Exercise Medicine Annual Conference (Colorado Springs), 2008.

- International Research Advisor and member of the Research Advisory Committee for the development of the *Louisiana Report Card on Physical Activity & Health for Children and Youth 2008*
- Chair, Physical Activity Report Cards for Children: International Comparisons and Success Stories. Symposium at the International Society for Behavioural Nutrition and Physical Activity Conference (Banff), 2008
- Chair, The Impact of Physical Activity Promotion Mass Media Campaigns: Experience of Canada's ParticipACTION. Symposium at the International Society for Behavioural Nutrition and Physical Activity Conference (Banff), 2008
- Symposium Chair, *Physical Activity Guidelines for Canadian Older Adults* at the Canadian Federation of Biological Societies Annual Scientific Conference (Winnipeg), 2008
- Member of the Scientific Program Committee of the 3rd International Congress on Physical Activity and Public Health (2010 in Toronto)
- Member of the Board of Directors of the 3rd International Congress on Physical Activity and Public Health (2010 in Toronto)
- Invited participant and speaker at the Ontario Ministry of Health Promotion Childhood Obesity Prevention Think Tank Forum
- Member of the Teaching Faculty of the CAMBIO Research Network "Short Course on Obesity", Guadalajara, Mexico
- Research Affiliate with the Alberta Centre for Active Living
- Editorial Board member of Acta Kinesiologiae Universitatis Tartuensis (University of Tartu, Estonia)
- Member of the Champlain Cardiovascular Disease Prevention Network Coordinating Committee

Professional Development Activities

Dr. Kristi Adamo

- NASPEM conference, September 2008

Dr. Rachel Colley

- European Congress on Obesity (Geneva, Switzerland), May 2008
- 2008 Obesity Stock Conference (Bangkok, Thailand), March 2008

Dr. Gary Goldfield

- Ontario Psychological Association Conference (Toronto)
- Canadian Psychological Conference (Ottawa)
- Co-Chair – Ottawa Academy of Psychologists Mentorship Group

Dr. Meghann Lloyd

- Invited Guest Lecturer, Faculty of Health Sciences, School of Human Kinetics APA 3121, Human Motor Skill Development. Lecture Title: Motor Development: Theory into Practice
- North American Federation of Adapted Physical Activity Symposium (Indianapolis)
- The North American Society for the Psychology of Sport and Physical Activity Conference (Niagara Falls, ON)
- 1st Annual CHEO Clinical Research Day (Ottawa)

Dr. Stasia Hadjiyannakis

CME Courses attended:

- Endocrine Society Annual meeting
- Childhood and Adolescent Obesity Conference
- Network of Ontario Pediatric Diabetes Programs

Jane Rutherford

- A Guide to Children's Exercise in Health and Disease (California)
- Juvenile Obesity Epidemic: The problem and Solutions (Hamilton)

Dr. Mark Tremblay

Attended the following conferences, symposia and workshops:

- Chronic Disease Prevention Alliance of Canada Third National Conference (Ottawa)
- McGill Health Challenge Think Tank: Active Living and Energy Balance (Montreal)
- Active Healthy Kids Canada 2008 Stakeholder Symposium (Hockley Valley, ON)
- 6th Lawson Foundation Diabetes Workshop (Montreal)
- 1st Annual CHEO Clinical Research Day (Ottawa)
- Childhood and Adolescent Obesity: How we live, how we learn and how we work Conference (Vancouver)
- Childhood Obesity and Public Health: A Lifespan Approach to Prevention Conference (Baton Rouge, LA)
- North American Association for Pediatric Exercise Medicine Annual Conference (Colorado Springs)
- Canadian Federation of Biological Societies Annual Scientific Conference (Winnipeg)
- International Society for Behavioural Nutrition and Physical Activity annual conference (Banff)
- Mount Royal College and Alberta Centre for Active Living Physical Activity Forum (Calgary)
- University of Alberta and Alberta Centre for Active Living Physical Activity Forum (Edmonton)

- Heart and Stroke Foundation of Ontario South Asian Health Symposium (Brampton)
- Ontario Ministry of Health Promotion Childhood Obesity Think Tank Forum (Toronto)
- International Congress on Physical Activity and Public Health (Amsterdam, The Netherlands)
- 3rd B.C. Network for Aging Research Conference: Promoting Active Aging by Connecting BC Researchers and Communities: Towards 2010 and Beyond (Vancouver)
- CIHR Journalist Workshop – to be or not to be? Is obesity really a question of choice? (Toronto)
- Public Health Agency of Canada Research Forum (Ottawa)
- Obesity and the Impact of Marketing on Children CDPAC Policy Consensus Conference (Ottawa)
- CAMBIO Research Network Short Course on Obesity (Guadalajara, Mexico)
- P3G Consortium Annual General Meeting and Scientific Steering Committee Workshop (Barcelona, Spain)

Academic Appointments

Dr. Kristi Adamo
- Assistant Professor, Faculty of Medicine, Pediatrics, University of Ottawa
- Cross appointed Assistant Professor, Faculty of Health Sciences, School of Human Kinetics, University of Ottawa

Dr. Rachel Colley
- Assistant Professor, Faculty of Medicine, Pediatrics, University of Ottawa

Dr. Gary Goldfield
- Assistant Professor, Department of Pediatrics, Faculty of Medicine, University of Ottawa
- Cross appointment as Assistant Professor to Department of Human Kinetics, Faculty of Health Sciences, University of Ottawa
- Adjunct Professor, Department of Psychology, Carleton University
- Cross appointment as Assistant Professor to Psychology, University of Ottawa

Dr. Meghann Lloyd
- Assistant Professor, Faculty of Medicine, Department of Pediatrics, University of Ottawa

Dr. Stasia Hadjiyannakis
- Assistant Professor, Department of Pediatrics, Faculty of Medicine, University of Ottawa

Dr. Mark Tremblay
- Full Professor, Department of Pediatrics, Faculty of Medicine, University of Ottawa
- Cross-appointed to Department of Epidemiology and Community Medicine, University of Ottawa
- Cross-appointed to Department of Human Kinetics, University of Ottawa
- Senior Research Scientist, Children's Hospital of Eastern Ontario Research Institute
- Adjunct Full Professor, Faculty of Kinesiology, University of Saskatchewan
- Adjunct Professor, School of Graduate Studies, University of Toronto

Supervision and Training

Dr. Kristi Adamo

- Zach Ferraro – IGF-proteins, fetal/placenta weight ratio, and maternal obesity (PhD candidate)
- Kerry Hamilton – Appetite Signaling Proteins in Adolescent Obesity (4th year honours)
- Peter Breithaupt – Pediatric Obesity Cohort (4th year internship)
- Kathleen Tanner – Pediatric Obesity Cohort (4th year internship)
- Nick Levasseur – GameBike (4th year student volunteer)
- Chantal Gosselin – MOM & Pediatric Obesity Cohort (4th year internship)

Dr. Gary Goldfield

- Kim Watkins – Research Practicum Student, Psychology, Carleton University, Title: Effects of Virtual Reality on Body composition in Obese Youth (Game Bike)
- Andree-Anne Morrisey – Research Practicum Student, Psychology, Carleton University, Title: Effects of Virtual Reality on Body composition in Obese Youth
- Stephanie Leclair – (PhD Candidate); Delivering behavioural treatment for child obesity via Internet.
- Rachel Vella-Zarb – (Masters supervisory committee); Predictors of weight gain in first year university subjects.

Dr. Stasia Hadjiyannakis

- Undergraduate Lecture, Pediatric Obesity, Clerkship, 3rd year medical students (3-4 times per year)
- Post grad *Central Control of Food Intake: Recent Findings,* Advanced Topics in Nutrition and Regulation of Metabolism, BCH8106, University of Ottawa

Dr. Mark Tremblay

- Dr. Rachel Colley – Post-Doc supervisor, Childhood Obesity Treatment and Prevention
- Stephanie Prince – Ph.D. co-supervisor, Physical Activity, Built Environment and Population Health (Ontario Graduate Scholarship)
- Sarah Connor Gorber – Ph.D. supervisory committee, Direct Measure versus Self-Reported Health Measures
- Dale Esliger – Ph.D. supervisor, Expanding the Utility of Accelerometry-Based Physical Activity Assessment (NSERC Scholarship)
- Cynthia Colapinto – Ph.D. Supervisor, Canadian Health Measures Survey Assessment of Folic Acid Supplementation in Canadian Women of Child-bearing Age (CIHR Fellowship in Public Health)
- Samantha Stephens – Ph.D. supervisory committee, Adapting physical activity assessment methodologies for children with chronic degenerative disease

Strategic Partnerships

The Healthy Active Living and Obesity Research Group is honoured to have the following organizations as strategic partners:

ACORN (Addressing Childhood Obesity through Research and Networking)
Active Healthy Kids Canada
Alberta Centre for Active Living
Carleton University
Champlain Cardiovascular Disease Prevention Network
Ottawa Public Health
Ottawa Hospital
National Capital Region YMCA-YWCA
ParticipACTION
University of Ottawa

Professional Memberships

Dr. Kristi Adamo
Canadian Society for Exercise Physiology (Member and Certified Exercise Physiologist)
North American Society for Pediatric Exercise Medicine
Canadian Obesity Network

Dr. Rachel Colley
International Association for the Study of Obesity (Member)
Canadian Society for Exercise Physiology (Member and Certified Exercise Physiologist)
Canadian Obesity Network (Member)

Dr. Gary Goldfield
Member of the college of Psychologists of Ontario (Registered psychologist)
Ottawa Academy of Psychologists
Canadian Psychological Association
The Obesity Society (North American Association for the Study of Obesity)

Dr. Meghann Lloyd
International Federation of Adapted Physical Activity
North American Federation of Adapted Physical Activity
American Academy for Cerebral Palsy and Developmental Medicine
The North American Society for the Psychology of Sport and Physical Activity
Physical and Health Education Canada (formerly Canadian Association for Health Physical Education and Dance)
Ontario Physical and Health Education Association

Dr. Stasia Hadjiyannakis
Canadian Pediatric Endocrine Group
American Diabetes Association
Canadian Diabetes Association
Canadian Society for Endocrinology and Metabolism
Endocrine Society
Lawson and Wilkins Pediatric Endocrine Society
International Society for Pediatric and Adolescent Diabetes
Canadian Obesity Network

Jane Rutherford
Canadian Diabetes Association
Canadian Obesity Network

Dr. Mark Tremblay
North American Society for Pediatric Exercise Medicine
Canadian Society for Exercise Physiology
American College of Sports Medicine
The Obesity Society (North American Association for the Study of Obesity)
Canadian Obesity Network

Contact Us

Please visit our website at www.cheori.org/halo

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