



KIDS-CAN RESEARCH ALLIANCE NEWSLETTER – 2009-2010

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BACKGROUND

Canadian children and youth are becoming obese as a result of insufficient physical activity and poor diet. 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 as well as 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.

The KIDS-CAN Research Alliance has been formed to help study and prevent childhood obesity, inactivity and over-nutrition. Experiences and initiatives from Canada may be exported to assist with these emerging challenges in Kenya. An examination of Kenyan children’s physical activity and lifestyle patterns may assist Canadian interventions.

WHO WE ARE

We are a partnership of leading researchers from Kenyatta University in Nairobi and the Children’s Hospital of Eastern Ontario (CHEO) Research Institute. This partnership was formed to study and compare lifestyle factors in school age children to learn from each other about the cultural differences contributing to habitual physical activity and eating patterns.



Left to Right: Drs. Vincent Onywera, Keren Mburugu, Kristi Adamo, Mark Tremblay, Judith Waudu, Bill Sheel, Mike Boit

OUR OBJECTIVES

- Promote and facilitate research in the area of determinants/predictors of child obesity.
 - Exploit the timing of the current childhood obesity crisis in Canada, and the nutrition and activity transition threat in Kenya.
 - Take advantage of the recent development and implementation of measurement protocols for the Canadian Health Measures Survey.
 - Establish an organizational foundation from which infrastructural support can grow to create a base of support for research, leadership and advocacy for the promotion of healthy active living for children and youth.
 - 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.
 - Develop and foster long-term international partnerships to promote the generation of relevant data on child obesity-related factors and effectively disseminate this information.
 - Help guide Kenyan and Canadian decision-makers (Government, industry, health, education, sport, child and youth sector leaders) to prevent and minimize the negative impact of social, economic and technological transitions on the health and wellness of children and youth.
 - Serve as a model (or nucleus) for expansion of international partnership to other countries.
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HIGHLIGHTS

Dr. Vincent Onywera's Visit to Canada



Dr. Vincent Onywera spent three months studying with the CHEO Research Institute's Healthy Active Living and Obesity Research Group (HALO) in 2009 thanks to generous support from Kenyatta University, the University of Ottawa, and HALO. The main objectives of Dr. Onywera's visit were to: **(1)** participate as a scientist member of the HALO Group; **(2)** gain hands-on experience in a variety of laboratory procedures related to healthy active living measurements including objective physical activity monitoring, applied exercise physiology and clinical chemistry measurement; **(3)** participate in a variety of ongoing research projects with the HALO group, assist with data collection, data analysis and manuscript preparation; **(4)** provide leadership in the preparation of research grant submissions for future funding for the KIDS-CAN Research Alliance; **(5)** make linkages with researchers involved in the CAMBIO project; **(6)** participate in the meetings and activities of the HALO group, including providing scholarly presentations on research; **(7)** meet and network with the scientists working in HALO and the CHEO Research Institute; **(8)** learn about the Canadian research culture; and **(9)** share experiences with colleagues back in Kenya.



Dr. Vincent Onywera



HALO Group Meeting

KIDS-CAN's First Graduate Student – Welcome to Stella Muthuri!



We are very pleased to welcome Stella Muthuri who joined the CHEO Research Institute's Healthy Active Living and Obesity Research Group in September 2010 as the first graduate student to work on the KIDS-CAN project. Stella is pursuing a Ph.D. in Population Health in the area of physical activity as a health determinant in Canadian and Kenyan children.

Stella completed a B.Sc. Honours at Concordia University, Montreal, Canada and was successful in attaining a position to complete an undergraduate Honours thesis, focusing on the study of lipid monolayers; of interest to scientists because of their possible use in drug delivery systems. Stella subsequently completed a M.Sc. specializing in muscle signaling pathways that regulate muscle growth and their plausible implications in rescuing various muscle wasting disorders such as muscular dystrophy. Shortly thereafter, she worked as a Research Associate at Concordia on a project involving the localization of membrane bound proteins in Red Blood Cells, important for the vasodilatation process and with intended use for the treatment of various cardiovascular disorders.

In a move from the 'bench to the bedside', Stella secured the position of Project Coordinator at the University of Ottawa Heart Institute on a Sentinel Cardiovascular Disease (CVD) Surveillance Program called the 'Champlain Community Heart Health Survey'. She was responsible for supporting the work of the Champlain CVD Prevention Network (CCPN), aimed at developing a system of excellence in CVD prevention in the Champlain district. The survey expanded from a single site in Ottawa, to a multi-centre site in three other locations within the Champlain district. In addition, she supervised the implementation of a subsidiary study called the '24 Hour Urinary Sodium Excretion Survey' aiming to correlate sodium consumption with various cardiovascular disease risk factors such as hypertension. Stella was able to successfully coordinate both these projects through to their completion.

Stella thereafter worked as a Guidelines Project Coordinator for the Canadian Thoracic Society – medical section of the Canadian Lung Association - organizations that promote lung health by supporting best respiratory practices in Canada. She coordinated various processes that resulted in the production, dissemination, implementation and evaluation of Canadian respiratory guidelines.

Introducing KIDS-CAN International Ambassadors

We are proud to introduce our KIDS-CAN International Ambassadors:



- * **Philip Boit, Athlete.**
- * First Kenyan to ever participate in the Winter Olympics (Nagano 1998) sponsored by sportswear giant Nike.
- * Has also competed in 1999 Nordic skiing World Championships in Austria, 2002 and 2006 Winter Olympics in Salt Lake City and Turin respectively.
- * Look for him in Vancouver 2010 (continues to be Kenya's sole competitor)!



- * **Wilfred Bungei, Athlete.**
- * Gold medal winner (800 m) at the 2008 Summer Olympics in Beijing.
- * World Indoor Championships in Athletics winner (800 m) in Moscow 2006.
- * Ranked Number 1 in the world (800 m) in 2002 and 2003.
- * Personal best of 1:42.34 minutes (Rieti 2002) - currently the fifth fastest runner in the history of the event (800 m).



- * **Olive Mugenda, Vice Chancellor, Kenyatta University.**
- * Made history in Kenya by becoming the first woman to be appointed as Vice Chancellor of a public university (March 2006).
- * Former Deputy Vice Chancellor (Finance and Planning) - Kenyatta University.
- * Recent recipient of the 2008 Iowa State University Distinguished Alumni Award, 2007 Eastern and Southern Africa Management Institute MBA Meritorious Award and the 2006 Elder of the Burning Spear presidential award.



- * **Johana Jacton Nyaga, Kenyatta University.**
- * Considered the father of physical education in the Eastern Africa region.
- * He joined Kenyatta University (KU) in 1973 when KU was still a constituent college of the University of Nairobi.
- * He was instrumental in training and mentoring most physical education professionals currently serving in various positions in East Africa.



- * **Allan Rock, President & Vice-Chancellor, University of Ottawa.**
- * Elected as a Member of Parliament in the Canadian Government and served as Minister of Health and as Minister of Industry.
- * In 2003 he was appointed as Ambassador for Canada to the United Nations. In July 2008 he became the 29th President and Vice-Chancellor of the University of Ottawa.

Meetings with Potential KIDS-CAN Partners

Meetings have been held with the following potential KIDS-CAN Partners:

- International Research Development Centre (Ottawa, Canada)
- University of Ottawa (Ottawa, Canada)
- Canada – Mexico Battling Childhood Obesity (CAMBIO) (Guadalajara, Mexico)
- Kenya Central Bureau of Statistics (Nairobi, Kenya)
- Kenya Ministry of Health (Nairobi, Kenya)
- African Population Health Research Centre (Nairobi, Kenya)
- Division of Non-communicable Diseases of Kenya's Ministry of Public Health and Sanitation in collaboration with the World Health Organization and the African Institute for Health and Development. (Nairobi, Kenya) *[Please see group photo below.]*



International Opportunities Partnership with Canadian Institutes of Health Research (CIHR), University of Ottawa and International Research Development Centre (through CAMBIO)

Description of Study: 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 of Study: Pilot data collection is complete. Follow-up grant submissions are being prepared for continuation of the research alliance and the development of an International Ambassadors Team is underway. Dr. Onywera from Kenya spent three months studying with the HALO team in 2009 thanks to generous support from Kenyatta University, the University of Ottawa and HALO. Two manuscripts are submitted from the pilot research.



Data Collected:

Anthropometry: Height, weight, waist circumference, triceps and sub-scapular skin-folds (please see photo above, left).

Fitness: Aerobic – 20 meter shuttle run, Flexibility – sit and reach test, Strength – hand grip dynamometry (please see photo above, right).

This study was designed to gather anthropometric and fitness-related data on Kenyan children living in urban and rural environments and to compare them with previous data collected on Canadian children in order to examine the potential nutrition-physical activity transition.

Partnership with the Canada-Mexico Battling Childhood Obesity (CAMBIO) Program

Dr. Mark Tremblay and Dr. Vincent Onywera this year participated in the 3rd CAMBIO Short Course on Obesity for Researchers, Part 2. The second part of the 3rd CAMBIO Short Course took place February 20-23, 2010 in Puerto Vallarta, Jalisco, Mexico. The course is usually offered to early career researchers (graduate students and postdoctoral researchers with limited applied experience). Dr. Tremblay was one of the course facilitators while Dr. Onywera participated as a postdoctoral researcher to build his capacity. The course culminated in the analysis of data collected in the fall of 2009 on fitness, anthropometry, and lifestyle habits in Mexican school children. Immediately after the course, Drs. Tremblay and Onywera proceeded to the XII Congreso Internacional Avances en Medicina Hospitales Civiles 2010 held in Guadalajara, Mexico from February, 25-27, 2010 where they made presentations on various topics related to childhood obesity and physical activity.

Further, a new collaboration entitled “Strengthening CAMBIO-KIDS-CAN collaboration to fight childhood obesity in Canada, Mexico and Kenya through joint research and academic activities” was established with Principal Investigators being: Dr. Vincent Onywera, Dr. Ian Janssen and Dr. Mark Tremblay. The purpose of the collaboration is to compare data on childhood obesity and the related risk factors among Canadian, Mexican and Kenyan children.



Participants in the 3rd CAMBIO Short Course on Obesity for Researchers held February 20-23, 2010 in Puerto Vallarta, Jalisco, México.

Funding for the Short Course and CAMBIO is provided by IDRC (International Development Research Centre) Canada, on behalf of GHRI (Global Health Research Initiative). The course is also supported by the Universidad de Guadalajara, Mexico, and Queens University, Canada.

KIDS-CAN at the International Conference on the Rights of the Child

To celebrate the 20th anniversary of the Convention on the Rights of the Child, the University of Ottawa hosted the International Conference on the Rights of the Child, comprising a series of panel discussions, presentations and other activities, from November 18-20, 2009. Dr. Tremblay was invited to make a presentation on KIDS-CAN titled “Building Capacity in East Africa to Curb

the Impending Physical Activity Transition: The KIDS-CAN Research Alliance". A manuscript from this presentation was developed and has been published in the conference proceedings.



M.S. Tremblay, V. Onywera, K.B. Adamo. A child's right to healthy active living - Building capacity in Sub-Saharan Africa to curb the impending physical activity transition: *The KIDS-CAN Research Alliance*. In S. Bennett and M. Pare (Eds.) **20th Anniversary of the Convention on the Rights of the Child**, STM Learning, Inc. Publishers, p. 97-110, 2010.

KIDS-CAN Duo Participate In Multi-National Research Project (ISCOLE)

Dr. Mark Tremblay and Dr. Vincent Onywera are participating in a multi-national research project as co-principal investigators for the Kenyan site, and Dr. Tremblay and Dr. Jean-Philippe Chaput are co-principal investigators for the Canadian site. This research project is titled International Study of Childhood Obesity, Lifestyle and the Environment (ISCOLE). The primary aim of ISCOLE is to determine the relationship between lifestyle characteristics and adiposity in a large multi-national study of children, and to investigate the influence of behavioural settings, and physical, social and policy environments on the observed relationships within each country. The project will take place in 11 countries from five major regions of the world, i.e., Eurasia, Africa, Europe, Latin America, North America, and the Pacific. The first ISCOLE planning meeting was held September 17-19, 2010 at the Pennington Biomedical Research Center in Baton Rouge, Louisiana, USA. *[Please see group photo below.]*



Funded Research Project through University of British Columbia (Lead is Dr. Bill Sheel)

Researchers from University of British Columbia (Drs. Sheel, Rupert, Wilson) and Kenyatta University (Onywera, Boit) will be conducting unique research in the winter of 2011. The title of the project is "Kenyan Running: Lungs, Genes, Sport and Peace." The research will take place at Kenyatta University and in the Rift Valley. The work will seek to answer questions related to exercise performance as it pertains to the respiratory system and associated genetic contributions to the success of Kenyan middle- and long-distance runners. The work is interdisciplinary in

nature as it features a sociological analysis of the social and political implications of these successes. The ability to successfully obtain funding for this work and the high likelihood of completion is a direct result of building upon the previous successes of KIDS-CAN.

APPOINTMENTS

Dr. Mark Tremblay received an appointment as Adjunct Professor at Kenyatta University and Dr. Vincent Onywera received an appointment as Adjunct Researcher with the Children's Hospital of Eastern Ontario Research Institute in Ottawa, Canada.

RESEARCH FUNDING, GRANTS AND AWARDS

YEAR	AWARDEE	FUNDING AGENCY	GRANT/ AWARD	PROJECT
2010-2011	A.W. Sheel (PI) B. Wilson J.L. Rupert V. Onywera	UBC Martha Piper Research Fund	\$25,000	Kenyan running: lungs, genes, sport and peace
2010-2011	S. Muthuri (PI)	Ontario Graduate Scholarship in Science and Technology	\$12,000	PhD Dissertation on KIDS-CAN
2010-2014		University of Ottawa Admission Scholarship	\$72,000	
2010-2014	V. Onywera (Co-PI) M.S. Tremblay (Co-PI) (Kenya)	Pennington Biomedical Research Centre	\$140,000	International Study of Childhood Obesity, Lifestyle and the Environment (ISCOLE)
2010-2014	M.S. Tremblay (Co-PI) J.P. Chaput (Co-PI) (Canada)		\$420,000	
2010-11	V. Onywera (PI) M.S. Tremblay I. Janssen J. Lopez	CAMBIO (IDRC)	\$7,000	Strengthening CAMBIO – KIDS-CAN Collaboration to Fight Childhood Obesity in Canada, Mexico, Kenya
2009	M.S. Tremblay (PI)	University of Ottawa	\$5,000	Visiting Scholar Support for Dr. Vincent Onywera from Kenya
2007	M. Tremblay (PI) K. Adamo W. Sheel V. Onywera M. Boit J. Waudo	CIHR International Opportunities Seed Grant	\$25,000	Kenyan International Development Study - Canadian Activity Needs (KIDS-CAN)

PUBLISHED PAPERS

1. K.B. Adamo, A.W. Sheel, V. Onywera, J. Waudo, M. Boit, M.S. Tremblay. Child obesity and fitness levels among Kenyan and Canadian children from urban and rural environments: A KIDS-CAN Research Alliance study. *International Journal of Pediatric Obesity* (in press).
2. M.S. Tremblay, V. Onywera, K.B. Adamo. A child's right to healthy active living - Building capacity in Sub-Saharan Africa to curb the impending physical activity transition: *The KIDS-CAN Research Alliance*. In S. Bennett and M. Pare (Eds.) *20th Anniversary of the Convention on the Rights of the Child*, STM Learning, Inc. Publishers, p. 97-110, 2010.

3. V. Onywera, K.B. Adamo, A.W. Sheel, J. Waudou, M. Boit, M.S. Tremblay. Emerging evidence of the physical activity transition in Kenya. Submitted for publication in the *Journal of Physical Activity and Health*, 2010.
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PUBLISHED ABSTRACTS

1. K.B. Adamo, A.W. Sheel, V. Onywera, J. Waudou, M. Boit, W.-M. Wong, M.S. Tremblay. Is there evidence for the nutrition and physical activity transition in Kenya? A KIDS-CAN Research Alliance pilot study. *Applied Physiology, Nutrition and Metabolism* 34:267-268, 2009.
 2. K.B. Adamo, M.S. Tremblay, V.O. Onywera, M. Boit, J. Waudou, A.W. Sheel. KIDS-CAN Research Alliance. *Proceedings of the International Conference on Physical Activity and Obesity in Children* p.36 (abstract), 2007.
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ACADEMIC AND SCHOLARLY PRESENTATIONS

1. T.J. Saunders, M. Lloyd, E. Knight, V. Onywera, M.S. Tremblay. Urban Kenyan children are no more active than their Canadian peers. Presentation at the *North American Society for Pediatric Exercise Medicine Conference* (Niagara-on-the-Lake), 2010.
2. V.O. Onywera, K.B. Adamo, W.A. Sheel, M.K. Boit, J.N. Waudou, M.S. Tremblay. Emerging evidence of the physical activity transition in Kenya. Presentation at the *17th Biennial Conference of the International Society for Comparative Physical Education and Sport* (Nairobi, Kenya), 2010.
3. M.S. Tremblay. Making the Truth or Masking the Truth: Measure and Measure Carefully. *Invited lecture to West Texas A & M University, Department of Sports and Exercise Sciences Graduate Trends and Issues Class* (Canyon, Texas), 2010.
4. M.S. Tremblay. Automation, Mechanization, Digitization: Contemporary Role Reversal of Physical Activity and Sedentarism. *Distinguished lecturer, West Texas A & M University* (Canyon, Texas), 2010.
5. M.S. Tremblay. Building Capacity in East Africa to Curb the Impending Physical Activity Transition: The KIDS-CAN Research Alliance. Invited presentation at the *International Conference on Child Rights* (Ottawa), 2009.
6. K.B. Adamo, A.W. Sheel, V. Onywera, J. Waudou, M. Boit, W-M Wong, M.S. Tremblay. Is there evidence for the Nutrition/Physical Activity Transition in Kenya? A KIDS-CAN Research Alliance- pilot study. Presentation at the *Annual CHEO Clinical Research Day* (Ottawa), 2009.
7. V. Onywera, M. Boit, J. Waudou, M.S. Tremblay, K. Adamo, W. Wong A.W. Sheel. Childhood obesity and physical inactivity threat in Kenyan: The time for action is now! Presentation at the *International Congress on Urban Health* (Nairobi, Kenya), 2009.
8. M.S. Tremblay, K. Adamo, V. Onywera, A.W. Sheel, M. Boit, J. Waudou, W. Wong. Fitness Levels of Urban versus Rural Kenyan Children: Emerging Evidence of the 'Physical Activity Transition'? Presentation at the *European Pediatric Work Physiology Meeting* (Le Touquet, France), 2009.
9. K.B. Adamo, A.W. Sheel, V. Onywera, J. Waudou, M. Boit, W-M. Wong, M.S. Tremblay. Is There Evidence for the Nutrition / Physical Activity Transition in Kenya? A KIDS-CAN Research Alliance Pilot Study. Presentation at the first *Canadian National Obesity Summit* (Kananaskis), 2009.

10. M.S. Tremblay. Automation, Mechanization, Digitization: How our changing world is changing us. Invited university-wide *public lecture Kenyatta University* (Nairobi, Kenya), 2008.
11. K.B. Adamo, M.S. Tremblay, V.O. Onywera, M. Boit, J. Waudu, A.W. Sheel. KIDS-CAN Research Alliance. Presentation at the *International Conference on Physical Activity and Obesity in Children* (Toronto), 2007.
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