ABSTRACT

Energy Expenditure, Adiposity and Cardiovascular Risk in Urban and Rural Jamaican Adults

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Jamaica represents a divergent environment undergoing rapid urbanization with increasing sedentary lifestyle. The objective of this study is to estimate the relationship among physical activity (PA), adiposity and cardiovascular risk in two groups (urban and rural) of Jamaican adults. Total participants (n = 95) included 49 urban adults and 49 males. Measurements at baseline were total daily energy expenditure (TDEE) using isotopic doubly labelled water, resting energy expenditure (REE) using indirect calorimetry and physical activity energy expenditure (PAEE) using Accelerometry and derived from TDEE and REE. Also, accelerometry was used to assess PA intensity. Blood pressure, cholesterol, fasting and 2h glucose, and triglycerides were also measured. Body composition was measured using bioelectrical impedance (BIA) and isotope dilution. Measurements were repeated at 18 months follow-up except the isotopic and blood tests. At baseline, rural dwellers had higher PAEE than urban dwellers but this was only significant between females. Urban males (UM) spent more time in light activities than rural males (RM). However, RM spent more time in moderate to vigorous activities than UM. Overall, urban dwellers had significantly higher 2 h glucose, lower HDL- cholesterol and higher triglycerides than rural dwellers. UM had lower HDL-cholesterol and higher triglycerides than RM. Overall, PAEE showed an inverse association with adiposity only in urban dwellers and with at least two adiposity variables in UM and both urban and rural females. Time spent in moderate to vigorous activity was negatively associated with adiposity in rural dwellers only. Baseline PA was negatively associated with change in adiposity for urban males and females. Change in PA was negatively associated with changes in waist circumference and BMI in urban dwellers only. Thus, interventions could target increasing moderate to vigorous activities to reduce risk of developing obesity in Jamaican adults, especially in urban residents and women in general.

Keywords: Kathryn Elizabeth Cargill, energy expenditure, physical activity, adiposity, cardiovascular risk factors, obesity.