ABSTRACT

Early Life Predictors of Dietray Intake and Physical Activity in Afro-Jamaican Children

Claudia Patricia Campbell

Childhood obesity is increasing worldwide. The underlying mechanisms are not clearly established but early life events may influence dietary intake and physical activity (PA) in later life. We hypothesized that (i) maternal size, fetal size and newborn anthropometry are determinants of dietary intake and PA in Afro-Jamaican children.

Anthropometry, dietary intake (24 hour recalls), body composition using bioelectrical impedance, resting energy expenditure, PA and cardiovascular risk factors were measured in 284 children recruited from a longitudinal observational study cohort of Jamaican 390 mother- child pairs. Mothers have been recruited from the first trimester. There was no significant difference between the 284 (73%) participants that were studied and the 106 who were not. The children (124 boys; 160 girls) were at mean age 13.2 years (11.5-14.9 yrs) and Tanner stage 3.

Total energy intake (TEI) and macronutrient intake were not different between boys and girls. However, boys had more lean mass (LM), spent more time being active than girls. Maternal size (weight, BMI) on recruitment was inversely associated with TEI and energy balance whereas fetal size was positively associated with food weight, TEI and energy balance in males only.

Maternal size (height, weight, BMI) was positively associated with child's PAEE, LM, fat mass (FM),% fat in both sexes while inversely associated with time spent sedentary. Placental weight was also positively associated with LM and negatively with % fat in females only. TEI was inversely associated with waist circumference, BMI and % fat; whereas dietary carbohydrate was inversely associated with HDL-C. Time spent in vigorous activity was inversely associated with waist circumference and % fat but was positively associated with total cholesterol. Steps/min and dietary fiber was inversely associated with fasting glucose.

The effects of maternal nutritional status (BMI, height, weight) on the child's dietary intake, PA and body composition appear to occur through several potential pathways which may be sex specific and when combine with lifestyle influences may increase susceptibility to a greater risk of obesity and cardiovascular risk factors.

Keywords: Claudia Patricia Campbell, programming; physical activity, maternal size; Jamaican.