**INVESTIGATION OF PHYSICAL ACTIVITY, SEDENTARY BEHAVIOUR, AND CARDIOVASCULAR FITNESS: ASSOCIATION WITH CHILD BODY COMPOSITION: FINDINGS FROM THE ROLO KIDS STUDY**

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**Introduction:**

In children, low physical and high sedentary activity has increased, alongside obesity rates. Cardiovascular fitness is linked with metabolic risk factors; however, research is limited in young children.

**Methods:**

Analysis was carried out on 387 5-year-olds from the ROLO Kids study. The CLASS questionnaire collected parental-reported measures of physical activity and screen time. 272 participants completed a step test. Child body mass index (BMI), circumferences, skinfold thickness, heart rate and blood pressure were collected. Statistical analysis involved T-tests, Mann-Whitney U, Chi-square tests and regression models.

**Results:**

37.5% of children were not meeting World Health Organisation physical activity guidelines while 73.4% were exceeding American Academy of Paediatrics recommended screen time. Males had higher vigorous physical activity levels (228mins/week *vs.* 165mins/week, P=0.003) and screen time (690mins/week *vs.* 600mins/week, P=0.043) than females. Those meeting screen time guidelines had reduced waist-to-height ratio (0.49cm *vs.* 0.50cm, P=0.037) than those exceeding guidelines. Adjusted models showed vigorous physical activity was positively associated with weight (P=0.047) and BMI (P=0.036). Screen time was positively associated with waist-to-height ratio (P=0.044). Adjusted models revealed heart rate recovery after the step test was positively associated with sum of skinfolds (P=0.007).

**Conclusion:**

Excess screen time could have a detrimental impact on child body composition and higher adiposity may be linked with longer heart rate recovery time following a fitness test in children. Further research is needed to confirm these findings.

Translational & Innovative Aspects:

The step test could serve as a novel fitness measure in children, suitable for research and clinical settings.

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