



**TITLE:** Visceral adiposity index, cardiorespiratory fitness and fasting plasma glucose associations in adolescents

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**ABSTRACT (upto 300 words)**

There has been a worldwide surge in the prevalence of type 2 diabetes mellitus in children and adolescents in recent times, and this has been linked partly with the global increase in childhood obesity and physical inactivity. The purpose of this study was to examine the association of visceral adiposity index (VAI) and cardiorespiratory fitness (CRF) with fasting plasma glucose (FPG) among Nigerian adolescents. This was a cross-sectional study comprising 403 adolescents (202 boys and 201 girls) aged between 11 and 19 years. Participants were evaluated for VAI, CRF and FPG. Regression models controlling for age and maturity status were used to assess the association of VAI and CRF with FPG. In boys, high VAI was positively related with FPG ( $\beta = 0.190, P=0.009$ ). With further adjustment for CRF, the relationship remained significant ( $\beta = 0.165, P=0.023$ ). Cardiorespiratory fitness was negatively associated with FPG ( $\beta = -0.206, P=0.010$ ) and remained significant after controlling for VAI ( $\beta = -0.178, P=0.025$ ). But both independent variables were not significantly associated with the dependent variable ( $P>0.05$ ) in girls. Participants with elevated VAI and low fitness had significantly poorer glycaemic profiles than their peers with

better VAI and CRF status. Visceral adiposity index and CRF were independently associated with the risk of T2DM in boys but not girls, and the association of CRF was stronger. Regular endurance-related type activities and healthy diets may represent important public health promotion targets in the prevention and management of risk of T2DM in adolescents.

**BIOGRAPHY (upto 200 words)**

Musa earned his Ph.D. from Obafemi Awolowo University, Nigeria. He is the Coordinator, Human Performance Laboratory, Department of Human Kinetics and Health Education; and Director of Quality Assurance, Kogi State University, Nigeria. He has over 100 publications that has been cited about 500 times, and his publication h-index is 10. He has been serving as an editorial board member of several reputed journals.

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