Aim: The aim of this study was to determine the association between different anthropometric parameters and metabolic profile in an overweight, adult, black Kenyan population.

Methods: An opportunity sample of 245 overweight adult Kenyans (body mass index (BMI) ≥ 25 kg/m$^2$) was analysed. A score of metabolic profile (metabolic Z-score) was constructed on the basis of levels of plasma lipids, blood pressure, blood glucose and serum insulin. Linear regressions using metabolic Z-score as outcome and six anthropometric variables (waist circumference (WC), hip circumference, visceral adipose tissue (VAT), abdominal subcutaneous adipose tissue, arm fat area and arm muscle area) separately as independent variables were carried out.

Results: Mean age of study participants was 42.1 years (SD = 9.6) and 26.5% of the participants were men. The median BMI was 28.6 kg/m$^2$ (Q1 = 26.3; Q3 = 31.3). Of the six anthropometric variables tested, WC and VAT thickness had the strongest negative association with the metabolic profile ($\beta = 0.17$ (0.09; 0.24) and $0.15$ (0.08; 0.23), respectively).

Conclusions: WC and VAT thickness were the strongest anthropometric predictors for the metabolic profile in overweight adult Kenyans. WC is useful in clinical practice for the diagnosis of metabolically unhealthy fat accumulation in an African setting.