Ethnic variation in the contribution of cardiorespiratory fitness and muscular strength to diabetes: Cross-sectional study of 68,116 UK biobank participants

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Aims/Hypothesis: Diabetes prevalence is substantially higher in black and south Asian compared with white European adults. This study aimed to quantify the extent to which ethnic differences in cardiorespiratory fitness and muscular strength might account for this.

Methods: This cross-sectional study used baseline data from UK Biobank on 68,011 white European, black and south Asian adults, aged 40-69 years, who had complete data on diabetes status, hand-grip strength and cardiorespiratory fitness. Associations between age and sex-specific textiles of fitness and strength (low, moderate, high) and diabetes were assessed in analyses adjusted for age, smoking, socioeconomic status and percentage body fat. Attributable risk associated with low-to-moderate fitness and strength was calculated for each ethnicity/sex group.

Results: Diabetes risk was higher in blacks and south Asians than whites across almost all strength and fitness categories. Within each ethnicity/sex group, those with both low fitness and strength had 2.1-3.6 fold increased odds of diabetes compared with those with high fitness and strength. Attributable risk for diabetes associated with low-to-moderate strength and fitness was 8.2 and 5.0 cases per 100 people in south Asian men and women, respectively; 4.1 and 4.3 cases in black men and women; and 1.4 and 1.0 cases in white men and women.

Conclusions/Interpretation: Low-to-moderate fitness and strength contributes to a disproportionately large number of diabetes cases in south Asian and black groups. Interventions to improve strength and fitness may help reduce ethnic inequalities in diabetes prevalence.

Biography
Uduakobong E Ntuk is a public health Doctoral student at University of Glasgow, UK.

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