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Research article

## Physical Activity and Sedentary Behavior in an Ethnically Diverse Group of South African School Children

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### ABSTRACT

Few studies have examined physical activity and inactivity levels in an urban South African setting across 12 years of formal schooling. This information is important for implementing strategies to curb increasing trends of physical inactivity and related negative consequences, especially in low to middle income countries facing multiple challenges on overburdened health care systems. We examined levels of physical activity and sedentary behaviour cross-sectionally over 12 school years from childhood to adolescence in Black, White and Indian boys and girls. The aim of our study was to describe gender and race related patterns of physical and sedentary activity levels in a sample of South African children and to determine whether there were associations between these variables and body mass status. Physical activity questionnaires, previously validated in a South African setting, were used to gather information about activity and sedentary behaviours among 767 Black, White and Indian children (5-18 years of age) across the 12 grades of formal schooling. Body mass and height were also measured. Time spent in moderate-vigorous physical activity declined over the school years for all race groups and was consistently lower for girls than boys ( $p = 0.03$ ), while time spent in sedentary activity increased with increasing grade ( $p < 0.001$ ) for boys and girls and across all race groups. Associations between physical activity and body mass were observed for White children ( $r = -0.22$ ,  $p < 0.001$ ), but not for Black and Indian children ( $p > 0.05$ ) whereas time spent in sedentary

activities was significantly and positively correlated with body mass across all race groups: Indian ( $r = 0.25$ ,  $p < 0.001$ ), White ( $r = 0.22$ ,  $p < 0.001$ ) and Black ( $r = 0.37$ ,  $p = 0.001$ ). The strength of the associations was similar for boys and girls. Black and Indian children were less physically active than their white peers ( $p < 0.05$ ), and Black children also spent more time in sedentary activity ( $p < 0.05$ ). Additionally, Black children had the highest proportion of overweight participants (30%), and Indian children the most number of underweight children (13%). Regardless of ethnicity, children who spent more than 4 hours per day in front of a screen were approximately twice as likely to be overweight (OR, 1.96 [95%CI: 1.06-3.64,  $p = 0.03$ ]). Regardless of race, inactivity levels are related to body mass. Ethnic and gender disparities exist in physical activity and sedentary activity levels and this may echo a mix of biological and cultural reasons.

**Key words:** South African children, ethnicity, screen time, physical activity

### Key Points

- Regardless of race, inactivity levels are related to body mass.
- In an ethnically diverse urban group of South African school children, there exists an age related decline in physical activity and increase in time spent in front of a screen.
- Ethnic and gender disparities exist in physical activity and sedentary activity levels and this may echo a mix of biological and cultural reasons.

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