

## Research Project

## ExAMIN YOUTH South Africa

**Project funded by own resources****Project title** ExAMIN YOUTH South Africa**Principal Investigator(s)** [Hanssen, Henner](#) ; [Kruger, Ruan](#) ;**Organisation / Research unit**

Faculty of Medicine

Departement Sport, Bewegung und Gesundheit

Departement Sport, Bewegung und Gesundheit / Präventive Sportmedizin (Hanssen)

**Project Website** <http://health-sciences.nwu.ac.za/hart/current-projects>**Project start** 01.10.2018**Probable end** 01.10.2022**Status** Completed

**Background:** The impact of a sedentary and unhealthy lifestyle on cardiovascular health is well-documented, however the current obesity and hypertension trends among children is concerning. The ExAMIN Youth SA study aims to investigate the impact of lifestyle behaviors (physical fitness/activity, dietary intake and psychosocial factors) involved in early vascular aging among South African children. **Methods:** This study is an analytical, multidisciplinary, observational cohort study in a school-based setting. We aim to phenotype a cohort of 1,000 primary school children (black and white boys and girls between ages 5-9 years) based on current clinical childhood conditions including hypertension and obesity. The primary phenotype is large artery stiffness and retinal microvascular diameters, both biomarkers of early vascular aging. The risk factors and mediators of early vascular aging and also responsible for the clinical conditions include physical inactivity, unhealthy diet, and life stress. Additionally, urinalysis and salivary analyses will be performed to identify biomarkers related to the pathophysiology of early vascular aging. **Discussion:** In line with the growing prevalence of obesity and hypertension responsible for the development of early vascular aging from childhood to adulthood, this study will address the critical areas in which we observe unfavorable arterial modulation related to dietary behaviors, physical inactivity, and early life stress. Implementation of novel biological markers may further contribute to our understanding of early cardiovascular adaptations in childhood, and aid in the development of primary prevention programs. **Trial registration:** The study was retrospectively registered on ClinicalTrials.gov on 15 August 2019 ([NCT04056377](#)).

**Keywords** Childhood cardiovascular risk; vascular health; physical activity**Financed by**

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