

SPORTS AND PHYSICAL THERAPY AS MEANS OF PRIMARY PREVENTION OF CARDIOVASCULAR DISEASE IN SUB-SAHARAN AFRICA

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Abstract

Cardiovascular disease (CVD) remains the leading cause of global mortality and represents a rapidly escalating public health challenge in African countries, including Nigeria. Epidemiological transition, urbanization, reduced occupational physical activity, and lifestyle changes have contributed to a growing burden of hypertension, ischemic heart disease, and stroke across the continent. Cost effective and sustainable primary prevention strategies are therefore, urgently required. Sports participation and physical therapy guided physical activity are increasingly recognized as evidence based, non-pharmacological interventions capable of reducing cardiovascular risk before disease onset. This article appraised existing literature to examine the role of sports and physical therapy in the primary prevention of CVD. The paper also discussed mechanisms of cardiovascular protection, the role of trained health professionals, contextual challenges, and policy implications for integrating sports and physical therapy into preventive health care in Africa as well as the need for need to popularize the usage of technology/artificial intelligence related machine and devices that are health promoting.

Keywords: Cardiovascular disease; Primary prevention; Sports; Physical therapy; Artificial intelligence

Introduction

Cardiovascular diseases (CVDs) remain the leading cause of death in developed countries, becoming prevalent in the developing world (Moronkola, Familoni and Familoni, 2021). Cardiovascular disease has emerged as a dominant cause of morbidity and mortality in Africa, marking a significant shift from the historical predominance of communicable diseases. Sub Saharan Africa, including Nigeria, now faces a dual burden of disease characterized by the coexistence of infectious conditions and non-communicable diseases (NCDs). Ojo et al (2024) asserted that Globally, cardiovascular disease (CVD) remains the leading cause of mortality and disability, with hypertension being the single most important modifiable risk factor. Hypertension is responsible for about 18% of global deaths from CVD, of which African regions are disproportionately affected, especially sub-Saharan Africa. Also, Adetayo et al (2026), affirmed that modifiable cardiovascular disease (CVD) risk factors are rising in SubSaharan Africa, similar to trends in high-income countries and concluded in their study that cardiovascular disease risk factors were common in both urban and rural populations of Gwagwalada, with similar prevalence rates with evidence showing the narrowing of traditional rural–urban

disparities, due to comparable or higher prevalence in rural areas thus underscoring the need for context-specific, population-based interventions targeting modifiable risk factors in both settings. Hypertension, stroke, and ischemic heart disease are increasingly diagnosed among younger and economically productive populations, placing considerable strain on households and health systems (Mensah et al., 2015; Roth et al., 2020).

Physical inactivity is a major modifiable risk factor driving this trend. Rapid urbanization, mechanized transport, sedentary occupations, and reduced participation in traditional physical activities have significantly altered movement patterns across African societies. In response, international and regional public health frameworks emphasize physical activity promotion as a cornerstone of CVD prevention (World Health Organization [WHO], 2023). Within this context, sports and physical therapy represent practical, culturally adaptable, and scalable strategies for primary prevention, particularly in resource constrained settings such as Nigeria.

Keijzer, Kamling, Jorstad and Ross-Hesselink (2024) affirmed that participating in physical activity (PA) and maintaining adequate cardiorespiratory fitness is beneficial to health people, including including those who at risk of developing cardiovascular as well as the patients with cardiovascular disease. In 2016, 27.5% of the global adult population and 81% of adolescents did not meet up with the guidelines for weekly exercise. Physical inactivity was responsible for 13.4 million disability-adjusted life years (DALYs) worldwide indicating the need for healthcare workers to implement PA as a general treatment, due to its positive effects on cardiovascular health, with a 27% reduction in relative risk of cardiovascular mortality.

Burden of Cardiovascular Disease in Nigeria and Africa

Minja e et al. (2022) documented that in 2015, the United Nations set important targets to reduce premature cardiovascular disease (CVD) deaths by 33% by 2030 and that Africa disproportionately bears the brunt of CVD burden making the continent one of the highest risks of dying from non-communicable diseases (NCDs) worldwide. They noted an epidemiological trans decade. Due to the fact that increases in CVD risk factors were largely unchecked which has led to the growing burden of three major CVDs—hypertension, cardiomyopathies, and atherosclerotic diseases leading to devastating rates of stroke and heart failure. Ataklte et al., (2015) earlier submitted that estimates indicate that hypertension affects more than one third of adults in many African countries, with awareness, treatment, and control rates remaining unacceptably low. In Nigeria, hypertension prevalence ranges from 28% to over 40% depending on region and population studied, reflecting substantial heterogeneity and under diagnosis. Similar trends are observed across West, East, and Southern Africa, where lifestyle related risk factors increasingly predominate. The socioeconomic implications of CVD are profound. Unlike high income countries, where CVD predominantly affects older adults, African populations often experience disease onset during middle adulthood, leading to loss of productivity and increased healthcare expenditure (Gaziano et al., 2017). Preventive strategies that emphasize physical activity are therefore essential for reducing long term disease burden and associated costs.

Sports Participation and Cardiovascular Disease Prevention

Sports connote all forms of physical activity which individuals participate in casually or in an organised form so as to express or improve physical fitness, mental and social well-being, that also fosters social relationships (Amao and Moronkola, 2026). Regular engagement in sports is strongly associated with reduced cardiovascular morbidity and mortality. Aerobic and mixed intensity sports improve cardiorespiratory fitness, lower blood pressure, enhance lipid profiles, and improve glucose regulation (Pedersen & Saltin, 2015). Evidence from multiple populations demonstrates that individuals who meet recommended levels of moderate to vigorous physical activity experience significantly lower CVD risk.

In African contexts, sports participation often extends beyond formal exercise to include community based and recreational activities. Football, athletics, traditional dance, and informal games remain widely practiced in Nigeria and other African countries, offering culturally relevant avenues for increasing physical activity. Community sports initiatives in countries such as Nigeria, South Africa, and Kenya have demonstrated benefits not only for physical fitness but also for mental well being and social cohesion (Marlier et al., 2020).

Sports based interventions are particularly valuable for youth and young adults, as they promote lifelong physical activity habits that reduce cumulative cardiovascular risk. School and community based sports programs therefore represent important entry points for primary prevention strategies in Africa.

Role of Physical Therapy in Primary Prevention of CVD

Physical therapy contributes uniquely to CVD prevention through individualized assessment, exercise prescription, and education. Unlike generalized sports participation, physical therapy interventions are tailored to individual risk profiles, functional capacity, and comorbid conditions. This is particularly relevant in African populations where musculoskeletal disorders, obesity, and early cardiovascular risk factors coexist.

Evidence from Scopus indexed studies highlights gaps in physical activity knowledge and training among health professionals, underscoring the importance of structured education in exercise prescription (Stoutenberg et al., 2020; De Lira et al., 2021). Physiotherapists possess specialized expertise in movement analysis, load progression, and injury prevention, making them well positioned to deliver safe and effective physical activity interventions.

In Nigeria, physiotherapists increasingly participate in health promotion, workplace wellness programs, and community outreach initiatives. Odebiyi et al. (2016) noted that Nigerian physiotherapy practice is expanding beyond rehabilitation to include preventive and promotive roles, aligning with global trends in physical therapy education and practice.

Integration of Sports and Physical Therapy

The integration of sports and physical therapy offers a comprehensive and synergistic approach to primary prevention of CVD. Sports programs provide population level reach,

motivation, and social engagement, while physical therapy ensures clinical oversight, safety, and individualization. This combined approach is particularly relevant in African settings, where community based interventions can be enhanced through professional guidance.

School based sports programs supervised by physiotherapists can promote cardiovascular fitness while identifying children and adolescents at risk of future NCDs. Similarly, workplace and community sports initiatives supported by physical therapists can improve adherence, reduce injury risk, and enhance long term participation. Such models align with contemporary movement system approaches that emphasize functional movement, energy expenditure, and control as foundations of health (McClure et al., 2021).

Challenges to Implementation in African Contexts

Despite clear benefits, several challenges limit the widespread adoption of sports and physical therapy for CVD prevention in Africa. These include limited infrastructure, shortage of trained physiotherapists, inadequate funding, and competing health priorities (Kengne et al., 2017). In Nigeria, urban overcrowding, safety concerns, and limited recreational spaces further restrict opportunities for physical activity.

Gender norms, inadequate use of artificial intelligence devices and socio-cultural expectations also influence participation, with women and older adults often facing greater barriers to sports engagement. Addressing these challenges requires context specific strategies, community involvement, and policy support.

Policy and Practice Implications

African governments and health stakeholders should prioritize physical activity promotion within national NCD prevention frameworks. Integrating sports and physical therapy into primary healthcare, school health curricula, instructional and intramural sports programmes and community health development as well as grassroots sports programmes can enhance reach and sustainability. Investment in physiotherapy education, continuing professional development, and interdisciplinary collaboration is essential. There should also be the need to popularize the usage of technology/artificial intelligence related machines and devices that are health promoting. Public-private partnerships involving sports organizations, educational institutions, community development agencies and non-governmental organizations can further strengthen implementation. In Nigeria, leveraging existing community structures and traditional sports may enhance acceptability and impact.

Conclusion

Sports and physical therapy represent effective, low cost, and culturally adaptable strategies for the primary prevention of cardiovascular disease in Nigeria and other African countries. By addressing physical inactivity and related risk factors early in the life course, these interventions can significantly reduce the growing burden of CVD. Strengthening policy frameworks, expanding access to physical therapy services, and integrating

community based sports initiatives into preventive health systems are critical steps toward achieving sustainable cardiovascular health across Africa.

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