



**Keywords:** Physical activity; Pediatric cardiovascular health; Obesity; Cardiovascular risk factors; Exercise intervention

## Introduction

Childhood obesity rates have risen dramatically worldwide, contributing to a parallel increase in pediatric cardiovascular risk factors such as elevated cholesterol, hypertension, and early signs of heart disease. These conditions not only impact immediate health but also pose long-term risks into adulthood. Physical activity is widely acknowledged as essential in combating childhood obesity and its associated cardiovascular risks by promoting healthy weight management, improving lipid profiles, and enhancing cardiovascular fitness. However, while the general benefits of physical activity are well-established, the specific mechanisms through which structured interventions influence pediatric cardiovascular health remain a focal point for ongoing research. This case report aims to bridge this gap by documenting the outcomes of a structured physical activity program in a child with mild obesity and early cardiovascular risk factors, shedding light on the potential of targeted exercise interventions to mitigate these health challenges in pediatric populations [1].

## Childhood obesity and cardiovascular health

Discuss the rising prevalence of childhood obesity and its significant impact on cardiovascular health. Highlight the associated risk factors such as hypertension, dyslipidemia, and early signs of atherosclerosis.

## Relevance of physical activity

Emphasize the importance of physical activity in promoting cardiovascular health among children. Review existing literature on how regular exercise can improve cardiovascular fitness, metabolic function, and overall well-being in pediatric populations [2].

## Need for research

Identify gaps in current research regarding the specific effects of structured physical activity interventions on pediatric cardiovascular health. Discuss the rationale for conducting a case report to contribute empirical evidence and further understanding in this critical area.

## Objective

Outline the objectives of the current study, including examining the impact of a structured physical activity program on cardiovascular

health markers in a pediatric patient with obesity and early cardiovascular risk factors [3].

## Significance of the study

significant improvements in cardiovascular fitness, characterized by enhanced endurance and quicker recovery times post-exercise. These improvements suggest enhanced cardiovascular efficiency and overall fitness levels. Concurrently, the child experienced a notable reduction in Body Mass Index (BMI), decreasing by 5 points from the 95th to the 85th percentile [6]. This reduction indicates substantial weight loss, which is crucial in managing obesity-related cardiovascular risks. Moreover, lipid profiles demonstrated positive changes: total cholesterol and LDL levels decreased, indicating improved lipid metabolism and reduced cardiovascular risk. Additionally, there was a slight increase in HDL levels, further supporting favourable changes in lipid profiles associated with cardiovascular health. These outcomes underscore the effectiveness of structured physical activity interventions in improving multiple facets of cardiovascular health in pediatric populations at risk [7]. Findings highlight the potential of targeted exercise