

# Soccer Training: An Effective Exercise Mode to Prevent and Treat Childhood Obesity?

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## ARTICLE INFO

**Received:**  March 12, 2019

**Published:**  March 26, 2019

**Citation:** Liquan Cao, Zhen Guo, Sijie Tan, Jianxiong Wang. Soccer Training: An Effective Exercise Mode to Prevent and Treat Childhood Obesity?. Biomed J Sci & Tech Res 16(3)-2019. BJSTR. MS.ID.002844.

## ABSTRACT

Exercise training has been recognized as an effective treatment for childhood obesity. Clinical experience has shown that great efforts are needed to train children around 10 years old when using traditional aerobic exercise modes, such as walking and running. To seek more attractive training methods for children, in this paper, we review the current literature to evaluate the effectiveness of soccer training on childhood obesity prevention and treatment. Future research direction and sport injury prevention are also discussed.

**Keywords:** Childhood Obesity; Soccer Training; Health-Related Physical Fitness

## Introduction

Obesity is affecting many children worldwide and leading to the development of various pediatric diseases [1]. Childhood obesity will be carried into adulthood if not properly treated early [2]. To achieve healthy growth, the first choice for childhood obesity prevention and treatment is the engagement in physical activity to improve body composition, cardiovascular function, and musculoskeletal function. Aerobic exercise training is the most commonly used method. Based on the clinical experience from our research team, one of the major difficulties in exercise training study with obese children is that enormous efforts were demanded when the training program employed walking and running as the main exercise modes [3-5]. The researchers might spend a lot of time encouraging, motivating, and organizing the children when they lost interest and felt bored during the exercise. This situation has persuaded us to seek more attractive and interesting physical activities in exercise training studies with children. In the literature, there are some studies about improving children's health through various ball games. However, the purpose of this paper was to focus on whether soccer training would be suitable for childhood obesity prevention and treatment.

## Effects of Soccer Training on Children's Health

The game of soccer has various physical activities which can be utilized during exercise training to maintain the interest and motivation of the children. Employed soccer skills training, our team has reported that the 10-week training program significantly decreased body fat mass, body fat%, and abdominal fat mass; while improved running performance, muscle strength and endurance, and cardiovascular function in 9- to 10-year-old boys with normal body mass, compared with the non-exercise control group [6]. Evidence from the studies with overweight or obese boys also indicated that soccer training can improve body composition, muscular and cardiovascular fitness variables of the participants. One study reported that after 12 weeks of soccer training, overweight or obese boys aged 11-13 years decreased their body fat mass by 8%, increased muscular fitness (measured by jump performance) by 17%, and aerobic capacity (estimated through the Yo-Yo test) by 80% [7]. Another study showed that a 6-month soccer program decreased body fat mass and waist circumference; increased bone mineral density; decreased total cholesterol, low-density lipoprotein cholesterol, and leptin; increased high-density

lipoprotein cholesterol and adiponectin; and increased maximal oxygen uptake in 10-year-old obese boys [8]. In summary, these studies have provided valuable information on the effectiveness of soccer training on childhood obesity prevention and treatment. An interesting research direction in future studies may recruit more girls with overweight or obesity as the participants and investigate the effects of soccer training in girls.

### Injury Prevention

The issue of sport injuries must be carefully considered by researchers when conducting soccer training in children. Soccer training may cause sport injury, but the one-season risks in young children aged 5 to 14 years was reported at 1.05% [9]. Furthermore, the potential risks can be reduced through proper warm-up activity at the beginning of the training sessions [10].

### Acknowledgement

This study was supported by Tianjin 2017 Social Science Project Funds (TJTYQN17-002). The authors declare that there are no conflicts of interest.

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ISSN: 2574-1241

DOI: 10.26717/BJSTR.2019.16.002844

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