

Opinion

# Could sport be part of pediatric obesity prevention and treatment? Expert conclusions from the 28th European Childhood Obesity Group Congress

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## 1. Introduction

The prevalence of pediatric obesity continues to increase worldwide, bringing with it various metabolic, functional, social, and psychological complications.<sup>1</sup> Both the prevention and treatment of childhood obesity must be based on multidisciplinary approaches combining nutrition, physical activity (PA), and psychological support.<sup>2</sup> As an essential element of these multicomponent strategies, regular physical activity has been acknowledged as having beneficial effects on children's and adolescents' body composition, physical fitness, and metabolic profile, as well as on their health-related quality of life, social and psychological health, and academic achievement.<sup>3,4</sup> Given that only a relatively small proportion of children and adolescents meet the public health recommendations for PA,<sup>5</sup> and given that weight loss exercise-based interventions suffer from a high attrition rate, there is a clear need for appropriate PAs.

Traditional sports, including football, handball, gymnastics, athletics, and martial arts, are usually defined as specific and structured activities organized through rules and specific regulations under the control and administration of sports associations and federations. As a part of the overall PA compendium, could these and other classical sporting activities provide a relevant alternative for the prevention and treatment of pediatric obesity? An entire session was dedicated to this question at the 28th European Childhood Obesity Group Congress (ECOG) held in Porto, Portugal, on 13–16 November 2018; the session brought together international experts in the field. This article summarizes the initial conclusions of this expert panel and details the main considerations when it comes to recommending traditional sports for the prevention and/or treatment of pediatric overweight and obesity.

## 2. Interests of traditional sports for the prevention of pediatric obesity

In 2012, a review published in *The Lancet* concluded that “sport may contribute to the health of nations”.<sup>6</sup> Although the scientific evidence for this claim remains limited, especially in overweight children and adolescents, recent systematic

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reviews and meta-analyses have shown the beneficial effects of participation in classical sports on overall PA level, body composition, and metabolic profile in children and youth.<sup>7–9</sup> Interestingly, these analyses also point to a potential dose–response effect between the number of sports sessions per week and the quantified beneficial health outcomes.<sup>10</sup> Importantly, sports participation favors a broad spectrum of development for overall physical fitness, including cardiovascular, metabolic, and musculoskeletal effects, along with motor skills and motor abilities that have been shown to predict overall PA level and health.<sup>9,11–13</sup> It seems that intermittent sports that require whole body activity and variable body motion should be encouraged because they mirror the natural movement patterns of children and youth. Furthermore, regular sports participation does not only seem to favor greater moderate-to-vigorous PA and cardio-metabolic fitness, but also seems to be associated with decreased sedentary time and improved eating habits.<sup>14,15</sup> Recently, the *Journal of Sport and Health Science* dedicated a special topic aimed at discussing the beneficial health effects (as well as the limitations) of participating in traditional sports, particularly team sports.<sup>16</sup> Based on the main conclusions arising from that body of work, promoting the engagement of children and adolescents in traditional sports seems to be of value from a prevention perspective.

### 3. What about pediatric obesity treatment?

Some of the interventional studies that have been conducted, mainly involving football training, have provided clear evidence that regular sports participation might be as effective as common PA interventions when it comes to improving body composition, decreasing metabolic complications, or enhancing psychological profiles in children with obesity.<sup>8,17–19</sup> Based on this evidence, our ECOG expert panel collectively recognized the potential of traditional sports as part of weight loss interventions, but it also formulated some important recommendations.

First, as with any other kind of PA, a medical consultation regarding the child with obesity is recommended when a sport therapy is part of the clinical treatment. A pediatrician with expertise in sports medicine would be the best option for this consultation. This professional could provide the required insight into the cardiologic, pulmonary, psychomotor, and orthopedic profile, as well as the performance level of the child. Based on the child's physical evaluation, the relevant elements of the sports program and exercise prescription could be adequately implemented and appropriate activities could be recommended. In the context of obesity treatment, it is important that the sport be viewed as a “classical exercise modality” that requires adaptations and modifications in accordance with the patient's characteristics (degree of obesity, physical capacities, psychological profile, etc.) and the clinical objectives. For instance, the modifications and adaptations might concern the rules of the game, the duration of match play, the dimensions of the playing field, the number of opponents, and the overall physical loading of the specific activity.<sup>20,21</sup> Here, team sports such as football, handball, and basketball are excellent options owing to the

essential characteristic play and because of their potential for modulating the intensity of exercise interventions by increasing or decreasing the area of the playing field, the number of opponents, the length of play, player exchanges, and the timing of playing sessions.<sup>22,23</sup> The aim is to make participation and engagement easy for the child with adiposity. Importantly, these adaptations and modifications of the characteristics of a sports discipline are the main ingredients for generating enjoyment, fun, self-efficacy and self-esteem, adherence, and social integration. When it comes to severe obesity, our ECOG panel collectively recommends that classical sports should only be introduced as part of the exercise intervention after controlled and supervised improvement of the main physical capacities of the severely obese child, with particular attention being paid to the child's orthopedic and osteoarticular limitations. This practice would allow the child to engage properly and joyfully in such activities. Not only might this be a good way to improve adherence to exercise interventions, it might also encourage children and adolescents to continue exercising once a formal (possibly supervised) intervention period ends, thereby limiting the weight regain often observed after weight loss. Children and adolescents need to be accompanied, encouraged, and supervised in this process to ensure the integration and success of the intervention.

Medical monitoring, individualization, progression, adaptation, and integration are the main keywords that must be considered when integrating classical sports into pediatric obesity treatments. Collectively, our ECOG panel calls for more well-controlled and properly designed studies that further explore the specific impact of classical sports on a patient's profile and that identify the combined benefits of multisport interventions in the treatment and prevention of pediatric obesity. Incorporating classical sport as part of antiobesity strategies in children and adolescents calls for more specific training and education of the professionals supervising these sport activities and exercise sessions.

### Authors' contributions

SRD, PK, and DT wrote the main draft of the paper. All other authors equally reviewed and edited the paper. All authors have read and approved the final version of the manuscript, and agree with the order of presentation of the authors.

### Competing interests

The authors declare that they have no competing interests.

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