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Anthropometric variables, lifestyle and sports in school-age children: Comparison between the cities of Bologna and Crotone



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ABSTRACT

Weight disorders are rapidly increasing in childhood. In Italy a strong geographic North–South gradient of overweight and obesity has been reported. The purpose of this study is to examine anthropometric variables, physical activity and lifestyles in school-age children in the cities of Bologna and Crotone.

The sample consists of 963 children attending primary schools, aged 6–10 years. Height, weight, triceps, and subscapular skinfolds were measured for each child; body mass index (BMI) and percentage of fat mass were calculated. Physical activity was determined through an interview with each child. Another questionnaire was submitted to parents, in order to obtain information on sleep duration, means of transport and type of physical activity.

In the city of Bologna, the mean values of anthropometric variables were: height (boys – 1335 mm, girls – 1332 mm), BMI (boys – 17.8 kg/m², girls – 17.3 kg/m²), and the proportion of overweight and obese individuals was: boys – 20.6%, girls – 12.7%. In Crotone the mean values were: height (boys – 1275 mm, girls – 1265 mm), BMI (boys – 19.4 kg/m², girls – 19.3 kg/m²), and the proportion of overweight and obese individuals was: boys – 46.7%, girls – 49.0%.

The results have demonstrated significant correlations of lifestyle and physical activity with children's weight status. In Crotone there is a larger variation of weight disorders with higher percentages of

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overweight children than in Bologna. The children in Crotone are engaged in sedentary activities for a significantly longer time than children in Bologna, who are more physically active.

The data show a strong North-South gradient concerning not only distribution of weight status, but also lifestyles especially including participation in sports and sedentary behavior. Our study also provides meaningful suggestions how to define lifestyles in order to achieve an optimal health status during growth.

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Introduction

It is commonly known that the incidence and prevalence of diseases related to obesity and overweight in childhood and adolescence are rapidly increasing in all industrial and developing countries, and the obesity and overweight represent the most common nutritional disorders in children of industrialized countries (Lobstein and Frelut, 2003).

Experts agree that the factors that contribute to the emergence of childhood obesity include changes in caloric intake, sedentary behaviors and lack of physical exercise (In-iw et al., 2010).

A better understanding of the factors that contribute to obesity at a young age in various regional areas may be helpful for the development of preventive treatments to counteract the early onset of overweight and obesity (Galanti et al., 2011; Janssen et al., 2005).

Many studies support the conclusion that physical activity during childhood reduces the risk of onset of obesity in both children and adults; health benefits achieved through physical activity in childhood are similar to those obtained in adulthood (Guthold et al., 2010). Other authors emphasize that the risk of obesity is related to sedentary lifestyles, thus they suggest that special attention should be paid to the time spent in front of television and with video games, limiting these to a maximum of 2 h per day (Nilsson et al., 2009).

Considering the alarming increase of obesity and overweight in young people, it is important to facilitate actions aimed at promoting physical activity and reducing sedentary behaviors. Therefore, it may be useful to assess behaviors and lifestyles of young people with a view to establishing appropriate motor activity programs for school-age children (Nilsson et al., 2009). The low frequency of participating in regular physical activity is common in many countries; encouraging more active lifestyles is therefore an important recommendation for both national and international public health policies (Steptoe et al., 1997).

In Italy a strong regional gradient of obesity has been reported (Binkin et al., 2010). The frequency of overweight and obesity varies according to regional area and has the highest values in the central and southern regions, with the exception of Sardinia (the northern most of the large Italian islands) (Cairella et al., 2008).

Regarding the demographic characteristics of the cities chosen for the study, Bologna has a metropolitan area of 140.73 km² and 382.989 inhabitants (<http://www.comune.bologna.it/iperbole/piancont/archivionov/notizie/popolazione/pop20110923.html>), while Crotone has an area of 179.83 km² and 61.872 inhabitants (<http://www.comune.crotone.it/flex/cm/pages/ServeBLOB.php/L/IT/IDPagina/694>).

Considering sports facilities, the website of the City of Bologna mentions hundreds of different sports facilities (<http://www.comune.bologna.it/sport/organigramma/14:2868>), while the city of Crotone lists only four (<http://www.comune.crotone.it/flex/cm/pages/ServeBLOB.php/L/IT/IDPagina/278>).

Taking into account this aspect and the various other differences within the Italian territory, we compared two different social and cultural realities: one in the North (Bologna) and one in the South (Crotone). Our purpose was to verify the possible existence of various weight disorders in order to assess their relationships with sport activity levels and lifestyles.

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