

## Educational Camps as an Instrument to Modify the Health and Lifestyle of Overweight Adolescents

Wainny Rocha Guimarães Ritter<sup>1,2\*</sup>, Maraiza Silva Gomes<sup>1</sup>, Suliane Beatriz Rauber<sup>2</sup>, Alisson Luiz Aquino da Silva<sup>2</sup>, Ingrid Paola Brayner Assunção Silva<sup>3</sup>, Diego de Oliveira Andrade<sup>1</sup>, Tiago da Conceição Aquino<sup>1</sup>, Glicélia Pereira Silva<sup>1</sup>, Danilo Silva Aguiar<sup>1</sup>, Julliana Martins Oliveira Resende<sup>4</sup> and Carmen Silvia Grubert Campbell<sup>2</sup>

### Abstract

**Objective:** To observe the health and lifestyle of children who have been subjected to educational health camps.

**Bibliographic Review:** During childhood and adolescence, in addition to the occurrence of physiological changes, the individual undergoes important psychosocial changes, which contributes to the characteristic vulnerability of this population group. The lifestyle consists of the practices that each person does to maintain physical and mental activity. Health education interventions, based on the practice of physical activities and healthy eating, have the potential to promote meaningful contextualized learning. When these interventions are carried out in health education camps, through the use of games, games, and educational dynamics in language appropriate for children, conducted by a multidisciplinary team, they can become useful strategies both in the prevention of installation and in the treatment of chronic diseases non-transmissible in pediatrics. Exploring the playfulness present in games used in health education is a relevant resource in clinical actions, especially those involving daily self-care related to health. Physical and health promotion activities carried out in health education camps promote both anthropometric and behavioral benefits and contribute to improving the health of children and adolescents.

**Final considerations:** Educational health interventions through camps are effective in promoting bodily, behavioral, and lifestyle changes that contribute to improving the health of children and adolescents.

**Keywords:** Healthy habits; Obesity; Physical activity; Children; Sedentary behavior

- 1 University Center of Mineiros - UNIFIMES, Street 22, 356 - St. Aeroporto, Mineiros, 75833-130, Goiás, Brazil
- 2 Stricto Sensu Graduate Program (Doctorate) in Physical Education, Catholic University of Brasília (UCB), QS 07-Lote 01, EPCT-Taguatinga, Brasília, 71966-700, Distrito Federal, Brazil
- 3 Salgado de Oliveira University (UNIVERSO), Brazil
- 4 Mineirense College (FAMA), Brazil

**\*Corresponding author:**

Wainny Rocha Guimarães Ritter

✉ wainny@unifimes.edu.br

Tel: +5564996587048

University Center of Mineiros-UNIFIMES, Street. 22, 356 - St. Aeroporto, Mineiros, 75833-130, Goiás, Brazil

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### Introduction

Discussions about the importance of a healthy lifestyle are many and frequent. Many people still seem to be uninformed or disinterested in the practice of regular physical activities, balanced nutrition, and other health-related components [1].

As determinants of health, according to the Organic Health Law, food must be observed, as it is a conditioning component of survival; furthermore. Food is a fundamental right for adolescent children, as eating habits directly influence their growth and development process [2,3].

Over the years, there have been changes in the quantity and quality of food consumed by Brazilians, associated with changes in lifestyle and economic, social and demographic conditions, with negative consequences for the health of the population, such as the increase in diseases such as diabetes, hypertension,

heart disease, and a significant increase in overweight and obesity [4] in all age groups.

According [5], bad eating habits initiated in childhood and adolescence can perpetuate throughout life, and these can lead

to obesity and chronic diseases that will extend into adulthood, and may also be associated with some types of cancer.

Concerning obesity, the projection of the results of studies carried out in the last three decades indicates an epidemic behavior [6]. Worldwide obesity rates in children and adolescents in 1975 were approximately five million girls and six million boys, which increased to around 50 million girls (6%) and 74 million boys (8%) [7].

When comparing the number of obese in the age group between 5 and 19 years in the world, it can be seen that this value increased more than eleven times in 41 years, from 11 million in 1975 to 124 million in 2016, and this year they were still classified overweight 213 million, despite the number of overweight children having been reduced due to the increase in obesity [7].

The increase in overweight and obesity in children is directly related to the increase in the prevalence of diabetes mellitus in children and adolescents. In Canada, a high incidence of the disease has been observed at around 13.7 years old, with 8% diagnosed before 10 years old, and industrialization and socioeconomic development are considered responsible for this [8].

A study carried out with young Americans aged 10 to 19 years, during the period from 2001 to 2009, showed an increase in the occurrence of type 2 diabetes mellitus (DM2) by 30.5%. In 2001, 588 of 1.7 million young people were diagnosed with DM2, and in 2009, the incidence increased to 819 from 1.8 million. This increase was observed in both sexes and these projections suggest, that the incidence of DM2 will rise to 84,131 in 2050; which represents a fourfold increase [9].

The development of these diseases and among other early complications leads to negative impacts on the rest of life for both children and the budget of public health [10]. These complications are promoted by actions of sedentary behavior, such as watching television, playing video games, using the computer, as well as the use of other electronic instruments that have high attractiveness and appeal at an increasingly early age [11].

These technologies, when not used in moderation, reduce the possibilities of movement at ages when movement should predominate, thus consolidating sedentary habits in our society earlier and earlier. Sedentary behavior is defined by behaviors that are adopted during the maintenance of the lying or sitting posture in which very little energy is spent, that is, insufficient activity for energy expenditure greater than the resting level to occur [12,13].

According [14], sedentary behavior should be reduced to a maximum of 2 hours a day, which is well below the 5 hours a day that children use using technology and electronic media. This finding is reinforced by the easy access to the digital environment, as well as by the reduction of public security levels, and less offer of physical activity in the school environment [15,16].

The investigation of the factors that lead to physical inactivity can contribute to the development and formation of health programs with more preventive and health promotion characteristics,

with a focus on changing the lifestyle aiming at the reduction of sedentary behavior [17] at an early age because, although the manifestation of diseases associated with physical inactivity occurs in adulthood, the beginning of its development occurs during childhood and adolescence [18].

The proposals for recreational interventions have been used in health promotion through the use of games and active play. The presence of playfulness in active games used in education in the health area seems to be a relevant resource in clinical actions, especially those involving daily self-care with disease management [19].

Different types of educational approaches have been proposed, mainly for approaching diabetic children and adolescents [20], it can be observed in the camps that have already been carried out, that interventions are carried out with educational activities on healthy eating and the execution of physical activities guided by professionals that makes up a multidisciplinary team, which improves the results [21]. In this sense, the objective of this study was to observe the occurrence of changes in the health and lifestyle of children who were subjected to educational health camps.

## Materials and Methods

Initially, a search was made on educational camps used as an intervention instrument in the health and lifestyle of children and adolescents, in journals indexed in the electronic databases SCIELO (Scientific Electronic Library Online), PUBMED (US National Library of Medicine National Institutes of Health), using the Health Sciences Descriptors (DeCS) camp, child, adolescent, physical activity and lifestyle; through the Virtual Health Library (VHL) portal.

The search was conducted in English and Portuguese during the period from March 2017 to November 2019 and the descriptors were combined by the and operator in the English language. The choice of these databases was because these electronic databases concentrate scientific journals, representative of the various fields of knowledge, of a large part of Brazilian production.

The secondary survey consisted of identifying the articles that contained the descriptors in the title and summary fields and subsequently, the selection of the articles occurred, which was carried out according to the therapeutic approach of using educational health programs, carried out through camps for children and teenagers. The following inclusion criteria were applied: studies with an exclusively human object of study, original, quantitative and qualitative studies that had investigated educational camps as an instrument for changing the health and lifestyle of children and adolescents.

Furthermore, studies carried out with animals that did not include the age group classified as children and adolescents, monograph works, theses, and dissertations, studies published in journals that did not make their content available for free were excluded. 41 references were reviewed for the construction of this narrative.

## Literature Revision

### Lifestyle and eating habits in childhood and adolescence

Discussions about the importance of a healthy lifestyle are many and frequent, but despite all the accumulated scientific evidence, many people still seem to be uninformed or disinterested about the practice of regular physical activities, balanced nutrition, and other components related to health. According [1], the individual's lifestyle is dependent on his being and the environment that surrounds him and consists of 5 components, namely physical activity, preventive behavior, nutrition, relationships, and stress control [1].

The eating habit begins to be established in the first years of life and has repercussions on eating practices, on the state of health and nutrition throughout life [3]. Each person's food preferences are developed from childhood through sensations and experimentation that are offered to the child through touch, smell, and taste. Such preferences become meanings of physical, social, psychological, and cultural representations that will shape the individual's eating behavior throughout his life.

During adolescence, in addition to the occurrence of physiological changes, the individual undergoes important psychosocial changes, which contributes to the characteristic vulnerability of this population group. In this sense, adolescents can be considered a group of nutritional risk, due to the inadequacy of their diet that results from the increase in energy and nutrient needs that meet the growing demand [2].

Studies have pointed out that even the entry of modern women into the job market influenced this situation, because, due to the long working hours and the distance between home and workplace, there was a reduction in the time and also in the children's breastfeeding period, in addition to less time available for women to cook fresh food. As a result of the lack of time for modern women, families began to consume more processed, canned, and processed foods, with inadequate distribution for health in sodium, simple carbohydrates, fats, proteins, calories, preservatives, and dyes.

On the other hand, the health of everyone in the family should not be an occupation only women, but, yes both responsible for the child and other family members. Although diseases associated with physical inactivity are manifested in adulthood, their development begins even during childhood and adolescence [18].

In this sense, it is known that the more active is the "lifestyle" of a person, the lower the probability of this, developing obesity. And the richer in sugars, lipids, and industrialized foods is the diet of an individual, the greater the chances of becoming obese.

Bad eating habits along with a sedentary lifestyle, usually present in the daily routine, play an important role in determining obesity. It is important to emphasize that the social and economic level can interfere directly or inversely in the nutritional status, since, in developing countries, such as Brazil, families with better purchasing power are more likely to be overweight,

when compared to the less affluent. The growth of overweight and childhood obesity rates is a public health problem, and its consequences directly affect the quality of life of these individuals globally.

### Sedentary lifestyle in childhood and adolescence

Sedentary behavior is characterized by engaging in cognitive activities, which causes the individual to remain in a sitting or lying position, without changing energy expenditure beyond resting values [22]. Its occurrence is due to factors, such as: demographic (urban or rural area); socioeconomic conditions including family income, parental education, public or private education; environmental (access, security and local infrastructure for physical activity); psychosocial (attitude and social support for the practice); cultural and biological diseases [23].

The high prevalence of physical inactivity both in developed and low-income countries, results in a decline in physical fitness, as measured by cardiorespiratory endurance. This information is worrying as the low level of physical conditioning and the absence of physical activity have been considered risk factors for premature mortality as much as smoking, high blood pressure, and dyslipidemia.

The disuse of the functional systems of the locomotor system and the other organs have their essential functions interrupted or compromised by endogenous or exogenous factors. The systems not used during the different forms of physical activity, end up entering a process of functional regression, culminating in the harmful impairment of the functioning of different organs [23].

Actions such as watching television, playing video games, using the computer, as well as the use of other electronic instruments are examples of this behavior, which has become a reason for a strong attraction at an increasingly early age. This finding is reinforced by the easy access to the digital medium, as well as by the reduction of public safety levels and less offer of physical activity in the school environment [15,16].

According [24], analyzed the quantity and time of advertisements transmitted by television about food products and classified them according to the food pyramid, and it was observed that 85% of the 239 food advertisements published by broadcasters, in 336 hours of recording, advertised products containing excess sugars, oils, and fats, and there was no commercial addressing the consumption of fruits and vegetables.

However, it is worth remembering that in Brazil, Decree 8.552/2015, which regulates Law 11.265/2006, signed at the 5th National Conference on Food and Nutritional Security, which prohibits the advertisement of advertisements aimed at children, is already in force. The objective of controlling the consumption of industrialized products and stimulating breastfeeding. As negative consequences of sedentary behavior on children's health, we highlight the greater probability of weight gain [15], as well as the anticipation of the occurrence of chronic non-communicable diseases, which is increasingly more prevalent at an early age [25].

This is all worrying as a sedentary lifestyle and obesity are two of the top five causes of mortality in today's society. The change

in the sociodemographic profile generated a change in the population's pattern of growth, aging, and illness. As a result, malnutrition is no longer the main nutritional concern of the past, and obesity and globalized eating habits have become more evident [2].

The National School Health Survey (PeNSE) (IBGE, 2013) investigated, in 2012, the accumulated physical activity time-commuting to school, Physical Education classes, and other extra-school activities, for students in the 9th grade of elementary school. It was found that only 30.1% of students were active, 63.1% were classified as insufficiently active and 6.8% as inactive. Result considered worrying because the sedentary habit built in childhood can extend into adulthood, and is a risk factor for chronic diseases that represents the fourth leading cause of death in the world.

### **Behavioral benefits after participating in health camps**

Strategies to promote health and prevent diseases by reducing sedentary lifestyle and encouraging healthy eating in childhood have been suggested. One of them is the health education camp. The camp provides a rich experience regarding autonomy and independence for the child/adolescent, especially for those who have never separated from their parents. In a Brazilian study carried out in 2009, the participating children and adolescents pointed out that the summer camps promote independence concerning care related to their health, as they are encouraged to take care of themselves [26].

For these children and adolescents, this experience changed and positively influenced their routine when they returned home. Participation in the holiday camp, in addition to providing a series of pleasurable and fun activities, allowed participants to meet new friends, in addition to feeling safe with the performance of the multi-professional team [26].

In a study by [27] found that a 2-week weight-control camp and lifestyle education sessions were effective for weight loss in 56 obese children aged 9 and 13 in Qatar. In this study, a significant reduction in the children's BMI was observed after 2 weeks of physical and social activities, educational activity on lifestyle, and dietary control. In addition to the camp, the researchers held ten educational sessions on a 2-hour lifestyle with the children and guardians, to consolidate the learning they had obtained in the camp, to encourage the continuity of the acquired healthy behaviors.

Educational camps for children and adolescents with diabetes are known to promote the experience of a traditional camp in a prepared and safe environment, as well as allowing participants to share their experiences, they are also led to learning to have more autonomy over their health condition, that is, a beneficial effect was observed regarding the participants' self-care and self-esteem [20].

For [26], interventions in health education camp promote the combination of leisure and knowledge, which can enable this population of participants to acquire stimulus for self-monitoring and to promote better acceptance of diabetes through work

carried out in a multidisciplinary team.

A recent review study of publications showed that summer camps were very effective for children and adolescents with type 1 diabetes in many aspects, such as knowledge acquisition, improvement of psychological aspects, understanding of diabetes, and a better understanding of their child concerning his health. However, the author reports that long-term effects need to be further investigated [28].

It was observed in some studies that the emergence of the interest of children and adolescents in food management is a positive aspect of the camp experience, which reflects in the routine of their home, which could be perceived in the reports of the mothers of the children participating in the study by [29].

The authors [30], presented in their review that the nutritional habits of children with diabetes do not meet the recommendations and are usually less healthy than those of children without diabetes [30]. In this sense, the participation of children in an educational camp can contribute to changes in this situation, as shown in the study by [29].

The mothers of children with diabetes reported some benefits after their children participated in an educational leisure camp such as greater ability to handle insulin alone, perform their glycemic control, became interested in food management, acquired independence, started to learn how to do it carbohydrate counting, overcame the fear of the disease, acquired greater self-control of the disease and a greater acceptance and understanding of their real condition. Besides, participants reported pleasure in participating in the camp and perceived benefits for their own family [29].

### **Physical benefits observed after participating in camps**

The [7] recommendations for physical activity are that 60 minutes of moderate to intense physical activity should be performed alternately, daily, with no more specific characteristics such as sex and age [7,31].

However, other international guidelines such as the [32], the United States Department of Health and Human Services, the Canadian Society for Exercise Physiology, and the American Academy of Pediatrics recommend that resistance training should be performed. Performed as a central component of physical activities during youth [32-35].

According [36] recruited 100 obese children aged 6 to 12 years and divided them into two groups: 50 to 8 monthly counseling to promote healthy eating and physical activity that lasted 10 minutes; and 50 children participated in the Nereu Program - intervention with multi-components for family behavioral change, which involved 80 sessions of physical activity of 60 minutes, held 3 times a week, for 8 months. Participants in the Nereu program showed higher values for the level of physical activity and consumption of fruit servings per day, and decreased the daily consumption of soft drinks compared to the counseling group, demonstrating their effectiveness.

In a study on expenditure and energy, published by [37], the

authors compared the excess oxygen consumption post-exercise (OCPE), after watching television, using an active video game and traditional games in Brazil (pick-pecker, pennant and burned pike) in 16 children, and found that in the play practice session the values of oxygen consumption and caloric expenditure were high for at least 30 minutes after the session, when compared to rest, demonstrating that not only does the child spend more energy during active play, but also during the post joke period.

Other health benefits of children from 30 minutes of active play were observed by the same authors in 2014, and children who participated in 30 minutes of active play showed less reactivity of blood pressure (BP) to thermal stress, that is, when submitted to this type of stress, the children's BP suffered a lower elevation after the active play session when compared to the control session.

In a study by [21], we observed the effects of recreational and educational physical activity offered in a 5-day health education camp on body composition and physical fitness in overweight and obese prepubertal children. Significant differences were observed in seven of the eleven health parameters evaluated, including anthropometric data (reduced body mass, abdominal circumference, and fat percentage) and physical tests (increased flexibility, VO<sub>2</sub>max, the strength of the lower and upper limbs).

According [38], carried out a quasi-experimental study, in which they developed health education activities in a group of obese children, to reduce the risk factors for type 2 diabetes mellitus, lasting six months. At the end of the six months, a significant reduction in the initial values of the following risk factors was observed: BMI, BP, fasting blood glucose, total cholesterol, triglycerides, insulin resistance, leptin, and calorie consumption. However, longitudinal monitoring of these children and families in the post-intervention period is scarce.

## Conclusion

Because of the studies reviewed here, it can be seen that educational health interventions carried out through camps are effective in the management of various complications arising from unhealthy habits and lifestyles, often adopted by children and adolescents. Several beneficial results were observed in terms of bodily and behavioral changes such as weight loss, improvement, and motivation in self-care and self-esteem, improved acceptance of children with diseases, the extent of the benefits in the lives of the children's relatives can also be seen. Adolescents promoted by guidelines related to lifestyle, also contributing to the community through the information described here.

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