ISSN: 1996–2452 RNPS: 2148
Revista PODIUM, *January-April 2020; 15(1): 153-165*

PODIUM
REVISTA DE CIENCIA Y TECNOLOGÍA EN LA CULTURA FÍSICA

Translated from the original in spanish

Review article

Promotion of physical activity to reduce overweight in children

La promoción de la actividad física para disminuir el sobrepeso en niños

Promoção da atividade física para reduzir o excesso de peso nas crianças

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Received: December 18th, 2019.
Approved: January 21th, 2020.

ABSTRACT

The work addresses one of the most serious health problems of the contemporary era: obesity, which seriously affects children. It causes numerous types of diseases and other affectations to physical and mental health. The objective of the article was to carry out an analysis of the influence of the promotion of physical activity to reduce the overweight of children, for which a theoretical analysis was carried out based on the consultation of specialized and updated documents. The main aspects addressed were overweight, physical inactivity and physical activity in the face of obesity problems, as well as the role played by schools and teachers in the promotion of health in the face of this serious problem. The study carried out provides a basis for future research, of an applied type, in relation to the intervention that can be carried out from the physical education class to promote healthy habits and adequate physical activity, with a view to minimizing obesity in infants.

Keywords: obesity; mental and physical health; overweight; physical inactivity and physical activity.

RESUMEN

En el trabajo, se aborda una de las problemáticas de salud más graves de la época contemporánea: la obesidad que aqueja seriamente a niños y niñas. Esta provoca numerosos tipos de enfermedades y otras afectaciones a la salud física y mental. El objetivo del artículo fue realizar un análisis de la influencia de la promoción de la actividad física para disminuir el sobrepeso en los niños, para lo cual se realizó un análisis teórico sobre la base de la consulta de documentos especializados y

actualizados. Los principales aspectos abordados fueron el sobrepeso, la inactividad física y la actividad física frente a los problemas de obesidad, así como el rol que juega la escuela y el profesorado en la promoción de salud frente a esta grave problemática. El estudio realizado permite sentar bases para futuras investigaciones, de tipo aplicado, en relación con la intervención que desde la clase de educación física puede realizarse para promover hábitos sanos y una actividad física adecuada, con miras a minimizar la obesidad en los infantes.

Palabras clave: obesidad; salud mental y física; sobrepeso; inactividad física y la actividad física.

RESUMO

O trabalho aborda um dos problemas de saúde mais graves da era contemporânea: a obesidade, que aflige gravemente as crianças. Provoca inúmeros tipos de doenças e outras afecções à saúde física e mental. O objectivo do artigo foi realizar uma análise da influência da promoção da atividade física para reduzir o excesso de peso das crianças, para a qual foi realizada uma análise teórica com base na consulta de documentos especializados e atualizados. Os principais aspectos abordados foram o excesso de peso, a inatividade física e a atividade física face a problemas de obesidade, bem como o papel desempenhado pelas escolas e pelos professores na promoção da saúde face a este grave problema. O estudo realizado fornece uma base para pesquisas futuras, de tipo aplicado, em relação à intervenção que pode ser realizada a partir da classe de educação física para promover hábitos saudáveis e atividade física adequada, com o objetivo de minimizar a obesidade em crianças.

Palavras-chave: obesidade; saúde mental e física; excesso de peso; inatividade física e atividade física.

INTRODUCTION

Throughout the world, the need to counteract the evil of overweight has been noted, especially among children. However, today's society is not aware of the consequences this has in the long term, making it less important than it should be. It is recognized that physical activity considered as a practice of physical exercise, which uses all the muscles of the human body, constitutes an energy expense that contributes positively to health. The aim of the study is to analyse the influence of physical activity promotion on overweight in children. A systematic review was carried out through a database, where proposals were found that use physical activity as a coadjuvant to improve quality of life, considering aerobic playful physical exercises as a basis for reducing the Body Mass Index (BMI) in children.

Sedentarism is considered a public health problem and one of the main risk factors for mortality worldwide (WHO, 2018), due to the serious implications it has. The mortality rate increases in people with sedentary habits (Varela, Duarte, Salazar, Lema and Tamayo, 2011). Therefore, it is urgent: "To carry out physical activity (PA) in order not to lead a sedentary life, but a healthy one, being able, at the same time, to enjoy a comfortable life due to technological advances, but taking care of physical health" (Rodríguez, Naranjo, Merino, Gómez, Garcés and Calero, 2018, p.1.)

According to the World Health Organization (WHO), since 1975, obesity and overweight have tripled worldwide and since the 21st century their rates have been increasing at a worrying rate, much more so in children between 5 and 19 years of age with figures of 4 % in 1975 and 18 % in 2016; this leads to the appearance of non-communicable diseases (WHO, 2018).

On the other hand, Shephard, (2003) states that physical activity:

> "Engages all types of muscular activity that substantially increase energy expenditure and that exercise is a sub-classification of regular and structured physical activity, which is performed deliberately and for specific purposes such as preparation for athletic competition or improvement of some aspect of health (p. 197)".

The U.S. Preventive Services Task Force states that:

> "regular exercise has been indicated to improve blood glucose control, reduce cardiovascular risk factors, contribute to weight loss, increase insulin sensitivity, and provide a sense of overall well-being" (American Diabetes Association, 2007, p. 30).

In the Ecuadorian child population between the ages of 5 and 11, three out of every ten school children present problems of overweight and obesity. The combined national prevalence of overweight and obesity is 29.9 %, with figures of 27.1 % in girls and 32.5 % in boys, representing about 666,165 overweight children (ENSANUT-ECU, 2012, p. 231).

The emergence of new technological resources has caused society to stop making any kind of body movement, in other words, it became inactive, giving rise to sedentarism, which develops at an early age. Sedentariness has become a problem in adolescence and has reached a harmful level in adulthood (Moral, Redecillas and Martínez, 2012).

In view of the above, it is necessary to promote a healthier lifestyle that includes daily physical activity in educational centers (Márquez, Rodríguez and De abajo, 2006).

The objective of this study is to analyze the influence of the promotion of physical activity to decrease overweight in children. The type of research carried out was bibliographical, with the analysis of more than 40 scientific documents from recognized databases corresponding to the period 2000-2019; among them, research articles, books, doctoral theses and reports from national and international organizations and agencies.

The result of the systematic review carried out, based on the review of the selected documents, allowed the identification of truthful, precise and fundamental information for the subject of the promotion of physical activity to reduce overweight in children. The analysis was divided into the following topics: overweight; physical inactivity and its influence on overweight versus physical activity; and finally, physical education teachers and health promotion in schools.

DEVELOPMENT

The results obtained through the applied documentary review will be shown below. The information will be organized by thematic ideas.

Overweight

Overweight is defined as an "abnormal or excessive accumulation of fat that may be harmful to health. A person with a BMI of 30 or more is considered obese and with a BMI of 25 or more is considered overweight" (WHO, 2009).

According to the National Institute of Statistics and Census-INEC (2012): The prevalence of overweight and obesity in preschoolers has been rising over time. It is estimated that approximately 137 395 children between 0 and 60 months of age are overweight or obese, and another 348 534 are at risk of triggering overweight. When this information is stratified by sex, boys (23.4 %) are at greater risk of being overweight than girls (19.7 %) (p.257).

It is known that "excess body weight is the sixth most important risk factor contributing to the overall burden of disease worldwide" (Haslam and James, 2005, p. 1186).

Thus, overweight is considered a risk factor for many chronic diseases.

Therefore, the 57th World Health Assembly adopted the Global Strategy on Diet, Physical Activity and Health (WHO, 2004) which includes "engaging in at least 30 minutes of moderate-intensity aerobic physical activity on 5 days of the week, emphasizing the relevance of regular practice in promoting health" (p.4).

There are several factors that influence overweight in children and one of them is diet.

> WHO, (2010) states that diet is:
>
> "The intake of food in relation to the body's dietary needs. Good nutrition (a sufficient and balanced diet combined with regular physical exercise) is a key element of good health (p.1)".

La ingesta abundante de grasas, azúcares, sodio y deficitaria en nutrientes esenciales como el calcio, hierro, zinc o vitamina C– y fibra, se ha asociado a la alta prevalencia de sobrepeso en la infancia con el llamado picoteo o snacking" (Piaggio, Concilio, Rolón, Macedra y Dupraz, 2011, p. 200).

Overweight and obesity have long been considered disorders of the rich, but today they increasingly affect the poor, reflecting the increased availability in all countries of the world of "cheap calories" from fatty and sugary foods (UNICEF, 2019, p.4).

It is a factor that contributes to child obesity, which "is caused by excessive consumption of high-calorie foods and sweetened beverages, exercise or physical activity, as well as genetic factors" (Chueca, Azcona and Oyarzábal, 2009, p.131).

This is why, at present, reduced sugar intake is associated with lower body weight in both adults and children; therefore, it will contribute to achieving the goal of halting the increase in child overweight and the rise in obesity and diabetes by 2025 (WHO 72nd World Health Assembly, 2019, p.18).

Sedentary eating habits and behaviors develop in childhood and adolescence, which are then very difficult to change.

Thus, the Spanish Ministry of Health and Consumption prepared the Strategy for Nutrition, Physical Activity and Prevention of Obesity (NAOS) in which it states that the diet should be varied, with carbohydrates representing between 50 % and 60 %, proteins 10 % and 15 % and fats not exceeding 30 % of daily intake; reducing the consumption of salt, sugar and increasing the percentage of water consumption to a minimum of two litres per day (Ministerio de Sanidad y Consumo NAOS Strategy, 2005, p.25).

Another factor affecting weight gain is physical inactivity, to which the following section is devoted.

Physical inactivity and its influence on overweight versus physical activity

It is considered the "fourth most important risk factor for mortality that has been increasing in many countries, significantly influencing the prevalence of noncommunicable diseases (NCDs) and the general health of the world's population" (WHO, 2010, p.7). Diseases also known as "diseases of the obese, such as hypertension, type II diabetes, colon cancer, osteoporosis and all those related to the coronary arteries" (Lees and Booth, 2004, p.5).

Cuesta and Calle, (2013) define physical inactivity as "the lack of physical activity is especially prevalent in some subgroups, such as women, the elderly and those with limited economic resources" (p. 2). Adolescents are a group at risk because physical inactivity and sedentary behaviors have increased significantly (Lavielle, Pineda, Jauregui and Castillo, 2014).

The causes leading to physical inactivity are "increased time spent on sedentary leisure activities involving screen time" (WHO, 2016), p.6).

For children at risk of obesity, low-calorie diets are effective in the short term for the treatment of obesity, but reducing inactivity and increasing physical activity will improve the effectiveness of their quality of life (WHO, 2016, p.32).

Furthermore, according to WHO scientific data, "physical activity begins to decline from the time a child enters school. Globally, in 2010, 81 % of adolescents between 11 and 17 years old did not get enough physical activity" (WHO, 2016, p.21).

Despite the fact that, since ancient times, physical activity was practiced with different purposes, including health, it is necessary to know more about it to deepen its benefits.

In "ancient China and classical Greece, they already had knowledge about the benefits that the practice of physical activity gave to health" (Guillet, 1971, p.126).

And in the seventies, (Delgado and Tercedor, 2002) they continued with the Fitness Movement or also called Physical Conditioning Movement, created by Devis and Piero "whose objective was to increase the physical condition of the American schoolchildren in view of a possible inferiority in the physical condition tests compared to the children and young people of Eastern European countries" (p.387).

Thus, the following table shows relevant aspects of the different thoughts about physical activity that have emerged over the years (Table 1).

Table 1. - Evolution of health-oriented physical activity

MOMENTO	APORTES
Antigua China y Grecia	En China, se realizan ejercicios para buscar la armonía del cuerpo. En Grecia, a través de las ideas de Platón y Galeno, se practican ejercicios para buscar la salud integral.
Renacimiento	Se realizan los primeros ensayos que rescatan la educación corporal para el mantenimiento y mejora de la salud.
Ilustración	Se proponen nuevas y brillantes ideas acerca de la educación física, con una orientación higiénica.
Movimiento Higienista	Se incluye la educación higiénica en los centros educacionales para compensar la negativa condición de salubridad de las ciudades.
Movimiento *Fitness*	Se comienza a practicar actividad física como cuidado del cuerpo y para obtener salud física a través de la mejora de la condición física.
Movimiento social hacia la salud	Emerge una conciencia popular hacia la importancia del cuidado de la salud, enfatizando la prevención de las enfermedades producidas por los estilos de vida inadecuados.
Movimiento educativo hacia la salud	La escuela se hace eco de los problemas de la sociedad, como el sedentarismo y la obesidad, y comienza a incluir objetivos de salud en el currículo de la enseñanza formal.

Source: (Garrido, 2014, p.34).

Epistemologically, González, (2004) makes known that,

> "physical activity is the pragmatic manifestation of a basic human need such as movement. Physical activity consists of interacting with our environment using body movement" (p.74).

"If at any age physical exercise is recommended, it will be even more so in children and adolescents, since it can be considered a basic element for development" (Casado, 2009, p. 42), emphasizing "the first years of life as crucial for establishing good nutrition and physical activity habits that reduce the risk of obesity" (WHO, 2016, p.26).

On the other hand, according to the WHO, (2016) "changes in the type and availability of food and the decline in physical activity for travel or play have led to an energy imbalance" (p.4).

Therefore, "effective long-term weight loss depends on permanent changes in diet quality, energy intake and activity" (Haslam and James, 2005, p.1197-1209).

That is why the WHO Commission on Childhood Obesity, (2016) recommends "providing guidance to children and adolescents and to parents, caregivers, teachers and health professionals on healthy body size, good physical activity and sleep habits and appropriate use of play programs" (p.9).

For children, the "accumulation of shorter sessions of daily physical activity, for example, unstructured and spontaneous play, is recommended. A wide variety of physical activities is especially important for this age group" (Ministerio de Sanidad, (2013), p.1; Antón, Morales, & Concepción, (2018).

In addition, the WHO, (2010) advises:

- Children and young people aged 5-17 should accumulate a minimum of 60 minutes per day of moderate or vigorous physical activity.
- Physical activity for more than 60 minutes a day will provide even greater health benefit.

"Daily physical activity should be mostly aerobic. Vigorous activities that strengthen, in particular, muscles and bones should be incorporated at least three times a week" (WHO, 2010, p.7).

De esta forma, en "los niños con sobrepeso, la actividad física vigorosa (AFV) produce efectos positivos sobre su composición corporal" (Ara, Rodríguez, Moreno, Gutin y Casajus, 2009, p.20).

In the same way, according to Hill, Wyatt and Peters, (2012):

> A person who is physically active could maintain energy balance and a healthy body by spending 3,000 kcal/day, otherwise, if that person is sedentary he or she will fail to reduce enough energy intake to match the reduced energy expenditure over time, gaining weight and becoming obese (p.140).

Knowing the level of obesity problems in the world, the EU Platform for Action on Diet, Physical Activity and Health (2016) aims to create a forum and plans for all stakeholders in obesity prevention in Europe to contribute to healthy nutrition and physical activity and the fight against obesity. Priority areas for action include the promotion of physical activity (p.46).

The physical activity known as the performance of different physical exercises, which vary in intensity, takes into account the following Corbin pyramid of physical activity for children, which is shown in the figure below. (Figure 1)

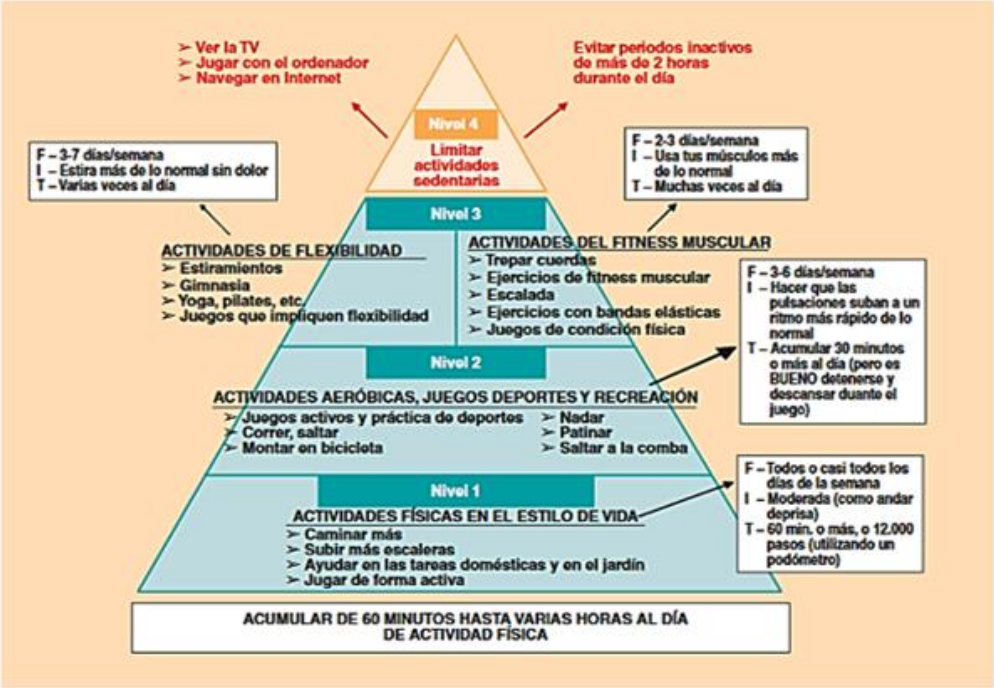

Fig. 1. - Children's Physical Activity Pyramid
Source: Corbin, (2007)

Physical Education teachers and health promotion in schools

Health is an object of education and should be incorporated into the teaching-learning process of every subject; on the other hand, health education should help students know how to choose those options that are beneficial for a healthy life; in this sense, the physical education teacher is an excellent agent or promoter of health (Pastor, Gil, Prieto and González, 2015).

An education that creates healthy environments and develops life skills, where children and adolescents are taught to strengthen healthy and productive lifestyles, should be encouraged (Rodríguez, Páez, Paguay and Rodríguez, 2018, p. 223).

There is data that shows that "the design of EF's classes is far from the healthy model, as it cannot counteract sedentarism, much less promote effective results in obese children" (Martínez, Lozano, Zagalaz and Romero, 2009, p.56).

Similarly, "overweight students receive few recommendations from physical education teachers for extracurricular physical exercise" (Martínez, Lozano and Zagalaz, 2009, p.57).

One possible answer, according to Levin, 2007, (as cited in Martínez, Lozano, Zagalaz and Romero, 2009) may be that "schools are prioritizing the development of areas such as reading, mathematics and science, to the detriment of PE.

Together, Martínez, Lozano, Zagalaz and Romero, (2009) state that:

> "There are no differences in the treatment of the obese child's health, nor are there proposals for improvement with respect to the rest of the students by the Educational Centre (p.55)".

This is why health professionals and those who provide services to children and adolescents need to receive adequate training on nutrition and diet, physical activity and risk factors that lead to overweight (WHO, 2016, p.32).

In addition, educational institutions should provide "safe facilities and spaces for students to be physically active during their free time, and that sports and leisure facilities provide opportunities for everyone to be physically active" (WHO, 2017).

Educational centers must involve the family and the community in projects that have an "integral focus on nutritional-motor education, based on the awareness of all the subjects involved, training, systematic control and evaluation, in relation to the promotion of healthy lifestyles in schoolchildren" (Rodríguez, Páez, Paguay and Rodríguez, 2018, p. 226).

PE has a direct relationship with: active and healthy lifestyles, leisure, social relations, relational behavior patterns and better self-perception of well-being in children and adolescents, contributing to a better quality of life (Molina, 2017); Green and Hardman, (2005); National Association for Sport and Physical Education NASPE, (2012). PE classes and playtime in schools can be opportunities for children and adolescents to exercise (Chiny Ludwig, 2014).

It is stated that obesity is a problem that cannot go unnoticed, much less in the child population, since they tend to develop diseases such as: hypertension, type II diabetes, colon cancer, osteoporosis and all those related to the coronary arteries.

Among the fundamental causes of obesity are ignorance, poor diet and lack of physical activity in and out of school. The physical activities that the child must do to avoid overweight are aerobic playful physical exercises (games of more than 30 minutes), especially in their leisure time, accompanied by a balanced diet, which allows for faster results in serious cases of obesity.

CONCLUSIONS

Educational institutions must play a leading role, becoming the spaces where physical education is encouraged with the purpose of promoting and developing healthy living habits, preventing diseases, especially now that adolescents are at different types of risk. At these ages, Physical Education has a positive influence on their continuing practice as adults and on the acquisition of healthy habits that will serve them throughout their lives.

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ISSN: 1996–2452 RNPS: 2148
Revista PODIUM, *January-April 2020; 15(1): 153-165*

Conflict of interests:

The authors declare not to have any interest conflicts.

Authors' contribution:

The authors have participated in the writing of the work and analysis of the documents.