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New Kids' Athletics Competitions Effect on Losing Weight of Elementary School Pupils

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Abstract

The overweight and obesity spreads among children around the world, the matter that the World Health Organization helps the countries to take action. Overweight and obesity in childhood affect negatively both physical and psychological health. Inactivity and unhealthy diet are most causing factors. Physical activity provides children with immediate and long-term health benefits. In Egypt and most of developing countries physical education classes are the only directed and regular physical activity for children. Increasing the dose of physical activity for obese children reduces the percentage of body fat. The attitude of the students toward physical education classes is important for participation. Enjoyment and usefulness could positively change this attitude. The planned curriculum by the authors relied on new competitive games. These games were retrieved from Athletics events and supported by the physical abilities considering the visual, auditory and mental perceptions. Ashweel WHtR chart was used to recognize the overweight children for the pre and post measurements. The result was significant as the ratio of WHtR for all children is decreased although they still in the yellow area. The author recommended to extend the same curriculum planning to the other sports activities.

Keywords: Childhood Overweight, Athletics Curriculum, Elementary schools

Introduction

World health organization (WHO) warns about childhood obesity, which increases the risk of chronic diseases (including heart disease, type 2 diabetes, stroke, several types of cancer, and osteoarthritis(J.B., 2010; World Health Organisation, 2004).

Overweight and obesity in childhood affect negatively both physical and psychological health. The obesity is not addressed by a single etiology. Genetic factors

influence the susceptibility of the child to the obesity-conducive environment. However, environmental factors, lifestyle preferences, and cultural environment seem to play major roles in the rising prevalence of obesity worldwide. Consequently, both over-consumption of calories and reduced physical activity are main reasons of childhood obesity (Dehghan, Akhtar-Danesh, & Merchant, 2005).





Children should therefore be considered the priority population for intervention strategies to prevent overweight and obesity. Those strategies would consist of building healthy environment, physical activity, and healthy diet (Dehghan et al., 2005) . Bar-Or (1995) and Bailey, Faulkner, & McKay (1996) mention that physical activity (most often during physical education classes) provides children with immediate and long-term health benefits. Increasing the dose of physical activity for obese children reduces the percentage of body fat. In addition, weight-bearing activities performed during the school years offer bone mineral density benefits (Pangrazi & Beighle, 2019).

Therefore, it has been strongly recommended to promote everyday activities and sports, emphasize the importance of physical education class, increase the variety of activities and encourage hobbies, in order to help the overweight and obese children (Nowicka & Flodmark, 2007).

Egyptian Governments and the private sector have vital roles to play in contributing to obesity prevention specially among children (World Health Organization, 2018). These efforts could be noticed in the actions of both Health and Population Ministry and Education Ministry. They conduct an overall survey each year for all Egyptian pre-school and primary for

evaluating the reality. Education Ministry starts to consider the PE as a mandatory subject to turn the students' attitude positively to the PE. It also supports the school-Fitness project in 17 governorates. But it is an optional competition.

The problem of inactivity and refusing to take part in physical activity in and out the PE classes is a worldwide problem. It depends on many factors (i.e. culture, life style, parents). Most Students have moderately high attitudes toward physical education (PE) in many countries , which decline by age (P. R. Subramaniam & Silverman, 2007). This attitude could be modified significantly even over a short period of time. Enjoyment is one of the interaction factors that affects the attitude but it differs according with gender (Martinen, Fredrick, & Silverman, 2018).

The actual PE curriculum for Egyptian elementary and secondary schools includes teaching individual and team sports. Athletics is one of PE content. The attitude of the students to PE classes differs from region to region and between boys and girls, which decreases by age.

The teacher is the instructor who conducts teaching process. He has to ensure that the outcome of PE is not only just simply “working out” or “playing games” but also an adequate education (P. R. Subramaniam & Silverman, 2007) .





Therefore, the authors adopted the “IAAF Kids’ Athletics” program. This program aims to introduce Children to Athletics at a basic level in an exciting way. It is for all institutions who are interested in the well being of children (El-Hebil, 2005).

Engaging the same strategy of Kids’ Athletics with the PE curriculum demands would turn the boring tasks into an enjoyment. The authors designed other competition series that have different perceptual tasks to meet the qualification of the high-quality PE curriculum according to David Kirk description. It provides several and different skills and the ability to use tactics, strategies and compositional ideas to perform successfully. It enhances concepts of fairness and of personal and social responsibility. Simply it offers experiences through competitive, creative and challenging environment (Kirk, 2009).

In order to attract the student to PE classes, teacher should focus on the meaningful and relevant activities and avoid repeating boring and useless activities (R. Subramaniam & Silverman, 2002). He has to add fun to the activity to make the children enjoy the effort and continue participating (Sothern, 2001).

The purpose of the study is to test the effect applying the PE athletics curriculum content by New

Kids’ Athletics Competitions on losing weight of overweight 5th grad students.

Enjoyment of the curriculum declined for boys, yet stayed the same for girls from the pretest to the posttest. Furthermore, sub-factors such as curriculum enjoyment and curriculum usefulness were the strongest predictors of total attitude in this study, reinforcing the need for educators to continue to make curricula relevant and exciting for students (Marttinen et al., 2018)

Method

The study was conducted on one experimental group with pre-and post test design.

Participants:

The main society is 5th grade in Kashtookh elementary school, Menofeya governorate. Twenty nine pupils participated in the program. Only twelve pupils (41.38%) who were considered overweight according to Ashwell chart. The height mean is (155.75 cm) and SD (5.26). Their age mean is (10.75 ± 0.75). Therefore, the statistical analysis treated the data of the twelve pupils . The participants were not doing any sports activities but the PE classes, there were not following any exceptional diet or nutritional regime or planning to lose weight. The children also participated with their mates without any distinguish.

Measures





Although BMI (body mass index) has been widely used to determine whether an individual is underweight, normal weight, overweight, or obese, it has been called for question again in many studies. BMI does not describe body fat content and distribution and has limited relevance to central obesity (Amankwah et al., 2018; Ashwell, 2011; Dehghan et al., 2005; Nuttall, 2015).

Even if BMI seems appropriate for adults, it may not be as useful in children because of their changing body shape as they progress through normal growth (Dehghan et al., 2005).

Therefore, there are many trials to find easy, accurate and reliable measures to identify the overweight and obesity clinically and for regular check. Some of those studies uses the Waist circumference as an element of calculating and generating an abdominal obesity index (Amankwah et al., 2018; Ashwell, 2011; Dehghan et al., 2005; Nuttall, 2015). Waist circumference seems to be more accurate for children because it targets central obesity, which is a risk factor for type II diabetes and coronary heart disease (Dehghan et al., 2005; Garnett, Baur, & Cowell, 2008; Lee, Song, & Sung, 2008).

Here the authors adopted the Waist to Height Ratio (WHtR) to classify the children (Ashwell,

2011). The Ashwell Shape Chart is suitable for adults (men and women) and children over 5y. It has waist circumference measurement (cm) on x axis and height (cm) on the y axis. The boundary values for waist-to-height ratio are set at WHtR 0.4 (brown to green), 0.5 (green to yellow) and 0.6 (yellow to red).

- The Brown area indicates “Take Care – you will not need to decrease your waist circumference and might even be underweight”;
- The Green area indicates “OK”;
- The Yellow area indicates “Consider Action for adults and Take Action for children”;
- The Red area indicates “Take Action” (Ashwell, 2011).

Procedures

The height and waist circumferences were collected from all participants as pre-measurements. Ashwell chart was used in order to recognize the overweight children (their ratio located in the yellow and the red areas) as shown in figure 1. Statistical processors

Then the main program was carried-out during the first term (from 1st October 2019 till 14th November 2019) in the PE classes of the 5th grade pupils. The program contained 12 PE classes (2 units per week), each class was 45 minutes. The program was designed to meet



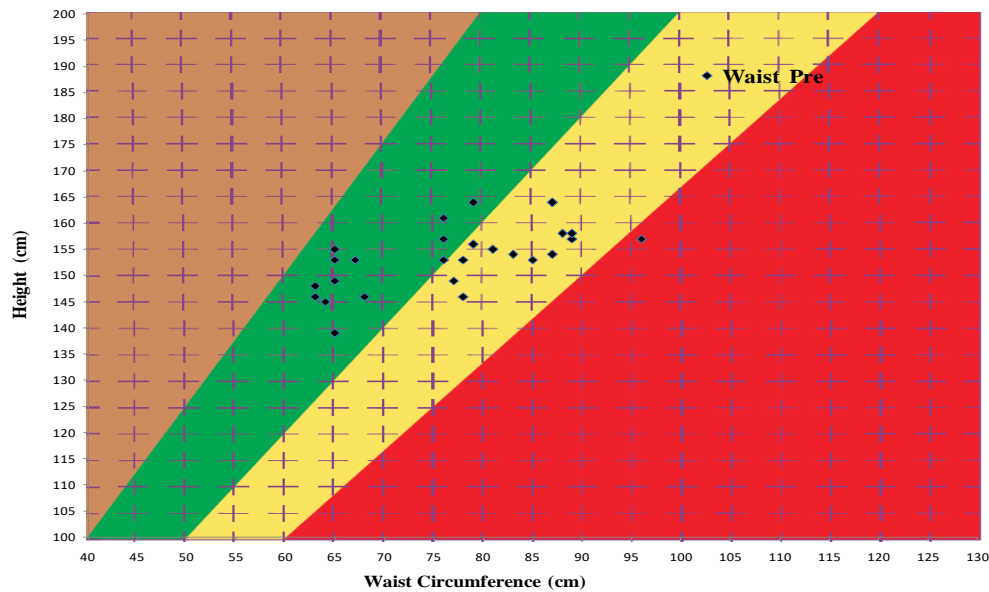


Figure 1 the Ashwell chart for distinguishing the targeted overweight children among the all participants

the demands of the athletics curriculum content as the following:

- Competitive, multi-tasks, funny, exciting and various perceptual exercises (visual, auditory, and mental).
- It considers also the characteristics of 9-12 years stage.
- Each PE class contained 3 competitive games, one is related to the athletics event, one is for the physical abilities related to the same event, and the last is a combination of both.
- To avoid feeling bore, there were new 18 competitive games; each game was repeated just twice a week.
- The warming-up was necessary every unit or PE class.

The authors did not mentioned or distinguish those children from the others during the classes. Then the authors collect the post measurements. An example for a PE class:

1. Warming up 5min.
2. Competitive physical game considering the (auditory, visual, and mental) perceptions for 15 min.
3. Competitive game consists of athletics events (throw, jump, and sprint) for 10 min.
4. A competitive game that combines both physical and events for 10 min.
5. Cooling down for 5 min.

Statistical Analysis

The mean, standerd deviation, and T test were calculated.



Results

There is a significant differences between the pre- and post WHtR of the participant (see Table 1). The table also shows that there is no difference in both the mean and the standard deviation because of the small values of the ratio.

Figure 2 presents Ashwell WHtR chart, where the pre

measurements of twelve children located in the yellow area which guide to "Take Action for children", and a child was in the red area which guides to "Take Action". After participating in the program the Post measurements of all children still located in the yellow area but the ration values decreased.

Table 1 Statistical summary of the pre- and post test of WHtR (N=12)

	Min.		Max		Mean		SD		T test [*]
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	
Waist Height Ratio (WHtR)	0.517	0.506	0.611	0.573	0.55	0.55	0.026	0.02	-5.43

* Critical T value = 2.200985 for (0.05)

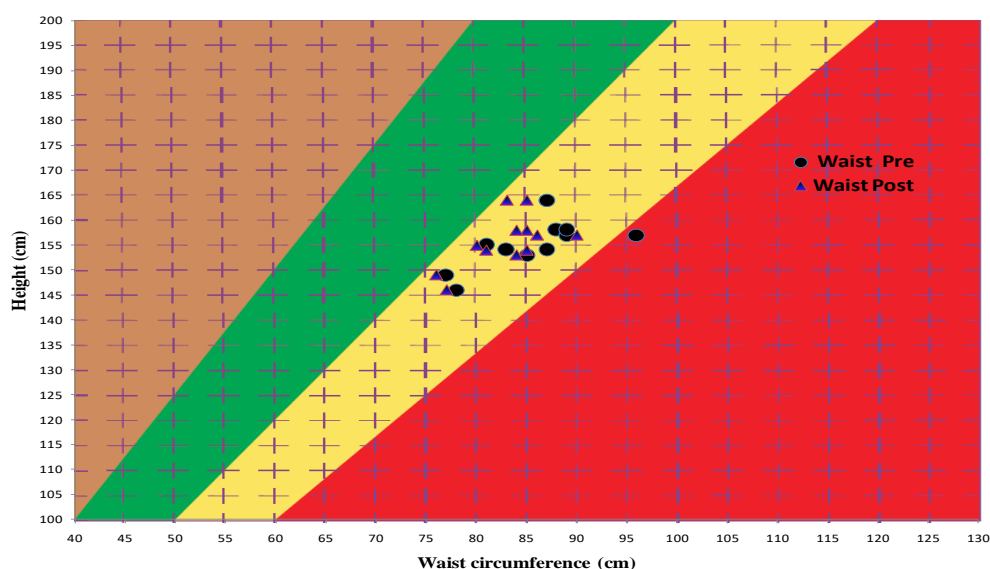


Figure 2 The Ashwell® Shape Chart based on waist-to-height ratio the blue marks for the pre measurements and the black marks for the post measurements



The waist circumferences of the children decreased in a range between 1cm and 7cm as shown in figure 3. The range of decrement is small but according to figure 1 it moved the WHtR backward.

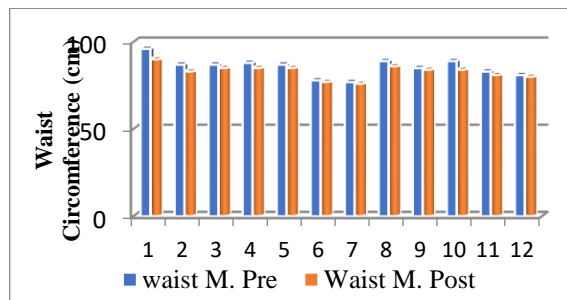


Figure 3 The change in the waist circumferences of the children pre and post participating in the Program

Discussion

From the observation the new style of teaching and practicing Athletics content, which add exciting and enjoyment to the PE classes, motivated children to keep attending the classes and did their best to end the tasks. That is an evidence of having a good planed curriculum that enhanced the positive attitude toward PE (Dehghan et al., 2005; Kirk, 2009; Marttinen et al., 2018; Pangrazi & Beighle, 2019; P. R. Subramaniam & Silverman, 2007). This motivated the overweight children to move and compete for a target among their mates without gathering them separately. Although the WHtR of the children are still in the yellow area, the program resulted in significance differences between

the pre and post measurements. That was the action that has been recommended by Margeret Ashwell with steps backward toward normal ratio avoiding dieses risks. This confirms the importance of PE activities for overweight children specially (Kirk, 2006; Nowicka & Flodmark, 2007).

Recommendations

The authors recommend extending the same strategy of planning the curriculum of the other sport activities to ensure the continuity of children participation with the same spirit over the school year. Moreover, increase the number of PE classes and distribute them on the whole school-week days.

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