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Nutrition knowledge and behaviours of children aged 8-12 who attend sport schools

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Abstract

The purpose of this study was to increase the nutrition knowledge and to create perdurable changes in children's behaviour with nutrition education-educational material. A quasi-experimental design was utilized with 78 volunteer female participants aged 8-12 who were attending a volleyball school. Education materials were given to education group to study at homes with their families during 1.5 months in order to support the education. The increase in nutrition knowledge was significant comparing to control group ($p < 0.005$). As a result, the nutrition education and the educational material induced positive changes in nutrition knowledge and behaviours.

Keywords: Education Material, Equally and Balanced Nutrition, Nutrition Education .

1. Introduction

Child growth and development depends both on physical activity level and on external factors such as genetic disposition, biological clock, nutrition and environment. Sports activity behaviour acquired early in life may reduce risk of chronic diseases of adulthood, including obesity (Stratton et al., 2007; Wedderkopp, Froberg, Hansen, & Andersen, 2004).

Many developed countries have national programs aiming at prevention of illnesses, primarily obesity, caused by inadequate and unbalanced nutrition. Nutrition behaviour and physical activity level control body weight. With control and positive encouragement of these two factors, both childhood obesity and adult life risk factors may be restricted and delayed (Ortega, Ruiz, Castillo, & Sjostrom, 2008). Regular and habitual sports activity may increase physical activity and physical fitness (Tomkinson, 2007)

Nutrition knowledge is an important factor affecting nutrition behaviour of individuals, families and the society. Children do not instinctively select food with a high nutrition value; they must be informed. Healthy nutrition behaviour is acquired in childhood (Shepherd, 2006). Therefore, nutrition education is very important for children (Cho & Nadow, 2004).

Sports are important in promotion of child health. Therefore, a nutrition education program with educational material was developed for girls attending sports school, aged 8-12, to increase nutrition knowledge, to educate on selection of food with a high nutritional value and to develop perdurable changes in nutrition behaviour.

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2. Material and Methods

78 girls aged 8-12, attending sports school have volunteered in this study. Two groups were formed as educated (n=42) and control (n=36) groups. Both groups took a questionnaire consisting of three sections and twenty-four questions, to determine their initial status. First section of questionnaire determined their age, gender as well as parents ages and educational status. Second section determined anthropometric characteristics, while the third section determined their nutrition knowledge and behaviour. At the end of six weeks, the questionnaire was readministered to both groups to determine changes in nutrition knowledge and behaviour. Research was conducted using a quasi-experimental model.

Education group received a program consisting of a 1,5 hour slide show, brainstorming and problem-solving sessions. At the end of the education program, children were given a nutrition booklet and other supportive educational materials (picture sudoku, puzzles) to use with their families during the six weeks.

Statistical analysis; within-group comparisons independent T test was used. SPSS 14. Packet programme was used.

3. Results

Findings of this study are indicated in the following tables:

Table 1. The demographic characteristics of children from sports activity and nutrition education group and sports activity group

Groups	Age (Year)	Height (cm)	Weight (kg)	BMI (kg/m ²)
Sports activity and nutrition education	10.55±1.31	149.91±11.94	41.76±9.76	18.23±2.57
Sports activity	10.28±1.26	147.17±10.26	41.60±10.44	18.97±3.04

Table 2. Nutrition education status

Groups	Total score received Nutrition education			Status of Nutrition education prior to Education program	
	Pre-Test	Post-Test	p	Pre-Test	Post-Test
Sports activity and nutrition education	83.5± 10.3	98.7±2.9	.001*	66.7 %	100 %
Sports activity	81.8±12.9	78.8±14.4		61.1%	63.8 %

Table 3. Food Consumption

Meal skipping status								
Groups	Pre-Test				Post-Test			
	Breakfast	Lunch	Dinner	Does not skip	Breakfast	Lunch	Dinner	Does not skip
Sports activity and nutrition education	16.7 %	14.3 %	2.3 %	66.7 %	2.3 %	0 %	2.3 %	95.4 %
Sports activity	16.7 %	19.4 %	13.9 %	50 %	13.9 %	19.4 %	13.9 %	52.8 %
p	.207				.000**			

Table 4. Fast Food consumption

Fast food consumption								
Groups	Pre-Test				Post-Test			
	None	Once a week	Twice a week	Three times a week and more	None	Once a week	Twice a week	Three times a week and more
Sports activity and Nutrition education	35.7 %	42.9 %	16.7 %	4.7 %	54.8 %	40.5 %	4.7 %	0
Sports activity	25 %	50 %	11.1 %	13.9 %	22.2 %	41.7 %	22.2 %	13.9 %
p	.367				.001*			

4. Discussion

Nutrition education must be offered in schools (Hammerschmidt, Tackett, Golzynski, & Golzynski, 2011). The joint report of School Nutrition Association (SNA) and Society for Nutrition Education (SEN) (2010), aiming to increase the influence of nutrition education in schools, stated that children who regularly received similar messages on nutrition through various channels (school, family, environment and media) and other sources (parents, educators, health personnel, media) have healthier nutrition behaviour. Therefore, it is important that educational policies should start a communication between school, families and the community. While administering education programs to promote healthy nutrition behaviour, it is important that role-models at home and around the children should display similar behaviour.

According to Benton (2004) as well, traditional nutrition educational programs have a low modifying influence on children's nutrition behaviour. Educating parents on nutrition and its importance on child growth and development has been shown to increase efficacy of these programs.

Although there are differing views on the correlation between parental education and professional status and obesity, children, raised under difficult life conditions and bad surroundings, may have a higher risk of obesity (Gnavi, Spagnoli, Galotto, Pugliese, Carta and Cesari 2000).

Students receiving targeted nutrition education are expected to have gained adequate and balanced nutrition behaviour and have a more balanced and correct diet than children with similar characteristics and upbringings (Nicklas & Hayes, 2008). In Matvienko (2007) study, food consumption of children in the nutrition education group has improved.

In a 15 year study conducted on 3031 subjects, a positive correlation between fast food consumption, weight gain and insulin resistance has led to the conclusion that an increase in fast food consumption increases risk of Type 2 DM obesity (Pereira et al., 2005). Findings of a study on nutrition profiles of fast food consumers displayed that 42% of the children consumed fast food; compared to non-consumers, fast food consumers had higher energy, fat, saturated fat, salt, carbonated drink consumption levels, and significantly lower milk, fruit and vegetable consumption levels (Paeratakul, Ferdinand, Champagne, Ryan, & Bray, 2003).

Although sufficient and balanced diet for children is important, it is crucial for children with a higher level of physical activity to get adequate and balanced diet due to higher energy consumption. In this study, the ratio of obese children was 12%. Lower obesity levels may be correlated with families' educational, cultural and economic background. Another possible reason for lower obesity may be that children volunteering in this study were selected from the regular participants of sports activities.

Nutrition knowledge of girls attending sports school, aged 8-12, was increased through participation in a 6 week nutrition education program, where they were given educational materials developed on nutrition education, enabling them to choose food with nutritional value. Balanced and adequate nutrition is important in controlling weight and any other risk factors, which are outcomes of urbanization, advertisement and sedentary life style. We think that in order to increase nutrition knowledge, and to make informed choices on nutritional values of food and to make permanent lifestyle changes in nutrition behaviour, the influence of nutrition education programs in school curricula should be increased through the use of supplementary materials, repetition of education programs at regular intervals later in life, and reinforcement through other means.

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