
THE ROLE OF NUTRITION IN A CHILD'S PHYSICAL, MENTAL AND EMOTIONAL DEVELOPMENT

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Abstract: The adequate nutrition in childhood has the main role in the physical, mental and emotional development of the child. Herein, the children are considered a prioritized part of the population that can be influenced by different intervention strategies (Deghan et al. 2005). It is of utmost importance to obtain the suitable nutrition to every child, and this is the main reason that causes most of the research on child nutrition to be conducted in the kindergartens. The analysis on the food intake and the type of food in the kindergarten can help us analyse the overall health of the children. Usually, in the process of food analysis we use various components such as the following: dietary intake, anthropometric measurements and biochemical testing. We have identified a few researches that have used the above mentioned components for assessment of the child's nutrition that we mention in our paper as well.

Keywords: children's nutrition, obesity, family, kindergartens

INTRODUCTION

The positive growth and development of each country depends on the health and the education of a society, while the insufficient development is usually a result of the inadequate care in the early childhood. Research on early care and development of children around the world has shown that good care about children's physical and mental health can:

- Improve the children's success in both Primary and Secondary School
- Improve the possibilities of gifted children
- Decrease the individual's potential of becoming a burden to the public budget.

The scientific research on people's health has shown that the mental development is fastest in the first eight years of human's life. Some of the most recent studies have shown that the development of the brain is much faster than it was thought and that the influence of the environment in the early childhood has a permanent effect on the brain's development.

On the other hand, the social life and the quality life of children enables the development of the individuals who are able to make a positive contribution to society and consequently to contribute to the society's economic development and reduce the need for state benefits.

The better health care in the early childhood has permanent consequences for every individual. The nutrition and the education are also components that have a direct connection to the process of child's development in a mature individual. If we don't pay attention to the health, the nutrition or the education, the positive development of the individual will certainly decrease.

1. THE NUTRITION IN KINDERGARTENS

Kindergartens and other preschool institutions represent a form of social care for the children that is different from family life. However in order to obtain all the essential factors which have a direct or indirect influence on the children's growth and development, it is important to follow the development of the society and its norms. Also the problems that arise during this process seek for a systematic and quick solutions.

First of all, before we start analysing the nutrition it is of utmost importance to mention the hygiene in this institutions. The overall hygiene in the building must be in terms of the country's rules and on a highest level. This should be especially followed by the staff in the kitchen where the HASAPP system should be followed, and those rooms that serve as a dining area for the children. Also the hygiene should be incorporated in the educational process by using pedagogical activities in accordance with the psychophysical abilities of the children. If all the

criteria is fulfilled this will have a positive stimulus on the mental, emotional and also psychophysical development of preschool children. The most frequent topic in those type of activities should be the hygiene of food, in order to educate the children of the quality of food and to show them how to choose the quantity as well.

1.1 Food pyramid

The time that children spent in kindergarten is an ideal opportunity for learning what to eat and how to enjoy different types of food. It is very important to enable the children to choose from the offered food as the adults do. Also the children should decide on the amount of food intake, while the adults should only decide on the type of food that they offer to the children and the time at which the meals will be served (Department of agriculture of the USA, 2002).

The parents and the kindergarten teachers and educators have an enormous influence on the children in relation to the choice of healthy food and the physical activity (Shaw et al., 1998). The preschool children need less calories than the adults, but the variety of the food should be the same (Shaw et al., 1998).

The pyramid (shown in table 1) of food which contains the following groups:

- 1) Bread, cereal, pasta and rice;
- 2) Fruits and vegetables;
- 3) Dairy products (milk, yoghurt, cheese...), meat, fish, eggs, dry beans and nut group;
- 4) Meat, fish, eggs, dry beans and nut group;
- 5) Fats, oil and sweets.



Picture 1: Food pyramid (<https://www.first1000days.ie/toddler-food-pyramid/>)

We can see on the picture above how much is the recommended daily intake for each group and the frequency of the servings. The number of servings are the same for children and adults, but the quantity is smaller for the children (Forever Fit, 2009).

1.2 Vitamins

Vitamins are part of the food essentials. Although they are required in small quantities, the body can't produce them itself. Herein, the intake of vitamins is vital.

The vitamins are organic substances that have a role as biological catalyzers in the metabolic processes. As we mentioned, most of them cannot be synthesised by the human cells. The deficit of vitamins can cause various

pathological conditions and illnesses. The most frequent is the avitaminosis which is a condition that is a direct result of a low vitamin levels, while the hypovitaminosis is a result of a complete lack of a certain vitamin.

The daily intake of vitamins is different based on the type of vitamin and the individual. Although there isn't a particular number or quantity of vitamins that children should take daily, the adults should maintain a healthy diet by serving various types of fruits and vegetables daily. Also they should always wash the fruits and vegetables before eating or cooking. They shouldn't be cooked very long or on high temperature, because it can destroy the vitamins. The intake of vitamins should be the highest in the winter months, because during the cold months the human body loses its vitality and the immune system is more fragile.

1.3. Energy value of food

The recommended intake of food slightly varies in the countries around the world. Here we will show the regulations and recommendations for children's food published by the Ministry of labour and social services of Republic of Macedonia (table 1).

The daily intake of food should satisfy the children's needs for energy in accordance with their age.

Age	Energy value		Proteins		Fats	Carbohydrates
	Calories	KJ	grams	grams	grams	grams
4 – 6 years						
Daily intake	1715	7203	26,0	37,0	47,0	251,0
Intake in kindergarten	1286	5402	19,5	27,7	35,2	188,2

Table 1: Normatives for food standards (<http://www.mtsp.gov.mk/pravilnici.nspx>)

1.4 Assessment of children's nutrition

The assessment of children's nutrition is necessary in order to determine the health status and the potential problems that children may face in the future. Lee & Nieman, (1996) have defined this analysis as "an evaluation of the nutritive status of individuals or populations through measurements of the food and the nutrition's that are consumed, and an evaluation of the health indicators tightly related to the nutrients".

The nutritive status cannot be defined solely through one method, but we need to use a combination of different methods (Mascarenhas et al., 1998). The nutritive analysis usually contains an anthropometrical and biochemical data, as well as data on the food, the socioeconomic demography and the nutrients. According to Rutishauser & Black, (2002), the nutritive status can be assessed by a combination of measurements of the consumed food, the anthropometric indicators, the biomarkers and the clinical and physical indicators as well.

1.5. Overweightness and obesity.

The overweightness and obesity are one of the most serious health problems in the 21st century. It is a global problem that constantly becomes more serious in both developed and underdeveloped countries. The overweight children continue to live with this type of health problem as an adults and is almost certain that they will develop diabetes or cardiovascular diseases and also psychological problems such as depression. The only way of "solving" this enormous issue of modern times is to prevent it by various interventions on the environment, physical activity and nutrition. The best period for a prevention and applying the above mentioned measures is in the early childhood and especially in the preschool institutions.

The overweightness and obesity are conditions in which the level of fats in the human body exceeds the optimal level and result in physical and psychological problems. The obesity in children is a direct result from the intake of too much calories and the low physical activity (Dehghan et al., 2005). However in more detail, this means that the factor for obesity are the following: food rich with fats and sugar, food with low levels of minerals, vitamins and other essential nutrients. Also we mustn't forget the low physical activity as a result of the urbanisation and the various contemporary models of transport (Kids Health, 2010).

Conclusion

The childhood is the key period for the physical and mental development of every individual. The health problems that arise in this period, follow each individual later in life (Manios et al., 2007). It is very important to educate children on nutrition not only for their normal growth and development, but also to prevent potential illnesses, social, emotional and even educational problems (Harbaugh et al., 2009).

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