

EARLY NUTRITION AND ITS LATER CONSEQUENCES: NEW OPPORTUNITIES

Perinatal Programming of Adult Health –
EC Supported Research

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THE QUALITY OF SCHOOL CHILDREN'S NUTRITION IN SERBIA

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Introduction: Adequate nutrition through a healthy diet are the most important determinants of children's health, development, growth and nutritional status. Inadequate nutrient intakes present potential risk factors for chronic non-communicable diseases and malnutrition.

Aim: To determine the nutritional quality of the diets of schoolchildren.

Methods: A representative sample of 966 children, 15 years of age, in eighth grade of elementary schools from ten centers in Serbia were chosen for examination, as part of the PASCs Study. Food consumption was registered through a 7-day food records questionnaire, and the software "NUTQ" was used for calculating energy and nutrient intake.

Results: Mean energy intake of the children was 2803.7 kcal, and proteins were represented with 15%, fats with 40% and carbohydrates with 45% of the energy. Saturated fatty acids contributed with 12% of the energy, monounsaturated with 11%, and 7% came from polyunsaturated fatty acids. The different food groups contribution of the daily energy were: milk and products 10%, meat and products 17%, fat and oils 10%, cereals 31%, sugar 10%, vegetables 3%, fruits 8%, and finally fish only with about 1%. Proportion of fruits and vegetables in the diet were below the recommendations (10-15% and 15-25% respectively). Daily intake of dietary fibers was about 16 g/day (5.6 g/1000 kcal) and dietary cholesterol 220 mg/day (79 g/1000kcal). The nutritional quality of the diet raises concerns since 64% of the children had a daily fat intake above 30% of energy, including 57% with an intake of saturated fat above 10% of energy intake and 63% with a P/S ratio <0.4, 56% had a sugar intake above 10% of energy, 19% with a cholesterol intake above 300 mg, and all the children had a salt intake above 6 g/day and insufficient dietary fiber, and a considerable number with low intakes of many minerals and vitamins.

Conclusions: The diet of schoolchildren in the assessed area was characterized by relatively high content of total fat, high levels of saturated fat and sugar, high in salt, but low in vegetables, fruits, dietary fibers and some minerals and vitamins. The low nutritional quality and high nutritional risk profile of the diet point to a threat to health of the future adult population, through the high risk of developing chronic diseases. Primary prevention programs and health promotion strategies are therefore urgently needed both among children and the adult population, with a parallel strategy for addressing high-risk population groups. It needs to improving the nutritional quality of school meals, and use that as a means to include nutrition into the curricula at primary as well as secondary schools.

Key words: nutrition; schoolchildren; nutrient risk factors

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DIET AND NUTRITIONAL RISK FACTORS IN SCHOOLCHILDREN

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Introduction: Inadequate diet and nutrient intakes present potential risk factors for malnutrition and chronic non-communicable diseases .

Aim: The objective of this study has been to determine the quality of family nutrition and nutritional status of schoolchildren.

Methods: A representative sample of 167 girls and 197 boys aged 15 from eight grade of elementary school were seen during systematic examination. Evaluation of nutritional status was done on the basis of BMI(kg/m²) NHANES I and biochemical parameters by software "CHILD". A 7 day food records of food consumption by questionnaire were used by the aid of software "NUTQ" for evaluation of energy and nutrient intake.

Results: Normal nutritional status (BMI P15-85) was noted at 65.5% of boys and 69.5% of girls, underweight (BMI<P5) at 4.0-7.0% of children, moderate underweight (BMI P5-15) at 7.8-17.0%, while overweight (BMI P85-95) was noted at 8.3-12.6% and obesity (BMI>P95) at 3.6-5.2% of boys and girls. Mean energy intake in family nutrition was 2528 kcal where the proteins were represented with 15%, fats with 40% and carbohydrates with 45%. Analysing the percentage supply of different food groups in daily energy, milk and products contributed with 11.3%, meat and products with 18%, fat and oils with 9%, cereals and grains with 32%, sugar and sweet 9%, vegetables 4%, fruit 7% and fish only with 1%. Nutritive risk factors of family nutrition exist in 65% of families in the form of increased intake of fats over 30% of energy value(EV), than sugar over 10% EV in 60%, saturated fatty acids over 10%EV in 57%, ratio P/Z<0.4 in 66%, cholesterol intake over 300mg/day in 15%, while in all families there were determined consumption of salt over 6g/day and insufficiency of dietary fibre, with insufficient intake of most vitamins and minerals. Increased values of total cholesterol can be seen in 6-8%, increased values of LDL-cholesterol in 4-7%, and hypertriglyceridemia in 16% of boys and girls. Majority risk factors are in connection with eating and lifestyle patterns already adopted in childhood and youth with tracking phenomenon which is the most important fact for primary prevention.

Conclusions: Registered inadequate nutritional status and nutritive risk factors points out the necessity of preventive measure like continually monitoring, early detection and treatment of high risk children with population nutrition and health promotion strategy.

Keywords: diet; schoolchildren; cardiovascular risk factors

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MODEL OF CHILDHOOD OBESITY PRIMARY PREVENTION PROGRAMME

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Introduction: The high frequency of obesity and overweight in our country highlights the necessity for immediate preventive measures.

Aim: The aim of this work has been to present the model of childhood obesity primary prevention programme in North Backa Region. Primary prevention program "My Heart, Healthy Heart" with parallel conducting the strategy of high risk and population nutrition and health promotion strategy by the aid of several pieces of software.

Methods: Monitoring of body weight and height recorded during a mass screening of 29.237 boys and 27.753 girls aged 1-19 years in health centres in the period 1995 - 2003. Evidence and statistical evaluation of data have been processed by software "CHILD" determining the nutritional status according to reference values of the BMI NHANES I and body weight in regard to age to NCHS/WHO. The individual level involves continuous longitudinal growth and nutritional status monitoring, identification of children with nutritive risk factors or with positive family history for selective screening of biochemical parameters and healthy lifestyle and nutrition counselling

Results: Analyzing the nutritional status of children age 6-18 overweight (BMI P85-95) was registered in 9.3%-11.1% girls and boys, and obesity (BMI>P95) in 5.9-6.2% of them. Body weight by age >P95 was established in 13.9-14.4% of children age 1-6. The population level starting from second year of life, by harmonizing life style and nutritional habits with recommendations. The main characteristics of the population strategy are: changing nutrition and lifestyle in whole population over 2 year, following the quality of family nutrition with recommendations for changing nutrition, following the quality of social nutrition with planning and corrections of menus, education about healthy nutrition within cooks, pedagogues, children, parents and by all means the whole society with mass-media help, as well as organising the celebration of World Food Day in October, "Festival about healthy nutrition and physical activity" for preschool and schoolchildren in order to promote healthy nutrition and lifestyle.

Conclusions: Permanent nutrition promotion with monitoring of the nutritional status in children has been established in order to early discovery obesity and nutritive risk factors on individual an/or population level to childhood obesity prevention and realize optimal nutritional status of children and adolescents.

Key words: obesity; childhood; primary prevention

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