

# A NUTRITION OVERVIEW THROUGH CENTURIES. THE PRESENT-DAY NEED OF NUTRITIONAL EDUCATION IN SCHOOLS

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## Abstract

*The type of alimentation and the food quality of individuals has undergone remarkable changes along with the progress of the human species. This study contains an historical overview regarding human nutrition from the primitive forms until the paradoxes of contemporary alimentation. Nutritional education aims to inform and to train a person about food choices, dosage and cooking, how to identify authentic food and to understand the value of nutrition. Children need a balanced diet in order to grow and to become healthy adults. The importance of nutritional education in school is discussed taking into account the need of creating healthy eating habits which should be followed through the whole life, but also the lack of physical activity to children.*

**Keywords:** *historical overview, eating habits, health, nutritional education, school.*

## 1. Introduction

This study focuses on the field of human nutrition. It aims to present an historical overview regarding human nutrition, emphasizing on the dietary revolutions. The evolution of the knowledge of food and diet is also discussed taking into account the contemporary alimentation which allows us to explain the need of nutrition education in schools. Its importance is explained by showing the need of creating healthy eating habits, children being in need of having a balanced diet in order to become healthy adults.

The human being has experienced three great dietary revolutions. Until about 10,000 years ago, man lived from the products of hunting and from fruit, his diet was predominantly meat-based. Important to note is that anthropologists have been unable to find signs of dietary insufficiency in paleontologic remnants. On the other hand, skeletons of humans from more advanced societies bore the marks of starvation or dietary insufficiency. About 10,000 years ago, man discovered agriculture as well as domestication of cattles. It began class differentiation, bringing as consequence the slaves and the poor's dietary insufficiency. In the 19<sup>th</sup> century, there were introduced refined and semirefined products, concentrates and industrial foods, sugar products and refined flour into the diet.

Civilized man had limited his diet to a small number of products. By doing so, he increased the possibility of the occurrence of some chronic shortages of essential nutritive elements. Overfeeding and the

abuse of concentrated and refined foods, together with the sedentary and stressful nature of modern life have contributed to the occurrence of some serious diseases such as atherosclerosis, diabetes, obesity and dyslipidemia. Also, another aspect is undernutrition- a part of the world's population continues to starve. Food technology, a characteristic of modern civilization, favours the development of some diseases such as dental caries, as well as increased morbidity from coronary disease, ulcers, diabetes. Chronic poisoning due to the industrial food additives also affects health.

People's food choices are influenced

by many factors: (a) biologically determined behavioral predispositions include humans' liking at birth for sweet and dislike for bitter and sour, hunger/satiety mechanisms, and sensory specific satiety. (b) Experience with food. Humans have the capacity to learn to like foods through associative conditioning, both physiological and social. (c) Personal factors. Intra-person factors such as beliefs, attitudes, knowledge and skills and social norms, and inter-personal factors such as families and social networks also influence our food choices. (d) Environmental factors powerfully influence people's food-related behaviors as well. Food availability and accessibility as well as the social environment and cultural practices, material resources, and food marketing practices either facilitate or hinder individuals being able to act on their beliefs, attitudes, and knowledge about healthful eating (Contento, 2008: 176).

Nutritional education aims to inform and to train a person about food choices, dosage and cooking, how

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This paper is a result of a research made possible by the financial support of the Sectoral Operational Programme for Human Resources Development 2007-2013, co-financed by the European Social Fund, under the project POSDRU/159/1.5/S/132400 - "Young successful researchers – professional development in an international and interdisciplinary environment".

Această lucrare este rezultatul cercetării făcută posibilă prin sprijinul financiar oferit prin Programul Operațional Sectorial Dezvoltarea Resurselor Umane 2007-2013, cofinanțat prin Fondul Social European, în cadrul proiectului POSDRU/159/1.5/S/132400, cu titlul "Tineri cercetători de succes – dezvoltare profesională în context interdisciplinar și internațional".

to identify authentic food and to understand the value of nutrition.

## 2. Human Nutrition – Short Historical Overview

Until about 10,000 years ago, man went through the so-called “pre-agrarian era”, where food resources consisted of meat from hunting, and only on secondary plan by fruit picked from the trees. This predominantly carnivorous diet had provided the primitive man macro- and micronutrients, all insufficient quantities so that era was not marked by food deficiencies. In the following millennium, meat consumption (coming from various domestic animals) decreased because of the development of agriculture; food intake gradually came to be represented by vegetables. The period was called “agricultural era” and it was marked by the first appearance of food deficiencies. Ancient civilizations, progressively differing by social order, economic and religious identities, took diverse food styles.

Moving to the Middle Ages generated major changes in diet. By the eleventh century, the common nutritional characteristic was global insufficient alimentation; including the next two centuries, the usual protein intake still remained much deficient. In addition, in an age of ignorance and religious limitations, severe fasting periods of the year had a considerable negative impact on the nutritional status of the population. The first attempts to improve the population’s nutrition occurred at the beginning of the sixteenth century, which marked slowly the shift towards an age where food deprivation, although persistent, diminished in intensity.

Eighteenth and nineteenth centuries brought another series of habitual dietary changes, where the type of food gradually approached to the one of the modern man. There are introduced new products in nutrition, as results of the Industrial Revolution, such as sugar and sugar products, then food concentrates, pasta. Over time, the daily diet has begun to contain increasing amounts of refined products with nutrition and increased energy density and low quantitative residue.

A trend that can be noticed, if we look at the human diet in terms of time, is the reduced use of a number of plants and animals for daily food. Limiting his food sources, the modern man is more likely - if we compare him with the primitive man, for example, who used everything the wildlife gave him – to develop chronic shortages of nutrients, with all the paradoxical wealth of the few food varieties used. Another feature is the association of food quantity and quality excess with food deficits, often serious and with damaging consequences for the health of large segments of the world population.

Oldest concerns regarding daily diet, as a therapeutic tool used for treatment of diseases belong to Hippocrates of Cos; the hippocratic ideas marked medicine until the sixteenth century. Hippocratic

School used the term “*diaita*” to define the overall study of human lifestyle, including diet (whose role was recognized as central) and other environmental influences on it. The word used in Latin “*dieta*” means all factors that affect one way or another our health: air, food, ambient temperature, exercise. In the first century AD, it appeared the restriction meaning of diet, under the influence of Egyptian medical school, which considered food as “the source of all evil”. This concept had subsequently appeared in other Oriental medical schools, but was naturalized in Europe much later, through the school of Pythagoras.

Medical world of the Roman Empire meet Hippocratic conception through Galien (second century AD). Great personalities of ancient Rome - such as Ovid, Seneca, Cicero, Horace - resided food abundance and excess and instead preferred food abstinence, up to recommended diets similar to those called later vegetarian trends.

The development of anatomy, physiology and chemistry in the 17th and 18th centuries began to change the dietetic concepts of the era. Anatomy and physiology experienced the discovery of the blood circulation (W. Harvey, 1619) and of the lymphatic circulation through the chyle ducts (J. Pecquet, 1647, O. Rudbeck, 1652). The body was looked at as a kind of hydraulic machine or as a distilling apparatus (Jean Tremolieres). Until the end of the 18th century, none of the concepts on diet had a physiologic basis. The fact that food comprised a source of energy with which the body took care of vital needs was a truth that was subjected to discussion only at the end of the 18th century together with the discovery of oxygen and the understanding of the process of combustion (Mincu, 2001: 98).

The exceptional progress made in chemistry began in the 19th century bringing with it development in food chemistry. New classifications in food chemistry were made. The protein, carbohydrate, lipid, mineral and water compositions of the foods were determined and the transformations they had underwent in the human body were investigated. New concepts were developed such as specific heat, energy conversion, calories, protein metabolism. Justus von Liebig established that the caloric energy of the body resulted from the burning of the main nutrients furnished by food. M. Rubner in Germany and W. O. Atwater (1844-1907) in the USA determined the composition and the caloric value of the ingested products, the changes that they underwent in the body as well as the waste produced. Beginning with the 20th century, attention has been turned to noncalorigenic substances contained in food.

In 1926, H. M. Evans and G. O. Burr made a first observation on the symptoms of deficiency resulting from exclusion of lipids from the diet. In 1930, Burr discovered that this deficiency was due to certain polyunsaturated fatty acids. Hansen (1944) noted some pathologic derangements in children who had not been enough fed with essential fatty acids. Bronte-Stewart

(1960), Eales and Brock (1959) showed that vegetable fats in their natural state had decreased cholesterol levels and when they were hydrogenated, they increased them. The conclusions of A. Keys and Ed. Ahrens Jr.'s works were that animal fats increase cholesterol levels and the risk of atherosclerosis while vegetable fats diminished cholesterol and prevented atherosclerosis. The value of fats in the food only came to light in recent decades.

### 3. The Need of Nutritional Education

It is used the phrase "paradoxes of modern food" (Olinescu, 2001) as reference to the following aspects: (a) Abundance of food is extremely uneven. In some areas such as Western Europe, North America, parts of Asia, there is an abundance of food accessible to everyone, while in other places undernourishment and malnutrition occurs. (b) Attitude towards food. In some countries, there is an average life level which remarkably increased; also, every developed country has newspapers, magazines containing nutritional headings. (c) The existence of food abundance causes an excessive consumption. The preference for certain food groups (carbohydrates, lipids), excessive consumption quantity unbalanced nutrition (caused by poverty, greed, old traditions) favor disease and low immunity. (d) Health. While developed countries increased the mean age, the proportion of degenerative diseases, cardiovascular diseases, diabetes, cancer is higher. Here it is necessary to inform the public about diet, nutrition education activities. Also, food and advertising campaigns have had an increased involvement leading to increased appetite, which focuses on the psychology of food (choice assortment of food, the way they eat, what liquids we drink); we mention as well the quality of packaging and the rich cooked assortment.

Nutrition education has been defined as any combination of educational strategies, accompanied by environmental supports, designed to facilitate voluntary adoption of food choices and other food and nutrition related behaviors conducive to health and well-being; nutrition education is delivered through multiple venues and involves activities at the individual, community, and policy levels (Contento, 2008: 177).

Changes in the socio-economic field reflect at the educational phenomenon level and they require the restructure of the assigned contents, as well as the intervention at young ages in terms of training and practicing behaviors that are included in nutritional education. Bad eating habits and lack of physical activity have an impact on children and many complications can arise. Taking into account the fact that two thirds of children with obesity remain obese in adulthood, it is required to create healthy eating habits and involvement in sports. Preschoolers need a balanced diet, which is essential for growth and for becoming healthy adults. Nutrition education

principles should be followed through the whole life, thus ensuring a good health and a high level of comfort in life.

D. Benton (2001) found that low blood glucose was directly associated with decreased attention, memory low and aggressive behavior. Sugar turned out to be such an important cause for anxiety (M. Bruce, M. Lader, 1989; W. Wendel, W. Beebe, 1973), aggressive behavior (Yaryura-Tobias J., F. Neziroglu, 1975), Hyperactivity Attention Deficit (R. Prinz, D. Riddle, 1986), depression (L. Christensen, 1988), eating disorders (D. Fullerton, 1985), fatigue (L. Christensen, 1988) and difficulty in assimilating information (S. Schoenthaler, 1986). Studies also show that most hyperactive children eat more sugar than other children (RJ Prize, 1980) and that balancing blood sugar levels affect the IQ of the child (AG Schauss, 1983). Caffeine is another factor that has a destructive effect on the balance of blood sugar levels. It is also an appetite suppressant. Coke and energy drinks contain a caffeine amount approximately to the one found in a normal cup of filter coffee. These drinks have a higher content of sugar, so their stimulating effect can be considerable. Cocoa, the active ingredient in chocolate and chocolate beverages provide significant amounts of theobromine, which has an effect similar to caffeine. Regarding fats omega 3 and omega 6, called "essential fats", they affect the types of intelligence (IQ, EQ and PQ). Makrides M. (1995) and L. Stevens (1995) showed that children who show a deficiency in essential fats are more difficult to learn, while children who are breast-fed have a higher IQ at age 8 years compared to children who are bottle-fed, due to high levels of essential fats in milk.

Holford (2010) points out that diseases which are caused by an unhealthy lifestyle, such as type II diabetes and fatty liver disease (hepatic steatosis), previously only encountered in elderly overweight adults, now appear into an alarmingly high number in children.

Macavei (2001) considers that the objectives related to nutrition and food behavior aim at acquiring knowledge on nutrition functions, the need of proper nutrition, nutritional factors and nutritional value of foods, food errors, basic knowledge of culinary art, food habits, food hygiene, food preparation and storage.

Nutrition education can be considered as having three essential phases or components. 1. A motivational phase, where the goal is to increase awareness and enhance motivation of the intended audience. Here the focus is on why to make changes. 2. An action phase, where the goal is to facilitate the ability to take action. Here the focus is on how to make changes. 3. An environmental component where nutrition educators work with policymakers and others to promote environmental supports for action. Each component needs to be based on appropriate theory and research. Nutrition education is needed now more

than ever; programs that link research, theory, and practice are more likely to be effective.

#### 4. Conclusions

The differences between the diet of our ancestors and the present day diet of the developed countries that have been touched by the industrial revolution, modern agriculture and modern manufacturing techniques as well as methods of preparing food appear to have a significant impact on health. A characteristic trait of nutritional diseases is that they are directly connected to the degree of civilization of the people affected. Physicians as well as nutritionists are increasingly convinced that dietary habits adopted in the last 100 years in Western Europe have contributed to the increase in the frequency of heart disease, hypertension and some forms of cancer. The influence of the diet on the state of health was felt at the beginning of the last century and was practically unheard of in peoples that lived in the wild having a

diet resembling to that of the ancestors of the pre-agrarian period.

Currently, one of the characteristics of modern food is limiting to a few products, which increases the possibility of chronic shortages of essential nutrients. This deficit has emerged due to the misuse of concentrated and refined products. To this we add the human characteristics of present-day: stress, sedentary lifestyle, and the living in a polluted environment.

Nutrition education, as part of the “new educations” occupies a priority position in the contemporary world problems. In recent years, the prevalence of obesity and overweight in adults and children has increased steadily. Management of overweight in children is an issue increasingly more common for primary care physicians. The dramatic increase in the incidence of childhood obesity and its pediatric effects and tendency to persist in adulthood are a vast public health problem and justify the importance of introducing effective preventive and therapeutic strategies.

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