

WHY NUTRITION EDUCATION?

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Hunger is the most important driving force ... It demands food ... Food is fuel of body machine ... Search of ancient men – Hippocrates ... 17th century—Helmont, Sanctorius ... Beginning of experimentation 18th Century—avoisier ... 19th Century—period of exploration — Magendie, Liebig, Boussingault, Bidder, Schmidt, Voit, Rubner, Atwater, Lusk ... Beginning of 20th century-Generalisation begins-Langworth's law ... Search for food dependent diseases ... Discovery of Vitamins in 1912 ... Advancement of food technology upto 1940 ... Period of war and famine upto 1960 ... Balance sheet of progress re-examined – result showed that a Frankenstein has been created so far as food is concerned ... Human proclamation in 1963 from Rome – Hunger is still our enemy but malnutrition is worse ... Strategy of this fight for nutrition at three areas – Analysis of food and nutritional problems, improvement of food production and distribution, and implementation of Nutrition Education.

Introduction

Hunger is the most important driving force in all animals. The same is true about man. It is in the search of food that primitive man roamed from place to place, crossed deserts, rivers and mountains, visited new places and explored new horizons. With the invention of agriculture the quest for food was minimised and the idea of living together was strengthened. This led to the establishment of villages, towns and cities. To be precise, civilisation started to grow around the spots where it was possible to satisfy hunger. Throughout the history of mankind the major task before all civilisations was to feed its people. In spite of all our progress, hunger is still the worst enemy of mankind. It has remained a Herculean task for most of the Governments of the world today. Some countries are successful,

others are fighting hard. All feel unanimously that it is due to hunger that “our civilisation is mutilating in human resources and reducing its chances of progress” (Manifesto issued in World Convention at FAO, Rome).

The history of mankind has repeatedly shown that an empty stomach has often triggered brilliant ideas. But it is also true that millions of potent Van Gogues and Knut Humsuns remained incapacitated and never flourished. More creative minds perished due to hunger than those who were able to express. That is why it has been emphasised that freedom from hunger is man's first fundamental right. Today all human endeavour – arts, science, technology and industry are directed to fight this menace. The war is not against hunger alone. Mere filling up of one's belly is not enough. The worst enemy is malnutrition

and our fight is against it. It is a sacred duty of all individuals to join in this crusade. To effectively participate in the venture one must know what has already happened in this fight for nutrition.

Historical Records upto 18th Century

All ancient philosophers have stressed the need for a healthy body, and in some form or other have emphasised the relationship of food with the health. Hippocrates, one of the leading ancient Greek philosophers, said – “Growing bodies have the most innate heat; they therefore require the most food, for otherwise their bodies are wasted. In old persons, the heat is feeble and therefore they require little fuel.” Those were the days when experimentation was absent. The relationship of food with the working of human body was first reflected in the works of Von Helmont and Sanctorius. But what is understood today as nutrition, came up only in the late 18th century when Lavoisier performed his classical experiments to demonstrate the processes of respiration and external combustion. Lavoisier’s experiments opened up the similarity in the possibilities of future understanding on nutrition. For this reason, Lavoisier is regarded both as the father of nutrition and that of modern chemistry.

19th Century Achievements

Up to this period all foods were considered to be of equal nature and importance. It was Magendie in the early 19th century who for the first time classified food on the basis of its composition into carbohydrates, proteins and fats. This was followed by the works of scientists like

Boussingault (France), Bidder (Germany), Schmitt (Germany), and Liebig (Germany). Liebig’s contribution in nutritional studies was followed by his student, Voit. Several biochemists who later worked in the different parts of the world came from Voit’s laboratory in the University of Munich. The 19th century ended with the gain of human knowledge on the composition of a large number of foods and their specific functions.

20th Century Progress

Twentieth century dawned with the coming of a book on Nutrition by Lusk in the year 1906. On the basis of knowledge already obtained in this period Langworthy forwarded his famous laws of nutrition, according to which:

1. Nitrogen is supplied to the body only through food and not directly from atmosphere.
2. Nitrogen is never released from the animal body in gaseous state but always excreted through urine and faeces.
3. All animals can adjust themselves to their Nitrogen intake thus maintaining a state of Nitrogen balance, where input is equal to output.
4. Certain amount of food groups – protein, fat and carbohydrate—is necessary for maintenance. Minerals of unknown quantity are essential for the proper functioning of the body.
5. Muscular work, fattening and lactation demands more food.
6. Excess foods are stored at least partly as reserve material mainly as fat and glycogen.

7. The body attains the nitrogen equilibrium at various levels of the intake of protein.
8. Body fats are formed from fatty food, carbohydrates and also proteins.
9. As suppliers of energy the different compositions may replace each other in approximately the following ratios – Protein: Fat: Carbohydrate: : 1 : 2.5 : 1.
10. Nutrients obtained from the food combine inside the body with oxygen of the air and undergo combustion, thus liberating energy for the use of the body.

Enunciation of Langworth's law led to a clear understanding of the relationship between food and working of the body. But no sound explanation was forthcoming to the causes of diseases like Beri Beri and Scurvy, The cure of which was somehow related to the intake of fresh food. Thanks to the works of Hopkins and Funk, we learnt that these diseases were caused by the lack of vitamins. This discovery was followed by tremendous explosion of knowledge about vitamins. By 1940, not only the sources of various vitamins were known, but also their functions and chemical nature were understood and a large number of them were synthesised. Next twenty years saw rapid growth in the field of food production. Millions of dollars were invested in food technology. Numerous methods of food processing were developed. This resulted in a general conviction that a "full belly meal" is enough for good health. There is nothing to worry about one's nutrition, if one gets sufficient food to eat.

In spite of such rapid growth in food production, it was felt that food eaten to meet hunger is not enough for nutrition. Moreover, in spite of

prosperity in one half of the population, the other half is facing mutilation due to hunger. To satisfy hunger is the immediate problem of most developing countries but malnutrition still remains a serious threat to all. Literature which has been accumulated in the last 15 years, speaks about the seriousness of the problem and an intensity of human efforts to fight for better nutrition. All of these efforts may be classified into three groups:

- (a) Food and nutritional problems: Dealing with the existing food position and survey of nutritional problems both in developed and underdeveloped countries.
- (b) Improved food production and distribution: Surveying the human endeavour to produce better food both qualitatively and quantitatively.
- (c) Nutrition education: Communicating the truth about nutrition to help in combating half-truth, ignorance and quackery.

The problem of food and malnutrition is a global problem. All our enterprise is based on this assumption that problem of nutrition is more due to the lack of knowledge about food than to the scarcity of food. This information belonging to each group, therefore, deserves a detailed discussion.

(a) Food and Nutritional Problems

Food and Agricultural Organisation (FAO) of the United Nations sponsored a convention in Rome in 1963 to discuss the problem. It proclaimed that "freedom from hunger is man's first fundamental right". Almost all the nations of the world are working together under the banner of world

organisations like FAO, WHO and UNICEF to fight for this cause. Latham (1965) has discussed the nutritional problems of tropical Africa and also the steps to combat these problems. This pioneering work with local variation may serve as an excellent guideline for all developing nations. The working model as proposed by Berg and Levinson (1969) to combat malnutrition also deserves mention. The demand of food is growing and more efficient input is needed, especially to supply more calories (Brown, 1961; Oshima, 1969; FAO, 1969). The question of malnutrition which includes both undernutrition and overnutrition, has been critically reviewed in recent years (Davis, 1969). Its ecology, etiology and impact on national development has been thoroughly outlined (Berg, 1969; Robson, 1972). Scrimshaw (1969) has discussed the impact of malnutrition on the learning ability of the child. Recent findings about the relationship of malnutrition with the development of brain and learning behaviour has strengthened the need for proper nutrition. This finding has strengthened the claims of Williams (1971) that malnutrition is the root cause of all kinds of diseases including heart disease and cancer. Recent evaluation of technological involvement in food processing has revealed many interesting findings and the entire food technology is passing through a phase of reappraisal (Lund, 1973; Labuza, 1973; Livingston, 1973; Carpenter and Booth, 1973).

(b) Improved Food Production and Distribution

To fight malnutrition, it is essential to improve food production. Fischnich (1967) has discussed the possibilities of increased food production to

feed the hungry millions of the world. The green revolution is the most encouraging step forward in this direction. But considering the rate at which the population is increasing, it will not be possible to cope up with it through the quantitative increase alone. It has been estimated that food already available on this earth, if uniformly distributed, will be of much help to ease the problem. The different alternate means which are available today to safeguard the interest of nutrition have been elaborately discussed by Latham (1965) and Robson (1972). These efforts include production of food materials with enriched nutrient, fortification of foods with amino-acids which are growth promoting and health conserving (Rosenfield, 1969) and development of new kinds of food mixes, specially new protein foods (Altsclaul, 1969). It is now well known that though malnutrition is a global problem, yet it will have to be tackled by taking into consideration each local condition. This has demanded careful survey of local food habits and attempt is in progress to improve the staple food of a particular locality. Together with efforts in food production it is also felt that proper knowledge about nutrition is essential. This makes urgent the demand for nutrition education.

Nutrition Education

The most important cause of malnutrition is ignorance (Fig. 1). This is applicable equally to developed and developing countries. The ignorance prevails among both educated and uneducated people. In a community, physicians, nurses and social workers are responsible for

tackling health problems. As nutritional consciousness involves formation of habits and change in attitudes, teachers in schools have a significant role to play. The role of law-makers is equally important. Unfortunately, all the above mentioned functionaries lack proper knowledge about nutrition. The success in the fight for nutrition depends upon the collective works of all these functionaries. Such group work is effective only when all the components of the group have right kind of nutrition education.

Before envisaging the nutrition education for the functionaries as well as the target groups it is necessary to consider the following points:

- (i) Our knowledge about nutrition has come from different disciplines – medicine, biology, chemistry, physiology, agriculture, economics, politics and social sciences. It is imperative, especially for functionaries, to have a thorough grip on the contribution of these different areas to the field of nutrition.
- (ii) Malnutrition is a global problem and the fight against it is operating at different levels – World, Country, Community and Individual. The victory depends upon the success at the last two levels – community and individual—and the success will depend on the coordinated activities of the different functionaries. Local problems will have to be sorted out and it should be solved as far as possible with local means.
- (iii) It is to be remembered that opposite forces are also operating which include quacks and other unscientific elements. They spread their half-truths more speedily. Stare (1973) has rightly pointed out that nutrition

education is urgently needed to meet the challenge...“in communicating the truth more effectively than quacks spread their half-truths and misfortune”.

Next comes the most important question of planning nutrition education for the target group, i.e., general masses. With our limited resources it is not possible to affect all. Thus target group has been pinpointed to the most vulnerable section of the society—children, pregnant and lactating mothers belonging to low income groups. And for effective and permanent result it has been agreed that our future citizens will have to be influenced when they are young. No moment is more opportune than the school-going period, the time when a child passes through the habit-forming stage. A well planned nutrition education at this stage can bring radical change in the desired direction. The result of such change may not be felt immediately but will definitely bear fruit in the long run.

In planning nutrition education for school children, it is essential to remember the following points:

- (i) The insight developed through nutrition education must be helpful to adopt advice and action to suit each new situation.
- (ii) As genetic composition of man varies so also does his nutritional requirement. The nutrition education should be such it enables the person to solve his or her own nutritional problems.
- (iii) Survey should be made to find out the existing problems in the locality which are due to malnutrition or responsible for malnutrition.
- (iv) Clear cut knowledge about dietary practices and prejudices should be ascertained.

Nutrition education must encourage healthy habits and discourage unscientific ones.

- (v) Nutrition education should be directed towards the prevention of malnutrition. But at the same time it must deliver information about the clinical aspects, which will help in the better understanding of the preventive measures.
- (vi) All methods of teaching should be utilised.

Conclusion

Science and technology helped man in the past to win over a number of problems. The secret of the success was careful planning. But often the solution of a problem has created new problems. Nutrition is one of them. Being the main locus of environmental disaster, it is threatening the existence of mankind. But man is the only animal who can understand the future and is capable of taking necessary steps. If all human beings cooperate, it will be possible to avert the crisis. If ingenuity and patience persist, there is no doubt that in this fight for nutrition, victory will be ours.

Mere increase in food production, its equitable distribution and curbing the exponential growth in world population are not enough. The real strategy to win over this monster is through educating the masses. Battlefields for this crusade are not factories and farmhouses but millions of classrooms all over the world.

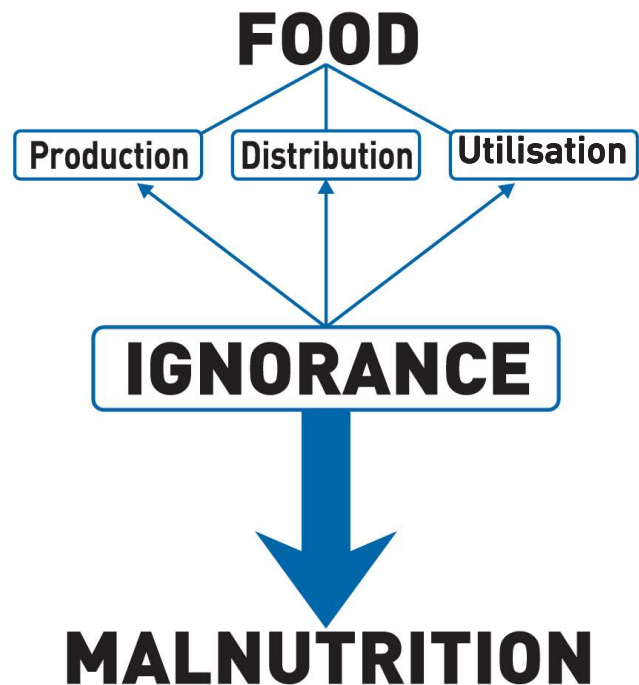


Fig. 1. Showing the possible causes of malnutrition. Ignorance is the most important cause.

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