

# Obesity: Politics, Economics, and Society. Part I.

## INTRODUCTION

The nutritional state of a population is one of the most important factors in determining its health (1,2), and it is directly related to the level of food security enjoyed by each of the members of that population—in other words, the level of food security attained when all members of a society have physical and economic access to a sufficient amount of safe and nutritious food that satisfies their nutritional needs, personal preferences and tastes, and that allows them to lead an active, healthy life (3).

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Likewise, the ideal nutritional state of a population is not only dependent upon the global availability of food that will, in practice, fulfill its energy and nutritional needs, regardless of any combination of economic, geographic, social, and cultural factors that could negatively affect physical access to food and families' ability to purchase or produce food (4-7).

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Human beings' physical, psychological, mental, and spiritual health also depends on the economic, political, social, cultural, and educational environment that surrounds them, and where, based on these factors, they develop their particular lifestyle (8).

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One of the most important contributors to a population's healthy lifestyle is proper education that leads to the development of dietary customs, habits, and conduct which, taken together, allow individuals to achieve and maintain a normal nutritional state (9,10).

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Currently, it is accepted that in order to find the most appropriate solution to dietary and nutritional problems that affect the population, it is necessary to correctly identify specific conditional factors and focus on resolving these issues, while exploring the possibility of community involvement, which includes dietary-nutritional education for the purpose of alleviating as far as possible the actual negative effects of reduced access to food and minimizing the consequences of unequal access to specific food sources in particular situations, such as free availability and adequate possibility for individual purchase (11). Today, as a result, educational intervention designed to solve population-level dietary-nutritional problems is seen as an essential complement to actions designed to improve family and individual food security. This type of intervention has become the principal strategy in the prevention and control of diet-related noncommunicable chronic diseases based on the development and establishment of proper dietary customs, habits, and conduct (9,11).

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## CONSIDERATIONS FOR HUNGER, APPETITE, AND FOOD INTAKE.

The factors involved in the determination of food choice and intake in human beings are diverse and have both physiological and psychological origins (12). The brain is the material and functional substrate for these processes and, in a sense, acts as a processor for many different types of signals, and certainly regulates energy expenditure and storage through food intake (13).

The amount of food ingested by a human being depends essentially upon an individual combination of sensory and cognitive responses and is directly related to the energetic and nutritional content of the dietary-nutritional substances consumed (12).

In man, social and cultural experiences serve to drastically alter the effect of signals directly related to his physiological and metabolic state. Likewise, purely psychological factors, such as the presence of dinner companions, specific social situations, the occasion, cultural norms, religious beliefs, and hedonic factors all contribute to the sensation of being full (satiety) (12,14).

On a simpler descriptive level, it has been suggested that when the body is truly in need of energy and nutrition, the intensity of physiological sensations identified as hunger will increase until that need has been properly satisfied. If the person has just eaten, these sensations will be weak; on the other hand, they will be relatively strong and may even cause discomfort if some time has passed since the last meal (13,14).

The associative presence of pleasurable cognitive or sensory elements will tend to increase the intake of food, and in the absence of such elements, even the signals that activate the hunger response will not be strong enough to force the individual to consume food that is unknown, disagreeable, prohibited by religious belief or that has an unpleasant appearance, taste, or smell (14).

From a methodological and conceptual point of view, it is important to make an appropriate distinction between hunger and appetite. The former is simply the conscious need to ingest food (underlying sensation), while the latter is related to the "desire to eat," and is associated with the pleasant aspects of choosing and ingesting food, even though it may be notably accentuated by hunger itself (12).

The term appetite is frequently used to identify the signals that motivate or lead an individual to choose and consume specific foods and nutrients, which is manifest through such behaviors as choosing a diet high in energetic substances, or in other substances that will satisfy the immediate need for specific nutrients or satisfy a hedonic desire for a specific taste (12,14).

From the moment that cognitive and sensory satisfaction signals begin to appear,

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different dietary-nutritional chemical compounds begin to generate their own post-ingestion and post-absorption satiety signals (13). Certainly, volume, composition, rate of absorption, as well as the corresponding metabolic responses they trigger, have an influence on the first appearance of the feeling of satisfaction, while the duration of that feeling and the length of time until the next ingestion of food will depend essentially upon the complex, integrated system of neural responses of the central nervous subsystem (14,15).

## **GEOPOLITICAL, ECONOMIC, AND SOCIAL ASPECTS OF DIET AND NUTRITION.**

Both in developing countries and in rich or developed “first world” countries, images of inadequate nutrition are very familiar, and its consequences have a social dimension. For example, it is a common occurrence to witness many children with a lack of curiosity in their eyes, and a growing number of them are much too short for their age; there are young people who cannot breathe hard enough to blow off the flies that mill around their wounded faces; there are adults who cross the street at a desperately slow pace, 30-year-old mothers who appear to be over 60, and men and women, young and old, whose bodies have so much excess fat that it places their lives in grave danger.

Today, it is an accepted fact that human beings are the most important part of development, and that the quality of human existence is precisely the final measure of that development, and that the most transcendental of all factors that affect the general existence and conditions of an individual is proper nutrition, defined as the nutritional state of the individual and the population as a whole, which is the most determining and decisive factor of all (16).

Poor nutrition, whether due to excess or lack of food, is detrimental to mental and physical development, to productivity and the number of years of active work, all of which have an adverse effect on the economic potential of man in society.

In recent years, the concept of capital has been extended to human beings. The development of this new theory was driven essentially by the discovery that “the increase in national production is directly proportional to the increase in land, man hours, and capital. Possibly the best explanation for this difference is the investment in human capital” (17).

Similar attempts have been made to determine the undeniable economic benefits of health investment, comparing the cost of death prevention to future earnings by that worker had he lived (18). Some have also calculated the investment in human capital based on the losses caused by death of the worker at any time before retirement. This capital includes health, food, clothing, housing, education, and other expenses necessary for teaching a person everything he or she must know in order to fully develop his or her particular abilities. Where death is not directly a factor, these costs can also be compared to diminished work capacity (19).

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Whether illness results in direct loss of labor during working days or in the temporary or permanent reduction of working capacity, the calculated loss in production, together with the cost of medical attention, can be compared to the proposed costs for preventing the illness in the first place (20).

Similarly, the earnings obtained from expenses in food and improved nutritional state can also be compared. Undoubtedly, improved nutrition will increase the flow of earnings above that which would have been earned in the absence of an increase in general individual or collective well-being, especially if such improvement allows an absent worker to be reincorporated into the active labor force, working life is extended, a reduced state of energy or health that diminishes productivity is overcome, a child can return to school or is better able to comprehend and retain information, and when an adult is better able to effectively assimilate any type of training in the workplace (17-20).

Once a person's well-being has been stabilized, food and nutrition costs immediately become support expenses. Therefore, making and maintaining this type of improvement can play a role in raising or maintaining the productivity of an active member of the labor force, or it may take the form of an investment, for example, raising expected earnings over the future active working life of a 2-year-old child, all of which emphasizes the importance and transcendence, for the economic development of a society, based on its members' ability to enjoy full happiness, of a properly assured flow of food, in sufficient quantity and quality, which insures the best possible nutritional state for that society (21,22).

In short, poor diet and nutrition is not just a consequence of underdevelopment, but is also a contributing factor—a true stumbling block to the expression of potential that can lead to improvement of society as a whole, and a dead weight for those groups who have already achieved notable scientific and technological development, but who have paid little attention to dietary-nutritional care. If something is not done immediately to improve the dietary and nutritional situation of the least-favored two-thirds of the world's population, the development of human resources and the development of countries themselves may be held back; it is important to note that quality of people themselves is also in jeopardy, and not only quality of life. Unless something is done to significantly control the current level of malnutrition, in a short time, it could become a great detriment to the performance, appearance, physical well-being, and even the mental capacity of a large portion of the world's population (23).

In these times of fast-paced Neoliberal Globalization, avoiding this type of damage will require new points of view and new research; new organizing entities in the context of a whole new discipline, and, most importantly, renewed interest in the

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problem and a new plan of action involving the entire globe. It is sad to have so much information at hand that justifies allocation of the necessary resources that could solve the dietary and nutritional problem, and at the same time fail to implement corrective action, even on a basic scale, knowing that isolated efforts will always be inadequate and unacceptable because now is the time to realize that, in spite of the fact that some human dietary and nutritional projects yield positive, useful results, the ultimate objective should have a much higher aim: to achieve much more over-arching goals (24-26).

## INTRODUCTION TO DIETARY HABITS

The organoleptic components of a diet or eating pattern, in other words the factors related to the color, flavor, smell, and texture of food and which determine its palatability and tendency to be chosen as food, undoubtedly play an important role in the development and establishment of customs, conduct, and so-called **dietary habits** (27), together with other well-established and recognized factors or elements such as beliefs and traditions, geographic environment, availability of food, economic resources, religion, and psychological and pragmatic differences (28,29).

These factors evolve over long periods of time and large distances, and it is precisely these factors, which form the response to new lifestyles, that are always accompanied by new products that are incorporated into diets designed to satisfy the energy and nutritional needs of each individual (a healthy, normal, or balanced diet). Unfortunately, however, today this is hardly ever achieved (30).

**Dietary habits** are also directly related to differences in the economic resources of each individual or the population as a whole, and contact between representatives of different dietary cultures, both of which can cause significant changes in traditional eating patterns, just as what occurred with such **habits** before and after the discovery of America (31,32).

## IMPORTANT ASPECTS OF A NORMAL OR BALANCED DIET.

In practice, it is not easy for human beings to adapt their diets to the actual energy and nutritional intake required to maintain the normal structure and function of the cells that make up the different tissues and organs of their bodies, and consequently, develop the capacity to achieve complete normal body function.

**ENERGY** is Nature's most valuable attribute. It can be understood as a measure of a system's capacity to perform useful work, whether inside the system itself or acting on its environment. Therefore, the energy available to a living system or organism will allow it to perform a greater or lesser amount of biological work, at a particular speed or with a given force, which will allow it to adapt to changing environmental conditions.

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From a dietary and nutritional point of view, energy is the most important need that must be satisfied through diet, and is determined by an individual's energy expenditure, which, in turn, is determined fundamentally by Resting Metabolic Rate and physical activity.

The energy needs of the individual are satisfied by ingesting so-called energetic food chemical substances, or energetic foods: carbohydrates or sugars (55 to 60%), neutral fats (25 to 30%), and proteins (10 to 15%), and the rest of the nutritional content of the ingested diet will follow this same breakdown, according to the concept of Nutrient Density or the required amount of a particular nutrient for every 1000 kcal of required energy.

A balanced diet is one that provides the individual with the necessary food energy and required amounts of nutrient chemical substances to perform different types of biological work. This is achieved through an adequate, varied, and balanced diet in sufficient quantities that also provides specific amounts and types of dietary fiber, consumed in no less than 6 small meals, each of which satisfies, from an energy perspective, the total energy needs of the individual (breakfast 20%, mid-morning snack 10%, lunch 30%, afternoon snack 10%, dinner 20%, and supper 10%). As long as people maintain correct **dietary habits**, they will be able to achieve healthy, normal, or balanced diets, which is the ultimate goal of the scientific disciplines of Food Science, Nutrition, and Dietetics.

### GENERAL DIETARY HABITS IN THE CENTRAL AMERICAN, SOUTH AMERICAN, AND CARIBBEAN BASIN REGIONS.

In the group of small Central American and Caribbean Basin countries, as well as in the large area covered by the South American nations, so-called "principal conditioning factors of regional dietary behavior and **dietary habits**" have been identified, at least schematically. These include geographic characteristics, availability and choice of food, economic availability, cultural level, educational frameworks, advertising or marketing, social frameworks with their heavy payload of customs, religious taboos, family structures, food preferences, nutritional education, the results of health studies, social infrastructure, communication, politics, economics, and important traditional factors (27,28).

Today, a large portion of the Central American, South American, and Caribbean populations suffers the negative biological-functional consequences of poor nutrition due to lack of food, and another significant portion certainly suffers from the effects of over-eating, and is consequently exposed to related illnesses. An abundance of traditional, mythical, and symbolic factors related to everyday food choices are manifest in both groups, and have so strong an influence on individuals' food preferences and aversions that they are among some of the principal defining elements in food preparation, distribution and food services (29).

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As in many other places in the world, the **dietary habits** of Central America, South America, and the Caribbean depart drastically from those necessary for healthy eating practices. In general, lack of knowledge about the nutritional value of food has taken on worrisome proportions, and coupled with the lack of economic resources that the great majority of people suffer from, as well as inadequate access to healthy foods and the general unavailability of food in markets, an even darker picture emerges for short-term, medium-term, and long-term health and well-being in the region (27,33,34).

Likewise, new negative tendencies related to **dietary habits** are seen with increasing frequency. Food distribution and consumption, a highly indicative measure of the functionality of family, work, and school organizations, and even food-related social relations, are not ideal and depart drastically from what they should be (34).

A similar thing occurs with the so-called food preferences that identify and classify individuals into different groups: "junk food junkies"; the fast-food group, composed mainly of teenagers; the adult "snackers"; "self service", which has turned people into waiter-diners, to name a few (35).

Today, Central Americans, South Americans, and inhabitants of the Caribbean are suffering the consequences of a notable change in their **dietary habits** due to the impact of new lifestyles, which cause drastic changes in family and social organization; furthermore, we have the development of advanced agronutritional technology which has provided consumers with "convenience foods", specially designed to ease preparation and consumption, in large measure without accounting for the true nutritional value that each component of the diet should have (33,34).

The World Health Organization (WHO) recognizes that intense efforts must be made in Central and South America and the Caribbean Basin to educate; improve general living conditions; improve access to increased working, productive, and socioeconomic space, of which the latter is currently very limited, and which together, in a politically safe environment, will promote the restoration of better customs and consequently dietary habits and behaviors. Effort must also be made to improve primary and secondary health services that otherwise will lead to even more deaths, especially for the tens of thousands of children under 6 years of age and "senior citizens" living in this region of the world, and the WHO has declared that "this will only be possible through joint effort and the conscious participation of governments and the population in general" (36-38).

The WHO, together with other experts, has proposed that it is necessary to work to help people understand and put into practice, as far as possible, the fact that healthy **dietary habits** can only be developed when knowledge of the nutritional value and safety of food is widespread, when there is a sufficient supply of such

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food on the market, and the necessary economic resources are available for its purchase. The idea is not to make cold, analytical recommendations for radical changes to consumption tendencies, but rather to reinforce the population's traditional customs as it makes progress—customs that already do not support the excessive consumption of fats, animal products such as red meat, salt, and so-called refined sugars, with a nearly complete lack of dietary fiber, disdain for fish, and a surprising lack of attention to fresh vegetables and fruits, ideas which are extremely common in all regions (38-40).

Inappropriate **dietary habits** lead to poor nutrition, which in turn causes weakened resistance to illness, retarded growth and development, and decreased performance at work, in school, and in sports; it is also important to remember that excessive eating and a sedentary lifestyle promotes overweight, obesity, high blood pressure, arteriosclerosis, diabetes, and cancer (39), all of which are plainly evident in all sectors and economic strata of Central and South American and Caribbean countries; these countries are also in need of proper hygiene food-handling practices (38).

Alcoholism is an inappropriate activity in which an increasing number of residents of these regions participate. Besides causing addiction, alcoholism (and use of other drugs) causes consumers to develop poor **dietary habits**, such as eating at inappropriate times or even drinking instead of eating. These people also exhibit conditions such as high levels of cholesterol and triglycerides in the bloodstream, predisposition to obesity, and a significant decrease in their body's capacity to use certain vitamins and minerals (39,40).

In conclusion, the need to promote the development of proper **dietary habits** in Central and South America and the Caribbean Basin is extremely urgent, despite the objective and subjective difficulties involved; in this way it will be possible to realize nutritional goals that will promote good individual and collective health, which in turn will insure the economic development necessary to sustain greater social well-being.

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