

PAHO Regional Consultation of the Americas on Diet, Physical Activity and Health

Enrique R. Jacoby, guest editor

A call to action

In May 2002, 191 Member States of the World Health Organization (WHO) mandated that action be taken to develop a global strategy on diet, physical activity, and health (WHO/GS) to guide future efforts and resources in addressing the burgeoning problem of noncommunicable diseases worldwide. To that end, the Pan American Health Organization (PAHO) convened a regional meeting in Costa Rica on April 23–24, 2003. Delegates from 11 countries were in attendance, along with representatives of multisectoral institutions, nongovernmental organizations, and expert members of the scientific community.

In this brief introduction, I would like to address some issues before presenting the reader with a summary of the conclusions of the meeting. The issues are the magnitude of the epidemic of noncommunicable diseases, the key risk factors that need to be targeted and how best to deal with them, and the need for a common nutritional agenda attuned to the changing times.

The problem and the challenges

The impetus of the WHO/GS was a result of recent data demonstrating that noncommunicable diseases and nonintentional injuries represent nearly 70% of all causes of death in the Region of the Americas among those 70 years of age and younger. The disability-adjusted life years (DALYs)* lost to noncommunicable disease risk factors (high blood pressure and cholesterol levels, overweight, low intake of vegetables and fruits, and sedentary lifestyles) among the less developed countries in the region, excluding the United States and Canada, amounts to 12,458,000 DALYs added to the 4,677,000 DALYs lost to childhood and maternal undernutrition [1]. The repercussions of that situation on individuals and families are extraordinary, posing an even greater strain on already frail health-care systems, social services, and personal economic stability. Once thought to be “diseases of affluence,” noncommunica-

ble diseases are far-reaching and indiscriminate, and curing them is much more costly than curing common infectious diseases. All of these factors have contributed during the last decade to create a greater attention to preventive strategies. This is the new challenge to public health in the Americas [2].

Inadequate diets, physical inactivity, and tobacco use are the key health risk factors that account for most noncommunicable diseases and mortality. Thus, targeting those three behaviors is likely to yield better health results than emphasizing a disease-specific preventive approach. This concept was emphasized throughout the Consultation and is probably the most sensible strategy at hand. As was pointed out elsewhere [3], most patterns of unhealthy behaviors are set by the more affluent sectors of society, later to spread and cluster among the poorest. Economic, market, and cultural dynamics are powerful forces in shaping that process, and therefore they must be addressed to achieve the desired behavioral changes (see the report by Nugent [4] in this issue for an in-depth examination of the agricultural ramifications of the noncommunicable diseases issue). For health-conscious individuals, generally in the upper echelons of society, health literacy may suffice, provided material resources and time are plenty. For most that is not the case.

Successful public health interventions have to come to grips with the fact that eating and physical activity are human behaviors that respond to a variety of factors, not just to good information. In fact, individuals generally consider health as just one among many other factors when deciding what to eat and whether to exercise or quit smoking. For instance, in considering whether to make the choice of eating more fruits because that will bring health some 10 years down the road, many other competing factors are at stake. Serious competitors are notably short-term ones, such as convenience, immediate reward, time availability, and price, to cite just a few [5]. This is why public health strategists need to take into account all factors that influence key human behaviors, not only those associated with health motives.

* One DALY is equal to the loss of one healthy life year.

Child nutrition and maternal health are also vital to a long and healthy life. Thus, efforts to promote optimal women's diet and nutrition, healthy pregnancies, exclusive breastfeeding, and adequate complementary feeding not only are the foundation of optimal child growth and development, but also are key to promoting a long life free of noncommunicable diseases. This shows not only a clear convergence of objectives, but also that the underlying nutritional principle is similar: diet quality. In fact, for instance, undernutrition problems in the region focus on several micronutrient deficiencies leading to stunted growth, iron-deficiency anemia, low levels of vitamin A, and women's reproductive risk due to low folic acid levels. Likewise, dietary quality is crucial to preventing nutrition-related chronic diseases, such as cardiovascular disease, diabetes, and obesity.

If a life-cycle perspective is to be adopted, then optimal growth must be emphasized over gaining weight exclusively. By the same token, the age-old concept that a chubby child is a healthy child needs to be reconsidered as a gauge of health and a guide to child-feeding. Alarming escalating rates of obesity in children and adolescents require prompt action on this front. In children as well as in adults, it seems that merely quenching hunger will not necessarily carry health along.

Main conclusions of the working groups

The following is a summary of the regional consultation's two working group discussions and conclusions. Those interested in reviewing complete transcripts of the working group conclusions can obtain a copy upon request to the author.

Diet and nutrition working group

Inadequate diet of the population. In developed and developing countries of the Americas, the available data show an overall low and decreasing level of consumption of fruits, vegetables, whole grains, cereals, and legumes, while the consumption of foods rich in saturated fat and sugar, oils, and meats is on the rise. As Uauy and Monteiro note in this issue [6], those dietary changes are to a large extent supply-driven. The authors argue that the lower price of food as compared with most other commodities, such as education, health, clothing, and communications, coupled with new marketing strategies, has contributed to the aforementioned dietary changes. Priority actions to improve the quality of the population food supply are the development of policies aimed at increasing availability of and access to healthful unprocessed foods; reduction of salt, sugar, and saturated fat in processed foods; and substantial intersectoral collaboration at the national and international level, particularly among health, agricultural, educational, and regulatory organizations.

Inadequate understanding of the problem and lack of public health leadership. There is a preconception that most national public health systems and public health authorities remain unaware of the problem that elevated rates of noncommunicable diseases pose in the region, namely, the high burden of morbidity and mortality that is associated with them. The disproportionate toll of noncommunicable diseases on poorer populations has many negative social and economic consequences. In order to reverse this current situation, it was deemed a necessity to publicly call attention to the catastrophic impact of inaction; hence, the role of WHO and PAHO was perceived as crucial.

Health services should include diet- and health-promotion activities. Most health personnel are far from being active promoters of healthy dietary habits. Specialization and curative approaches are pervasive in most professional training and supported in health systems. Interaction with patients increasingly requires a more integrated approach to behavioral change than mere transmission of health information. The group called for a reorientation of health-care services to provide greater emphasis on disease prevention. Health-care providers should be trained to assess and counsel patients on disease-prevention behaviors, such as improved diet, regular physical activity, and smoking cessation, rather than on disease-specific prevention. Similarly, current nutritional programs aimed at children and women of childbearing age can improve their medium- and long-term health outcomes by focusing on children's growth and development, and by emphasizing quality over quantity in existing nutritional programs and national dietary guidelines.

Better information to the public. In a world saturated with food advertising that more often than not promotes unhealthy dietary habits or makes unfounded beneficial health claims, effective food labeling is recognized as an important resource to consumers. It was also considered necessary that public health systems more often and more consistently employ mass media approaches to develop health literacy. Finally, regulation of advertising was suggested as an option to protect consumers, particularly children.

Physical activity working group

A new paradigm in physical activity promotion. Today the key public health recommendation for preventing or delaying morbidity and mortality is to accumulate a minimum of 30 minutes of moderate physical activity throughout the day, on most days of the week. This recommendation has been well established in the scientific literature and goes well beyond the practice of vigorous sports and aerobics to include more moderate activities such as walking, climbing stairs, dancing, or bicycling, which can be easily incorporated into the daily routine. Health professionals should play an active role

in explaining and promoting the adoption of the new physical activity recommendations.

Public policies and environments for active lifestyles. A successful promotion of an active lifestyle requires more than the best possible public information program. There is a need to establish public policies and norms, in conjunction with environments that enable individuals to remain active for life. Some examples are effective physical education programs in the schools, community walking clubs, good public transportation systems that include rapid motor transportation, encouragement of bicycling and walking, and policies to control crime on the streets.

Multisectoral alliances. The diversity of actions needed to promote physical activity, such as those listed above, requires multidisciplinary as well as multisectoral interventions. Thus, public health efforts should incorporate vital partnerships and alliances with sectors such as transportation, education, local governments, and sports, as well as private industry and nongovernmental organizations. Sometimes the actions of different players converge in practice, although their motives or objectives are not necessarily identical. The

ability to walk peacefully from work to home without running the risk of being mugged is an aspect of quality of life to one person, crime control to others, and physical activity to many in this Consultation.

Role of the health and education sectors in the promotion of physical activity. Disease prevention is now accepted as the most cost-effective way to tackle the epidemic of noncommunicable diseases. Thus, health-promotion activities ought to be part of the health provider's counseling repertoire. Hence, the training of health professionals and the norms of clinical management must reflect the proposed changes in professional practice. Likewise, the education sector has an enormous potential to instill healthy habits of entire generations, provided they keep physical education programs and other health-promotion activities alive and in good shape.

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The challenge of improving food and nutrition in Latin America

Ricardo Uauy and Carlos Augusto Monteiro

Abstract

The Latin American Region has exhibited a marked increase in the consumption of high-energy-density foods (high in fats and sugars) and a decrease in physical activity, with rising trends of sedentary life among the urban population. Social and economic progress led to a decline in infectious diseases, while higher income fostered the consumption of meats, fats and oils, and sugar and reduced the consumption of grains and legumes. The result has been a gradual increase in life expectancy at birth and a greater burden of disease linked to obesity and other nutrition-related chronic diseases (diabetes, cardiovascular disease, certain types of cancer, and osteoporosis). The region is currently facing the challenge of a double disease burden—the unresolved problem of malnutrition caused by nutritional deficits on the one hand, and the steady increase in chronic disease on the other. The need to develop policies and programs that make the healthy choice the easy choice in terms of diet and physical activity is presented. These should encompass not only individual choices, but also environmental factors that condition food and physical activity behavior. Food supply, and hence consumption, is largely driven by the productivity of the food-production chain; demand and consumption are determined by the way food is produced, processed, distributed, marketed, and advertised. These factors are beyond the consumer's control, and they oper-

ate to maximize profit, not health. Public health policies should focus not only on the demand side, but also on the supply of more healthful food products. Examples of potential interventions to increase the demand for healthful foods and the supply of healthier choices are presented and discussed.

Key words: Chronic disease, diet, nutrition, policy, prevention

Introduction

The “nutritional transition” is defined as changes in the food and nutrition profile of populations as a result of the interaction between economic, demographic, environmental, and cultural factors in society [1]. Nutritional patterns have changed in the Latin American Region, marked by an increase in the consumption of high-energy-density foods (high in fats and sugars) and a decrease in physical activity, with sedentary urban populations predominating [2–10]. Social and economic progress has improved environmental sanitation, contributing to a decline in infectious diseases. At the same time, higher income has fostered the consumption of high-energy-density foods and reduced the consumption of grains, legumes, and other sources of fiber. The result has been a gradual increase in life expectancy at birth and a greater proportion of obesity and other nutrition-related chronic diseases (type 2 diabetes, cardiovascular disease, certain types of cancer, and osteoporosis) in the total burden of disease. Latin America is currently facing the challenge of a double disease burden, dealing with the unresolved problem of malnutrition caused by nutritional deficits on the one hand, and facing a steady increase in nutrition-related chronic diseases on the other. In the majority of the countries, the transition toward the predominance of nutrition-related chronic diseases is in an advanced stage [4, 8–11].

The greatest challenge to health in the region,

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according to recent statements by the World Health Organization (WHO) [4, 7, 10, 11], is the premature death and physical and mental disability resulting from chronic noncommunicable diseases. WHO has recently begun to examine the importance of the links between diet, physical activity, and nutrition-related chronic diseases—especially obesity, diabetes, cardiovascular disease, certain types of cancer, and osteoporosis. Worldwide and in Latin America, infant mortality has been on the decline, while the proportion of deaths from cardiovascular disease and cancer is rising and deaths from respiratory illnesses and infections are dropping sharply. In several Latin American countries, the age-adjusted rates for heart attacks and cancer are comparable to the figures found in a developed country such as Canada, while the rates of diabetes and stroke tend to be higher [2, 8].

Until recently, it was commonly thought that these chronic diseases were associated with excess—that is, with a wealthy environment. Another theory is that differences between countries are due to differences in genetic susceptibility, which would lead to the conclusion that this is a problem for individuals and almost a necessary evil or, even worse, a sign of social and economic progress. The reality in Latin American cities is that nutritional problems associated with nutritional imbalances, especially the imbalance between energy intake and energy expenditure, are most frequently observed in poor urban populations [2, 3, 5]. Changes in diet and physical activity can explain most of the increase in nutrition-related chronic diseases, which have reached epidemic proportions in many countries in recent decades. Clearly, this is the result of environmental changes, since genetic drift occurs over longer periods. What is certain is that our current genes were selected over the six million years of our species' evolution to maximize the use of ingested energy and store as much of it as possible for when it is needed. Today, in an environment that no longer demands physical labor to produce a little food, these same genes help to produce obesity, insulin resistance, and the associated metabolic consequences: diabetes, dyslipidemia, atherosclerosis, and hypertension.

Furthermore, according to the traditional medical model, nutrition-related chronic diseases are diseases associated with personal responsibility. This view emphasizes the identification of risk factors for each individual, which leads to an emphasis on a curative approach rather than primary prevention as the principal public health measure. Most developing countries presently do not have the means to provide effective care for all people at risk and are used to planning only for the short-term situation. The steady increase in life expectancy and in the proportion of the population over 65 years of age clearly indicates the need for Latin American countries to steadily increase their health expenditure for the prevention of nutrition-related

chronic diseases. For most countries in the region, curative approaches are simply not compatible with the economic resources at their disposal. Latin America is aging before having reached an income level that will allow for adequate expenditure to provide for basic health care and treatment for the diseases of adults and the elderly. Unlike the developed countries, which managed to achieve economic well-being side by side with an increase in life expectancy and today spend from US\$2,000 to 4,000 per capita annually on health, the region does not have the resources to provide adequate curative care. Even if these funds were available, the outlays would be greater than the total per capita income of many countries in the region. It would be far more effective to control and prevent nutrition-related chronic diseases at a population level than to place emphasis on individual treatment [10].

Economic growth, so necessary to secure the material and human resources needed to combat nutritional deficiencies, can have adverse effects on health, since it can heighten the risk of nutrition-related chronic diseases, especially in transitional societies. Economic growth in these societies is associated with environmental changes that lead to unhealthy diets and sedentary lives. From the nutritional standpoint, we should note the increase in the availability of foods of animal origin, which are high in saturated fat, and of processed foods, which are usually rich in fats and sugar and low in fiber—that is, high-energy-density foods. Physical activity patterns change, since the technological development that accompanies economic growth reduces the physical labor required in urban and rural occupations alike, reducing daily energy expenditure. Economic growth leads to changes in diet that can neutralize or even reverse the relative protection against nutrition-related chronic diseases afforded by the traditional diets of the poorer population sectors. This is because the poorer sectors are more likely to change their eating and physical activity patterns, either because they do not have the knowledge required to resist the adverse changes in the environment, or because they lack the material conditions required to make use of this knowledge. Clearly, we are talking about the potential, not the inevitable, consequences of economic growth for nutrition-related chronic diseases. The important thing is to remember that it is perfectly possible to avoid these consequences through public policies and education and health-promotion strategies.

Traditional diets, based on primary foods with little processing except for the traditional methods of preservation (e.g., solar drying or dehydration, fermentation, and salting), are predominantly found in rural areas. Urbanization is often associated with the abandonment of traditional diets and their replacement with an urban dietary culture. The rural diet, based largely on vegetable products with small quantities of foods of animal origin, stands in contrast to the typical Western urban

diet with regard to the different quantity and quality of fat that it contains, the virtual absence of sugar or other refined carbohydrates except honey or dried fruits, and its higher fiber content. In several parts of the region—for example, northern Mexico—there is evidence of a dramatic increase in obesity and diabetes among indigenous populations who abandon their traditional diets in favor of the Western diet, with serious consequences for health [5, 7]. Likewise, on migrating to the cities and increasing their income, people from rural areas of the region tend to become less physically active and to adopt a diet rich in high-energy-density foods loaded with fat and sugar, frequenting fast-food restaurants that encourage overeating, with an increase in the prevalence of nutrition-related chronic diseases. Urbanization, however, also favors a more diversified diet with higher nutrient density, since today's market offers a wide variety of food all year round. The urbanization process by itself is not responsible for its negative consequences; it is possible that, with educational support and the promotion of healthy eating, the urban dietary culture will make a better diet possible. Urban sprawl around the major cities, which contain 20% to 40% of the population of their countries, has been a powerful force that alters all the components of the food-production chain. Urbanization certainly has major implications for the distribution and final marketing of food, and ultimately for dietary intake. Urban areas have facilitated the gradual concentration of delivery systems in fewer and fewer hands. They have also promoted the proliferation of mega-supermarkets to the detriment of the small corner markets in every neighborhood that were once the norm in food distribution. The concentration on intensive crop production has led to the disappearance of small producers who cannot compete with major agroindustrial conglomerates in either productivity or prices [12–14]. At the transnational level, the liberalization of trade has facilitated the penetration of Latin American markets by large multinational companies.

Changes in the demand for food

A review of the changes in food availability in the countries of the region, based on information compiled by the Food and Agriculture Organization (FAO)[15], shows that energy availability has increased in almost every country except Cuba. The same increasing trend is also seen for the proportion of total calories obtained from fat. In practically all countries, the percentage of calories obtained from fat now exceeds 20%. These averages mask huge inequalities produced mainly by differences in income, so that after correction for the corresponding elasticities, it can be seen that a significant proportion of the population in several countries consumes a diet with more than the recommended

maximum of 30% of calories from fat. The percentage of calories obtained from protein has not changed, ranging from 10% to 12%, which is consistent with adequate intake and a diet sufficient in proteins. In fact, protein malnutrition in the region is uncommon, except in young children who suffer from repeated infections and inadequate supplementary feeding and who are living in environments characterized by extreme poverty or marginality [9, 10].

There has been a marked increase in the availability of animal protein in the region, led by poultry consumption, which has grown by five to six times in most countries. The consumption of red meat has held steady, except for a decline in Argentina and a marked increase in Brazil and Chile, although Argentina continues to consume two to three times more meat than the other countries of the region. There has been a significant rise in the consumption of whole milk, while seafood consumption is low in virtually all the countries of the region. The per capita consumption of vegetable oils has increased by 200% to 300% in most countries. At the same time, the consumption of refined sugar has almost doubled in some countries. On examining fruit consumption, we see that the figures are relatively high, on average, for nearly all countries, but vegetable consumption is low except in Argentina and Chile. The recommendation to consume at least 400 g of fruits and vegetables implies a total of 160 kg per capita annually. The information from the FAO indicates that few countries in the region reach that minimum goal [10, 11, 15]. Finally, if we examine the consumption of grains such as wheat and corn, we see the importance of these two grains for the region, and a clear preponderance of corn in Mexico and wheat in Argentina and Chile.

Income is the main determinant of the availability of and demand for food. This is evident from the FAO data on the different countries and regions. The higher the income, the greater the availability of energy, the higher the consumption of animal products (meat and dairy products), and the lower the consumption of grains and complex carbohydrates. The amount of sugar, total fat, and animal fat consumed also increases as earnings increase, leading to a diet of higher energy density. The reduction in the intake of fiber and vegetables completes a dietary pattern that, in conjunction with physical inactivity, promotes nutrition-related chronic diseases.

Very few countries in the region conduct periodic surveys of real food consumption. Mexico is a notable exception [5]. The consumption trends extrapolated from real food-consumption surveys are of great value, since they bear a direct relation to the risks of nutritional disorders. The trends from the consumption surveys in the region are compatible with the trends observed in the data on availability. However, the consumption surveys make it possible to examine

differences between regions or special groups due to their vulnerability. The Mexican data show a significant increase in the intake of calories from fat in the northern part of the country and low levels of intake in the south. Viewed as an average, the figure is reasonable, since the inadequacies stemming from excess or deficit cancel each other.

The data from the household expenditure surveys that some countries conduct to determine the number of poor people in their population provide valuable information on the impact of income on the relative weight of the different components of household expenditure. Thus, the higher the income, the lower the percentage of income spent on food; this percentage is often used to determine the level of poverty in a population. In general, a poor household is defined as one in which 50% or more of its income is spent to purchase the basic food basket for a typical family. Higher-income households, in contrast, spend no more than 12% to 15% of their income on food.

The data from these surveys do not allow us to assess individual consumption or dietary adaptation, unless we apply the information to a typical family. However, they do allow us to examine the priority that the poorest and wealthiest families assign to the components of food expenditure [2, 5, 16]. If we divide households by income, we will find that in many countries, lower-income households do not give priority in their purchases to the amount of nutrients in the food, but to the symbolic value linked to what is socially acceptable. The purchase of soft drinks and of sweet and salty fatty snacks is given priority over that of fruits and vegetables or milk. The preferred products are those promoted in the mass media, which generally contribute calories and little else. Higher-income households increase their food expenditures outside the home, and meats and other animal products are heavily represented, with a relative decline in the weight of grains and oil. In general, the data show major differences in the consumption of the foods that are most expensive and denser in specific nutrients. The poor have monotonous diets that meet or exceed their energy needs but are deficient in vitamins and minerals, especially iron, zinc, vitamins A and C, and folate.

The impact of income on expenditures for certain foods can be quantified by measuring changes in expenditure by type of food when income increases by 1%. This index is known as expenditure elasticity. Data from household expenditure surveys in the United States demonstrate that for low-income families, the expenditure elasticity for meat and dairy products is on the order of 0.6 to 0.8, while for the wealthiest, this index is from 0.3 to 0.4 [13, 17, 18]. That is, as their income increases, poorer households increase their spending on foods of animal origin in greater proportion than do the wealthiest households. Elasticity values are lower for grains, and in the case of higher-income

families, they can become negative—that is, when earnings increase, grain consumption decreases. There is no doubt that increasing income is positive, since it enables families to diversify their diet, but unless eating habits and physical activity levels are modified to preserve the balance between energy expenditure and energy intake, the consequences for health can be adverse.

Access to food is also a function of prices. For a given income-level group, the expectation is that the prices of foods in high demand will rise, while those of foods in lower demand will fall. This is the law of supply and demand, a basic law of economics. The law holds true with certain foods, such as seasonal fruits, which are expensive at the beginning of the season and become less so as the days or weeks go by. However, recent trends for some foods, such as vegetable oils and sugary soft drinks, indicate just the opposite: as demand rises, their prices drop because of the greater volume of production and hence consumption. In this case, the higher demand is offset by greater supply, and thus unit prices fall while the volume of production increases. Producers therefore lower their profit per calorie but increase their sales volume to more than compensate for this. The forces of the market thus push for an increase in consumption, even though it leads to a lower unit price, which is compensated by delivering and marketing the product in larger-volume containers. For example, in the case of fast food, higher consumption leads to the optimization of production systems, thus lowering the unit price, which is compensated for by a higher volume of product per serving. If to this we add fat, salt, sugar, and coloring to make the food more attractive and enhance the flavor, we have the foundations for the overconsumption of high-energy-density, sweet and salty fatty foods. The consumer is offered more product for less money, and the system that regulates the appetite is not prepared to resist the temptation.

Data from the United States indicate that at least 40% of the increase in the prevalence of obesity over the past 25 years is due to the reduction of the unit price of food, especially of sweet and salty fatty snacks [13, 16, 17, 19, 20]. There is no doubt that increased livestock productivity has made it possible to free us from hunger, but along with this come new risks to health and some threats to the environment. We should be able to maximize the benefits and minimize the risks posed by advances in technology, with the object not only of securing higher consumption at lower prices, but also of minimizing the risks, including the impact of these production processes on the environment and human health [7, 16, 21]. Our inability to modify individual behavior by increasing physical activity and decreasing intake is predictable. Unless we examine the underlying causes of our food preferences and our physical activity habits, we will not be successful in controlling this epidemic. Policies such as direct sub-

sidies, price regulation, and food advertising also play an important part in shaping consumption patterns, as we will see further on [7, 13, 21].

What drives food choices?

It is normally believed that food choices depend essentially on the law of supply and demand. Thus, the consumer's preference is the basis of the demand and determines the supply. This model places consumers as the principal driver of supply, with industry merely meeting their needs. In this case, the factors that usually determine food purchases and consumption patterns are the consumer's income, the prices, and the intrinsic and perceived quality of the products.

A more in-depth analysis of what drives consumption reveals that nowadays supply does not passively wait to respond to demand but has a life of its own and actively influences the choice of goods for purchase and consumption. That is, we buy and consume what is offered to us, not what we need to live a healthy life. What drives supply, and hence consumption, today is largely dominated by the factors that determine the productivity and profits of the food-production chain. In this model, demand and consumption are determined by the ways we produce, process, distribute, trade, market, and advertise food. All these factors are beyond the consumer's control, and they operate mainly on the maximization of profit. The food-production chain responds to the need to produce progressively cheaper food and promote the highest possible consumption. As evidenced daily in the press, the eagerness to maximize profits creates both advantages and risks. The possibility of producing safe and less expensive food is no doubt the greatest advantage. However, the risk of ignoring concerns about a safe and healthy diet is also inherent in a model that puts commercial interests above consumer health. Some say that the responsibility for resolving this dilemma lies with the consumer, and that it is enough to provide information through nutritional labeling, public service announcements about healthy eating, or nutritional guidelines that promote healthy eating. What is certain is that the food-production chain and the engines that drive the food supply are very powerful, and they do not have a real counterpart in the efforts to educate, guide, and facilitate the selection and consumption of safe, wholesome food by the consumer [7, 10, 11, 13, 16, 19–21].

In this battle the consumer is David, since the forces that drive supply are largely invisible and unidentifiable, and have powerful resources that motivate and determine consumer behavior. Thus, we enter a restaurant or eatery, attracted by an environment that for a few minutes makes us feel like members of the “first world” and as good as anybody else—an environment

with a little luxury that sparkles like the stars, where each piece of furniture, container, and product is an icon that in some way symbolizes our aspirations for success, where our ancestral hunger for sweet, salty, and fatty foods is whetted with tempting offers of more food for less money, a double portion for a few cents more, buy two and get one free, buy an A + B + C combination meal for a moderate price and experience bliss in this paradise of consumption for the sake of fun and instant gratification. The dilemma of personal responsibility coupled with an environment that encourages healthy eating and an active life versus an environment that can discourage healthy food choices and promote a sedentary life is illustrated in figure 1. Certainly, we can help our consumers in the uphill battle against environmental influences, but we will be much more successful if at the same time we can make the hill less steep by promoting changes in the environment that will make the healthy choice the easy choice.

What can public policies do?

Public policies can modify the way the supply of food influences consumption patterns and health; we provide below some examples of possible interventions.

» *Optimize the food-production chain to offer more healthful products at lower prices for poor consumers.* The private sector has introduced technology to improve agricultural production, concentrating on a few crops with greater potential added value for exports. Improving the marketing of fruits and vegetables and decreasing the number of middlemen can help raise consumption levels among low-income groups, preserve and support small farmers' produce markets in Latin American cities,

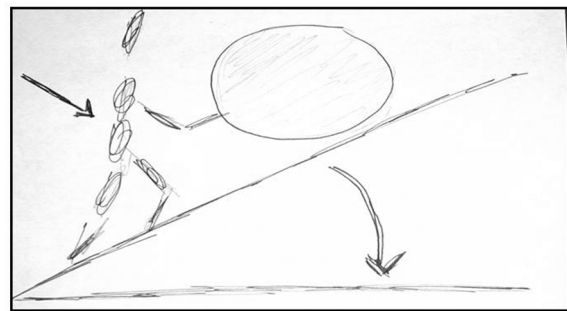


FIG. 1. Helping individuals carry the burden versus lowering the slope to make the load lighter. Graphic representation of individual responsibility of consumers in making healthy choices in terms of diet and physical activity, as illustrated by the man pushing a large rock up the hill. We can certainly support his effort by health-promotion and educational programs, but we can achieve even more if at the same time we make the slope less steep by changes in the environment that support the consumption of healthy diets and active living

- and promote healthful and safe food production.
- » *Eliminate subsidies and economic incentives for the production of foods rich in saturated fats and facilitate the production of foods low in animal fat.* Several countries provide incentives for milk and meat production through subsidies or price-setting that favors producers. In some countries, the quality regulations require higher prices for meat and milk with a higher fat content, which has a clear impact on the supply of these products. Furthermore, at the point of sale, skimmed milk and lean meats are more expensive. An alternative policy that would benefit health would be to equalize skim and whole milk prices, along with the prices of lean and fatty meats. These changes would shift the incentives and benefits from the large producers to the consumers, bearing in mind that the economic benefits of achieving healthier eating patterns are more than compensated by the subsidies that producers may currently be receiving.
 - » *Review the regulations governing the international food trade from a nutritional and health perspective.* Today, it is acceptable to impose trade barriers for phytosanitary reasons—that is, when products can pose a threat to animal or plant health. The Codex Alimentarius has provisions governing the chemical and microbiological safety of foods. However, except for baby formulas, there are no restrictions on international trade in products that can affect human health; thus, countries that produce a milk surplus and have a higher consumption of skimmed milk generate a surplus of milk fat that they market in the developing world at low cost, with harmful consequences for sedentary urban populations. Here, the economic benefits of a free market should be balanced against the economic costs of an unhealthy diet's impact on health.
 - » *Review the regulations governing the institutional food offered in schools, public utilities, the armed forces, and the workplace.* Institutional food programs financed with public moneys in the countries of the region do not meet the standards of a healthy diet. An effort should be made to determine whether the food provided in institutions contains the right quantity and quality of fats, promote the recommended consumption of fruits and vegetables, and foster healthy eating habits. This is a matter of great importance. When commercial interests prevail, institutions tend to install vending machines filled with high-energy-density foods (sweet and salty fatty snacks and beverages with little or no nutritional value).

Public policies can work also at the demand side, and we provide below examples of interventions to increase the demand for healthful foods.

- » *Increase the relative prices of unhealthful foods.* The laws of economics indicate that the higher the price, the lower the consumption. It is a hard thing to say

- that food should be subject to these policies, but at the very least we can make healthier food choices less expensive. In some countries, for example, fast-food restaurants that sell the usual foods loaded with saturated or hydrogenated fats must also offer salads or fruit at the same price to encourage the healthier option. That is, for the price of a hamburger with French fries, customers should have the option of substituting a salad for the fries. In other cases, the prices of skim and whole milk have been equalized.
- » *Facilitate the selection and consumption of healthful foods at lower prices.* Information on the experiences of several countries in the region in how to select the best nutrition at the lowest possible price, based on the composition of local foods and prices at a given time, can be disseminated with software to assist groups or families in this process. PLANUT (PAHO) and Best Purchase in Peru are examples of such efforts. Combining this strategy with consumer cooperatives formed to obtain better food prices and better quality will create a powerful tool for promoting a safe and healthy diet for the consumers who most need it.
 - » *Provide consumer information at the point of purchase.* Evaluations of the use of nutritional guidelines and nutritional labeling as a tool for promoting a healthy diet reveal significant limitations, especially the limited effectiveness of these strategies in modifying consumption patterns. Providing information at the point of purchase through consumer educators, attractive handouts, and icons to indicate healthful foods is more effective. Recent assessment of an activity in Chile shows that giving consumers information at the point of purchase has significant potential for influencing food choices.

Table 1 illustrates policy instruments and activities that can be applied at different stages of the food-production chain to reduce saturated fat intake, as well as its potential impact on consumption. We have spoken about intervening in the food-production chain. In many cases, this will affect the powerful economic interests of the producers or marketers of certain products. These groups represent not only economic but also political power, which implies a potential conflict that must be addressed taking the public interest into account. These issues must be debated throughout society, and it is the political rules of the democratic process that must determine how to protect community interests. Here, the press and opinion makers have a key role to play. In a democratic system, the state and governments are the ultimate guarantors of community well-being. They are elected for this purpose and must be accountable for the policies implemented to promote the health of the population. Citizens and those who help to shape public opinion must play a key role in demanding and ensuring safe and healthful food as a basic right. The Latin American Region should not

TABLE 1. Potential supply- and demand-side interventions in the food production chain to modify food consumption, for example, in this case to reduce saturated fat intake

Link in the food-production chain	Food policy instruments with nutritional impact	Examples of impact on fat consumption affecting quantity or quality of fat intake	Effectiveness in reducing intake of saturated fat
Food production	Subsidies or price supports	Subsidies for feed production Support for dairy products; price guarantees for producers	Very negative Very negative
	Import and export quotas	Export incentives for vegetable oil Restrictions and/or tariffs on meat imports	Uncertain Uncertain
Food processing	Quality grading	Definition of the level of quality (changes in the criteria for selecting quality, e.g., lean versus fatty)	Very positive
	“Identity standards”	“Identity standards—switch to low-fat milk and yogurt”	Positive
	Nutrition labeling	Descriptors in nutrition labeling (e.g., low-fat milk, ice cream)	Very positive
Distribution, marketing, and advertising of food	Advertising campaigns for dairy products	Changes in the demand of Government programs for milk products (low-fat to replace full-fat milk)	Negative
	Nutrition labeling	Use % lean in the labeling of ground meat Labeling in restaurant menus to indicate the quantity and quality of fat, low in saturated fat	Negative Positive
	Marketing standards	Need for standardization of the various sector descriptors: agricultural, health, trade	Uncertain
Food choices and consumption	Nutrition labeling	Label indicating the quantity and quality of fat	Very positive
	Public information campaigns to promote good nutrition	Nutritional guidelines for consumer orientation Icon to orient food choices (pyramid)	Very positive Very positive
	Promotion groups for specific products	Promotion of cheese, milk, meat, ice cream, eggs	Very negative

Source: modified from ref. 13.

only complete the task of eradicating hunger, but it should promote healthy diets and active living as a way to ensure optimal health and quality of life while reducing loss of healthy life years.

Conclusions

Dietary patterns, nutrition, and the level of physical activity not only affect current health but determine the risk of developing nutrition-related chronic diseases in the future. These diet-related diseases are the leading cause of disability and death in the industrialized countries and in most of the developing countries. The prevalence of risk factors for nutrition-related chronic diseases is progressively increasing both in the developing countries and among the poorer populations of the industrialized countries. In Latin America, this risk also includes the legacy of early malnutrition, both in

the womb and after birth. Communities, regions, and countries that have undertaken integrated, nationwide mass interventions have managed to reduce risk factors and deaths from nutrition-related chronic diseases dramatically. Success has been possible when societies have come to understand that premature deaths from nutrition-related chronic diseases are mostly preventable, and when they have mobilized to demand that their political representatives create environments and institute public policies that promote and support healthy living. This has been achieved when governments, communities, and the private sector share the notion that laws and regulations should be changed to ensure that neighborhoods, schools, and the workplace promote and support the consumption of healthy diets and encourage the level of physical activity necessary to attain a healthy weight.

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