

Cubans Team Up for Better Nutrition

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A ham and cheese sandwich every day. Fried chicken and pork rinds. White rice, white bread, and few leafy greens. Soft drinks with every meal. When interviewers asked a nationwide sample of Cubans what they ate on a typical day, and what they would put on a daily menu if they could choose whatever they wanted, these were among the top responses. Results of that landmark study revealed that a majority of Cubans eat too much sugar, not enough fruits and vegetables, and have an unhealthy predilection for fried food, red meat and saturated fats.

Data from the 2001 survey helped confirm what health authorities already suspected: the Cuban diet is contributing to rising obesity rates, iron-deficiency anemia, as well as a burgeoning incidence of hypertension, cardiovascular diseases, and diabetes. As in most developing countries, noncommunicable chronic diseases account for a growing share of Cuba's disease burden: almost 60% of all deaths on the island are attributable to heart disease, cancer, and cerebrovascular diseases.[1]

Eight years later, a nationwide multi-sector effort is underway to change Cuban food culture and its unhealthy outcomes.

Baseline: What Cubans Eat and What They Would Like to Eat

The First National Food Consumption, Tastes, and Preferences Survey (usually referred to as the "tastes and preferences survey") was conducted as part of the Second National Survey on Risk Factors and Chronic Diseases (ENFRENT II, its Spanish acronym). Although noncommunicable chronic diseases cause over 35 million deaths worldwide[2]—the majority in low- and middle-income countries—Cuba is one of only a few developing nations to undertake such a broad, representative study. ENFRENT II was led by the National Institute of Hygiene, Epidemiology and Microbiology (INHEM, its Spanish acronym) in collaboration with the Ministry of Health, the National Sports and Recreation Institute, and other institutions.

Using the latest census data from the National Statistics Bureau (ONE, its Spanish acronym), ENFRENT II canvassed 22,851 Cubans aged 15–99 in 14 provinces and the Isle of Youth Special Municipality. Unfortunately, lack of resources meant excluding rural populations. "If we had included rural areas in the sample, we would have had to interview another 21,000 people, which was economically impossible at the time," says Dr Mariano Bonet, Director of INHEM and lead researcher of the study.[3,4] The survey is still considered representative, however, since 75% of the Cuban population lives in urban areas.[5]

The tastes and preferences component of the larger survey was designed and conducted by the Nutrition and Food Hygiene Institute (INHA, its Spanish acronym) using a sub-sample of 3426 people (1559 men, 1867 women) selected from the ENFRENT II sample.[6] This was the first representative dietary survey ever undertaken in Cuba at the national level, with data disaggregated by province and municipality.[3]



Oregano, lettuce and chard in a Havana urban garden.

Questionnaires were administered by health personnel with specialized nutrition training. Dietary reference intakes (DRI) of nutrients established by INHA for the age groups surveyed were used to set reference portions per person per day for 7 basic food groups:

- grains and starches
- vegetables
- fruits
- meat, poultry, fish, eggs and legumes
- milk and milk products
- fats
- sugar and sweets.

Respondents were asked what and when they had eaten in the last 24 hours. The number of portions consumed from each food group was then classified as deficient, adequate or excessive in terms of meeting recommended DRIs.[6]

A smaller sub-sample (n=1860) was surveyed about food preferences—what they would eat in the same time period were money, availability, and accessibility no object. Respondents were also asked how they liked their food prepared (fried, baked, boiled, etc.), and the size and number of portions they would choose if they could eat as much as they wanted. This smaller survey was conducted in 7 provinces representing the western, central, and eastern parts of the country.[3]

The survey found that Cubans weren't consuming what they should in the amounts recommended for a healthy diet. While energy intake was nearly at target levels (2480 calories recommended daily to 2150 consumed), it wasn't coming from the right sources: too much energy from sugar and carbohydrates and not enough from protein, whole grains, fruits, and vegetables. Sugar, in fact, was the only food category that exceeded the recommended daily intake, comprising more than 20% of total energy consumed by more than half of those surveyed.[6,7]

Results also revealed inadequate intake of many of the 20 essential nutrients outlined in the World Health Organization's dietary recommendations and nutritional requirements, including Vitamins A, E, and B complex, calcium, iron, zinc, magnesium, and

other minerals and micronutrients.[7,8] Researchers concluded this was due in large part to the near absence of fruits and vegetables in the Cuban diet: only 17% of those surveyed ate the recommended 3 portions of daily vegetables and only 16% ate the daily recommendation of 2 portions of fruit.[7]

By contrast, on the preferences menu, respondents indicated they would choose twice the recommended amount of meats (including processed meat products, especially ham), almost 2.5 times the recommended amount of fats (90% would eat fried food at every meal if they could), as well as excess sugar and milk products. Desired consumption of grains and starches was adequate, but respondents only selected about half the minimum recommended amounts of fruits and vegetables.[3,6]

The nutritional deficiencies and excesses in these findings set off alarms. The association between the typical diet—indeed, the country's food culture—and risk factors for ever-more-prevalent chronic diseases was clear. It was time to bring a collective response to bear on a complex national problem.

Demand-Side Strategy: Raising Awareness, Setting Guidelines

The Institute for Food Research is one of the many entities working to make sure the population's nutritional needs are met. Headed by Dr Alvaro Garcia, it is mainly responsible for developing new food products and new technologies—soy yogurt, fortified foods and food supplements, for example—and is part of the multidisciplinary group coordinated by INHA to develop nutritional strategies for the country. Dr Garcia explained to *MEDICC Review* that their work is guided by 3 fundamental documents, all developed through multi-sector collaboration. The first is the Food Composition Tables detailing the nutritional content of specific foods (protein, fats, vitamins, minerals, etc.) using UN Food and Agriculture Organization (FAO) methodology. The second is the Dietary Reference Intakes for the Cuban Population, which specifies recommended daily amounts of each nutrient by sex, age group and physical activity level (see *Dietary Reference Intakes for the Cuban Population, 2008* this issue). The third document is the Healthy Diet Guide, which takes technical information from the other two and explains it in everyday language, along with practical ways to meet dietary recommendations by selecting and preparing different kinds of food.[9]

According to INHA Deputy Director Dr Blanca Terry, the Healthy Diet Guide was designed to achieve short-, medium- and long-term goals. "Short-term goals include increasing awareness and knowledge to set the stage for long-lasting change in the food culture. Medium-term goals are to change people's eating habits, which over the long-term would impact chronic disease-related mortality and morbidity." These are not the first dietary guidelines written for the Cuban population: preliminary attempts were made in the 1990s but were hobbled by the unilateral, health sector approach in their design and implementation. "Making the health sector solely responsible for food and nutrition programs is inconceivable today... Participation by all actors is essential because eating is part of culture, not just health," Dr Terry added.[10]

Supply-Side Strategy: Increasing Production, Diversity and Access

In a country where the government not only assumes the main responsibility for food security but also supplies minimum amounts of safe nutritious foods through a subsidized

Healthy Diet Guide for the Cuban Population

The Healthy Diet Guide was developed for use in primary care settings and distributed to agricultural, trade, and food industry entities throughout the country. The nine guidelines, summarized below, were designed to raise nutritional awareness and expand knowledge about what constitutes a healthy diet, including how to choose, prepare, and store foods for optimum nutritional value.[11]

1. Eating a variety of foods throughout the day is pleasurable and necessary for good health. Color is a good measure of variety; the more colors in your diet, the more varied it is. It is important to know which foods can be enjoyed in larger and smaller quantities without being harmful to health.
2. Eat vegetables every day.
3. Eat fresh fruit every day. Fruits and vegetables are a major source of vitamins, minerals, and fiber.
4. Cooking with vegetable oil is preferable. Lard is harmful to your health.
5. Fish and chicken are the healthiest meat choices. Fish is especially healthy given its low fat content.
6. Cut down on sugar. In excess, sugar causes cavities and obesity, and can lead to diabetes.
7. Cut down on salt by taking it off the table. Salt can lead to high blood pressure and is a risk factor for cardiovascular disease. Season foods with natural herbs and spices (cumin, oregano... and others) and citrus juice.
8. Start your day off right by eating breakfast. Eating something in the morning aids concentration and helps you work better.
9. Know your ideal weight given your height. Stay in shape. (Includes information for determining Body Mass Index as well as weight tables for children and adults.)

rationing system, improved, consistent food production is key to Cuba's strategy. As chronic disease specialist Dr Pedro Orduñez has said, "It's not enough for people to know about healthy eating; it's about producing the necessary healthy foods at prices people can afford." [12] Therefore, food producers, marketers, and handlers, as well as policy makers, have a role to play in helping the nation meet the population's nutritional requirements.

Increasing agricultural production in a rational, sustainable manner is a priority for addressing the supply side of Cuba's dietary equation. This includes making food production more efficient, bringing produce closer to consumers to increase accessibility, and making certain products available year round. In the last decade, Cuba's urban agriculture program has played a pivotal role in making vegetables more accessible to city dwellers.[13,14] Says Rosalía González of the Urban Agriculture Administration, "The urban agriculture program seeks to not only increase the availability of fruits and vegetables but to ensure the high quality and safety of that food...it's not only about production targets, but diversifying and stabilizing production." Actions needed on this front include seed certification, aggressive diversification, training, and better distribution according to González.[15,16]

The Urban Agriculture Administration's mandate to promote sustainable agriculture emphasizing urban production systems was recently expanded to include "suburban" agriculture as part of a major government initiative to revive agricultural land use

and increase food production nationwide (see *Public Health: Champion of Food and Nutritional Security in an Insecure World* this issue).

Innovative nutritional strategies are not limited to the fields and farms however. Cuba manufactures 50 food products that are vitamin-enriched or formulated to boost their nutritional value.[3] Calcium-enriched soy yogurt (given to all 7- to 13-year olds at home and school), iron- and zinc-enriched milk for infants, and Vitamin C-enriched baby food are examples of fortified foods currently distributed to every infant and child in the country (depending on the product). Bread, a daily staple (every Cuban receives 80 grams of bread a day), is another important fortified product. All flour used in Cuban bread production is fortified to meet the following recommendations for nutrient intake: 28% of Vitamin B₂, 40% of folic acid, and 20% of iron. All flour imports are required to meet the same fortification requirements.[9] Another source of daily vitamins are domestically-produced multi-vitamins that are distributed to pharmacies nationwide; the 2001 tastes and preferences survey found 31% of respondents took a daily multi-vitamin.


Sometimes, however, what you take out is just as important as what you put in, specifically sugar in the Cuban diet. According to INHEM's Dr Bonet, "Dependence on sugar was the most important finding of the 2001 survey. It's extreme." Data showed Cubans eating almost double the daily recommended allowance: 12 servings a day instead of 6.[3] The Healthy Diet Guide advises adding less sugar to milk, yogurt, fruit juice, shakes and teas, as well as desserts and drinks that already contain sugar. But reducing the sugar content in yogurt, juice and other manufactured food products will also be critical to bringing consumption and taste in line with adequate nutritional levels.

Goals and Challenges

Increasing and diversifying food production is a complex undertaking, but not nearly as difficult as changing people's consumption patterns and habits, says Rosalía González. "Sure, our challenge is to produce more, but there's still no assurance that people will eat healthier...we have ambitious dietary goals for 2015, giving us a very short time to change our food culture." These goals, laid out in *Projections for Cuban Health 2015*, are directly linked to controlling chronic diseases for which diet is a risk factor, including heart disease, cancer, and stroke—Cuba's top three killers. [17] Using baseline data from the National Food Consumption, Tastes, and Preferences Survey, in addition to clinical research, epidemiological surveillance, and other population-based studies, *Projections for Cuban Health 2015* sets specific targets for increasing food and vegetable consumption, lowering salt and sugar intake, reducing adult obesity, and lowering mortality and morbidity related to nutrient deficiencies (see *The Public Health Sector and Nutrition in Cuba* this issue).

The problem also extends beyond changing how people shop, cook, and eat. To reach targets set for 2015 requires an appreciation of just how risky an unhealthy diet can be. "The perception of food-related health risk is very low in the population...changing dietary habits takes motivation, education, and awareness," says Dr Terry. Prioritizing diet- and nutrition-related health problems, offering nutritional counseling services in the national network of community-based polyclinics, and tailoring food imports to help meet established DRIs should help. But as

Dr Terry points out, "All of [this] will take time; it will take more than one generation to change cultural preferences and tastes." Teaming up to face such challenges of national import is a strategy Cuba has employed with success in the past, from disaster prevention and recovery to vaccination and literacy campaigns. By working with health, education, sports and economic entities, plus community groups and civic organizations, this "more than the sum of its parts" approach is now being brought to bear on eating habits and the nation's overall nutritional health. Additionally, international cooperation is playing its part: the Healthy Diet Guide was produced with the assistance of the Pan American Health Organization, and a 3-year, US\$8.5 million grant from the United Nations will help Cuba purchase, manufacture, and distribute iron-rich foods in 20 of the country's most vulnerable municipalities (see *The Public Health Sector and Nutrition in Cuba* this issue).

Even in the short-term, success of the multi-sector efforts to improve the Cuban diet will depend on the interaction and coordination of both demand- and supply- side strategies. In Dr García's view, "Everything depends on availability... For people to eat more vegetables, there have to be more vegetables... The challenges are being able to do what the Healthy Diet Guide recommends." On the other hand, Dr Terry emphasizes education as the key to making desired products—from a dietary standpoint—both available and desirable: "Even to produce and import food, you have to educate. It's not about importing just to import or producing just to produce," she concluded. 

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