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What is your current position with Johns Hopkins University?

I'm the Director for the Center of Human Nutrition, which is a center combining disciplines in the School of Public Health and the School of Medicine.

How did you become interested in human nutrition?

I am a pediatrician, so for any pediatrician nutrition is obviously much more important than for an adult physician because growth of children is very closely connected with food. In general, pediatricians are more aware of nutrition issues than other specialties. In addition to that, I became interested because nutrition and diet applies to both disease as well as healthy situations. I was also interested in public health, and nutrition is uniquely placed as a discipline that bridges community nutrition, clinical nutrition and basic science.

Were you set on becoming a pediatrician as early as high school?

Yes, in high school I knew I wanted to be a physician. I'm from Argentina, and the system in Latin America in general is similar to Europe; you go to a professional school directly after high school. There is no college.

So you chose the professional school for medicine before you graduated high school?

Yes, you must make your choice in the last year of high school. I was 15.

What particular areas of research have you focused on in your study of human nutrition?

I have worked in both extremes of nutrition status in humans; under-nutrition and over-nutrition. I have worked for the past 20 years in under-nutrition mostly in developing countries. In the United States I began working on obesity, which obviously is a big problem here. The most interesting part of that is now in most of the world there is a combined problem of under and over nutrition. Even poor countries have obesity in their urban areas so it's a very complex situation.

I saw an article you wrote about undeveloped countries where children were under-nourished, but the parents were obese. Why was that?

It's a general trend because of globalization of the food markets and the availability of modern processed food everywhere on the planet. It's not like decades ago when underdeveloped societies consumed very traditional plant based diets, while in industrialized countries we consumed processed food and fast food. Today, the fast food companies and food industry can

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reach almost anywhere on the planet with their products and they have become very efficient at producing them at a relatively low cost. At the same time, even poor countries have better transportation and communications, at least in urban areas. People also move closer to markets of processed foods. This creates a situation where we have not resolved the problems of nutritional deficiencies, but we are making unhealthy foods available to large segments of the world population.

How do you feel about some of the new diets, for example, the raw foods diet, where people only eat raw foods? A trend where they only eat fresh, organic, uncooked, unrefined foods as a way to prevent cancer, or help with increased energy and longevity. Do you believe that is a good choice?

You mentioned one of probably a hundred different diets that are popular out there. There is the green diet, the hot-in-the-morning, cold-in-the-afternoon diet, and so on. Some may have some a remote hint of scientific evidence, but most are completely based on fads, individual testimonials, or outright fantasy. Fortunately, developed countries as well as international organizations, such as the World Health Organization and the Food and Agricultural Organization, have clear guidelines on what to eat to preserve health. The United Nations General Assembly of 192 countries just voted a global strategy for diet, physical activity and chronic disease prevention. So there is plenty of information to base your diet on scientific information. Of course, this will not deter people who think that eating raw food is good for you. While controversy is an inherent part of scientific inquiry, there is in fact reasonably good consensus on the foundations of a healthy diet. For example, the US government just released the dietary guidelines for Americans, and several other countries have similar healthy diet guidelines for their population.

Was a new food pyramid also released?

Yes. Each time the dietary guidelines are updated a revision of the food guide pyramid follows, as needed. The pyramid is an educational aide to the guidelines. Along with the pyramid there are posters, a video game for kids, etc. The food pyramid is the most famous (or infamous), but it's just one of a number of educational aides to explain the dietary guidelines to people.

What were some of the changes to the guidelines?

The dietary guidelines have been updated every five years since 1980. Of course, breakthroughs don't happen too often, so sometimes the changes are minimal. For example, the 2005 guidelines recommend consuming fish twice a week, which is new. There is also much more emphasis on physical activity, considered an essential part of a healthy lifestyle.

Are you currently a member of the Food and Nutrition Board (FNB) of the Institute of Medicine?

No, I was a member for seven years, until 2003.

Is this the board responsible for the RDA (recommended daily allowance)?

Yes, but indirectly, the FNB sets up the different panel expert panels, composed of independent scientists that define the RDAs.

Did you have a part in that?

Yes, just by coincidence, the period that I was a FNB member was the period the RDAs were revised, from 1997 to 2003.

They don't revise the RDA every ten years?

They did it every ten years until 1990, and then things became so complex that they decided that they could not do the whole thing just in one year every ten years. They began to assemble separate groups of experts for different nutrients. To cover all the nutrients it took about six or seven years.

How are the variables in the life of each individual, for example, age, family history, and level of physical activity taken into consideration when determining the RDA?

The RDAs are for healthy individuals. There is a distribution of needs among any population, so the RDA reflects the high end of that distribution. By definition, it would cover about 97% of the population, and this includes people of different body size, gender, etc. Of course, that means many people could consume more than what they need, but there is no risk in that within the limits of the RDA.

Would you recommend that people routinely take vitamin supplements?

No, I don't recommend it and I am not aware of any official recommendation for this either, except for specific situations like pregnant women or breast-fed infants. The general consensus is that a healthy individual consuming a diet consistent with the guidelines doesn't need supplements. On the other hand, there are many people consuming unhealthy diets who may not reach the RDA for several vitamins. The solution is to change their dietary pattern, not to add a supplement.

I want to go back to obesity, since you specialize in it. The U.S. has some of the highest rates of obesity and heart disease. Has it been determined if nutrition is the primary cause or is lifestyle a bigger factor?

Both. Lifestyle is important, because that would include sedentary lifestyles or lack of physical activity. But excess caloric intake is also well documented in several national surveys.

How early in life can you start to prevent obesity?

There are two issues there. One is the question of when does obesity become irreversible, that is, when does a child who is obese have almost 100% assurance that he/she will continue to be obese for the rest of his/her life. That risk increases as the child grows older, becoming really important at around the age of eight to ten. A child, who finishes her puberty and is obese has about an 80% chance of continuing to be obese for the rest of her life. On the other hand, there is little correlation between a chubby baby at twelve months or twenty four months and obesity as an adult. The other issue is the acquisition of food preferences and learning about healthy eating. For these, it is never too early to start educating children.

What strategies have been implemented to control obesity in children?

There have been many studies, but there is no national policy, or no uniform intervention at the national level. However, there are many studies showing that improving school lunch programs and reducing sedentary time and television viewing are all potentially useful interventions to reduce obesity early in life. But so far, as a society, it has been difficult to implement an integrated, concerted strategy for obesity prevention; otherwise we would not have this problem.

Aren't there dietary guidelines for the school lunch program?

When the government pays for the school lunch, they require the lunch to fit within the dietary guidelines. Those guidelines are applied to any federal program that involves food. Anyone can eat their own food in the school cafeteria, and the franchise that operates the cafeteria can offer anything that the principal allows them to serve, in addition to the federal school lunch. The original aim of the School Lunch Program, launched decades ago, was to ensure that kids got *enough* food. The government has been slow in adapting the program to the current trend toward obesity, but modifications have been made in this regard. Another issue is that because in the United States the educational system is mainly controlled by each state, the school regulations affecting food intake and physical activity vary greatly across the country.

Your view is that the first step in fighting obesity is through education?

Right. Children should be educated on healthy eating very young because later is more difficult. That means that the parents also have to eat healthy. It's like smoking, you can't tell your teenager not to smoke when you are lighting a cigarette. So parents have to have healthy food at home.

Were you an editor of the first edition of the *Encyclopedia of Human Nutrition*?

Yes.

How did you become Editor-in-Chief of the second edition?

In my case it was by invitation of Elsevier. I was involved in the first edition and when it came time to update the book some of the original editors were not available, so I was invited to be the lead editor, and from there we assembled the group of editors and authors.

Since human nutrition is such a broad field, how did you choose the topics?

We started by looking at the first edition, but expanded the new edition to four volumes instead of three. We looked at where the advances had been made in the years since the first edition. Some areas remain the same, and others have important new developments. You have to balance both.

What breakthrough discoveries have there been since the first edition?

The mapping of the human genome, to name just one. It allows a more detailed study of the interactions between nutrients and the human genome. That is, the genetic component of cells, the signaling of cells and how different nutrients affect it. That area has received much more attention.

Who is the intended audience of this work?

It has a wide audience. Certainly academic professors and researchers will find this is an up-to-date, very rigorous summary of information. Also, we tried to keep it at a reading level that would be useful for journalists, or people who have to understand nutrition concepts but are not necessarily nutrition scientists or experts. Even an educated layperson can go there to find out, for example, what regulates their cholesterol level in their blood. With some basic understanding, they should be able to follow the article that explains how blood cholesterol is controlled by our body. We have covered a wide range of needs.

How long have you been working on this project?

We've worked on it for about three years. It was intense work in the beginning, then we commissioned each of the papers, and eventually began the review process. It speeds up at the end when we are dealing with strict deadlines and enter into production. A work of this magnitude has to be reviewed and re-reviewed several times to ensure quality.

There will also be an online version?

Yes, the idea is to take advantage of the electronic media and update much more frequently than a paper version.

What would you like librarians to know about this encyclopedia?

Well, first that it is there and available. If they properly announce the availability of this reference book I am confident that a lot of people will use it.

Do you still visit the library or do research in the library?

I have several students who use the library regularly. The type of activity a typical professor does is meeting with younger colleagues, students, and technicians in the laboratory to discuss issues, research and results. We usually start by using the medical library web site, which has almost all its material in electronic format.

Is their web site almost always your starting point?

Yes, it's very accessible. It includes books and more information than you can get on PubMed or some of the general portals.

Are you able to get full text articles from most books?

Yes, and you can ask the library to photocopy and email you a pdf file of any article that is not online.

How would you like to see libraries grow or change in the future?

Well, I think the electronic era is on us for good. The Johns Hopkins library system combines

electronic and printed media through satellite libraries. They are useful because they are an outreach of the library and they can highlight certain components of their collection and customize their holdings to specific needs of a given department, and still be accessible to the rest of the University.

Aren't satellite libraries completely online, or are you referring to a physical place?

I'm referring to a physical place where there are terminals used to access the whole library collection, along with selected books customized for what people are working on in the building.

Do most universities have these satellite libraries?

I don't know, but I would think it is a very useful complement to the central library.

What other interests do you have outside of science and research?

I am learning tango, so I can fit the expected stereotype of an Argentinean. I enjoy jazz and classical music, and go to concerts as much as I can.

Do you travel much?

Yes, about twice a month I'm traveling, mostly on business. Most of my travels are international.

Do you get back to Argentina much?

Yes, a couple times per year.

Where do you see yourself in 10 years?

I don't know. If I'm still alive because I have followed a good diet, I will probably still be working. I may not work as hard as I do now, but as long as I enjoy what I'm doing, I see being productive at work as an important part of a healthy lifestyle.

Have you learned a lot in the process of working on the *Encyclopedia of Human Nutrition*?

Yes, it's been a phenomenal learning experience.

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This article by Jacqui Tavis

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