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## NUTRITION IN PERSPECTIVE

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Nutritionists have long argued that the nutritional needs of the populations served by the food industries should play an appropriate role in determining food and agricultural policy. Secretary Bergland has indicated that the department of agriculture intends to take this obligation seriously.

It seems important to recognize that a generation ago we had a relatively simple food supply. It seemed reasonable to assume that most people with an adequate income could make reasonably adequate selections of foods with a little guidance. Relatively simple guides like the four basic food groups seemed to be reasonably satisfactory.

In the past 25 years, however, we have developed an extremely complex food supply. A consumer may be faced with upwards of 10,000 items in a modern market — many of which are difficult to classify and may be of unknown or unexpected composition, mixtures of foods, or even complete meals. To the degree that the consumer accepts some of the modern foods, his ability to control his diet is limited.

Some of the decisionmaking process has been transferred to the food manufacturer, and it seems inevitable that some of the responsibility for assuring an adequate diet must be accepted by the manufacturer, regulatory agencies, or others. The great capability of the food industry to provide edible products has, in fact, exceeded advances in biological understanding which would allow prediction of effects — advantageous or otherwise — which might occur. It is obvious, however, that with a rapidly evolving food supply, decisions do have to be made even if based on partial knowledge.

Given the tremendous variety of food choices that an individual might make, the statistical chances of the individual making a bad choice are no doubt great. The facts, of course, are that there is no real evidence that the nutritional status of the American population diet has deteriorated with the development of this complex food supply. This, however, does not mean that the dietary habits of the American consumer cannot be improved.

## Current Nutrition Policy

Modern nutrition began with the discovery of the vitamins around the turn of this century. This developed rapidly up through the 1940's when the last vitamin was discovered. The identification of essential minerals still continues. Progress in the identification of vitamins and their association with major nutritional deficiency diseases — pellagra, rickets, scurvy, xerophthalmia, beriberi — focused attention upon prevention of nutritional deficiency diseases. These were seen as the major nutritional problems, and the strategy developed was to prevent nutritional deficiency, i.e., assure an adequate intake of all essential nutrients. This strategy has been largely successful. Severe nutritional deficiency disease is now rare in the United States.

This improvement was obviously not due to strictly nutritional efforts alone. In all probability improvements in income, the efforts of the Extension Service, the substantial increases in total food production, etc., were at least as important as the nutritional programs themselves. But certainly the research which identified the cause of these diseases and the protective foods was fundamental.

This is not to say that the total problem has been solved. We can still identify mild iron deficiency in substantial numbers of people. There may be similar problems of unknown extent. And there are undoubtedly an unknown number of people who because of poverty, ignorance, or neglect remain seriously under-nourished.

As you may be aware, \$9 billion is now channeled into efforts to help assure an adequate American diet. We fortify some foods with vitamins and minerals to attempt to accomplish this aim. A cornerstone of any nutrition policy must be to try to supply everyone with an adequate amount of food which contains the essential nutrients they need — protein, vitamins, and minerals.

The other aspect of current policy that can be readily identified is the provision of a safe food supply — safe in terms of toxic materials as well as bacteriological hazards. I am sure you are aware that there is a lot of activity in this area.

## Future Nutrition Policy

The 1940's saw not only the near control of the severe nutritional deficiency diseases but also the development of effective methods for the control of most infectious diseases. This has caused a marked shift in the causes of death and disability in the United States. Rather than pneumonia, influenza and the like, most of us die of heart disease, cancer, stroke, diabetes, and others of the so-called degenerative diseases.

Approximately one-half of all Americans die of heart attacks, about a third of these before age 65. Cancer is the second major cause of death. An estimated 5% or so of Americans have diabetes

and the rate appears to be increasing rapidly. Clinical hypertension or high blood pressure affects 25% to 40% of adults. These are the kinds of problems that we must deal with now to improve the health of the American public.

In the last 20 years evidence has accumulated that all of these diseases have an important nutritional component. Diet is not the only factor, of course; genetics are extremely important. Yet, the genetic factors usually only predispose to varying degrees of susceptibility, and this genetic predisposition can be modified. Those who are most susceptible are those most likely to benefit from dietary modification. Current evidence indicates that 10% to 20% of American men can consume almost any diet and maintain low risk of heart attacks. The rest of us have varying degrees of risk ranging from slight up to almost a certainty.

I cannot review the evidence here but many dietary factors have been implicated with varying degrees of certainty. These include:

- (1) excessive intake of food leading to obesity,
- (2) high levels of fat intake, especially saturated fat,
- (3) high salt intake,
- (4) low consumption of dietary fiber,
- (5) high cholesterol consumption,
- (6) high sugar consumption,
- (7) consumption of relatively purified diets,
- (8) high meat intakes, and
- (9) inadequate intake of unsaturated fat

Other possibilities may be included, such as the consumption of carcinogenic agents. Not all of these factors are thought to be involved in all diseases, of course, but the accumulating evidence makes it inevitable that nutrition advice will increasingly stress the advantages of lowering our consumption of animal fat, cholesterol, sugar and salt and increasing consumption of fruits, vegetables, and cereal based products.

Some people protest vigorously that it is premature to make such recommendations, that the advantages of modifying the diet in this way have not been proven. Again, I cannot review the evidence in detail, but I believe the primary arguments for modifying the American diet are:

- (1) For several of these diseases, prevention and treatment appear to be quite different. The disease underlying heart attacks is arteriosclerosis — the clogging of the arteries with cholesterol and fatty material. It appears to take 20, 30, or more years to develop severe arteriosclerosis which is almost irreversible.

Similarly, cancer probably has a 10, 20, or more year lead-time. Who is going to undertake a 20 or 30-year experiment of sufficient magnitude to demonstrate reductions in the attack rate of heart disease or cancer? While there are many reasons to implicate our diet in the major cancers in the U.S. — cancer of the colon, the breast and others — there is no reason to believe that dietary modification will cure cancer, although it may prevent cancer.

(2) The reverse experiment, however, is happening all over the world. In many countries where these diseases were or still are infrequent, the affluent class has adopted a so-called “western dietary pattern” and is developing disease patterns similar to our own.

(3) There is no known risk identified with such a change in dietary pattern. It must be remembered that the dietary restrictions imposed by World War II in England, Scandinavia, and other countries which forced them to consume a simpler diet did, in fact, result in less heart attacks and diabetes. It was actually the data derived from these countries that provided the primary stimulus to examine the effects of the diet upon heart disease.

(4) And finally, we must recognize that the current dietary recommendations were developed before we had any inkling of the long-term effects of such diets upon chronic disease. I have characterized these more or less as “Eat more meat, more milk, more eggs, more fruits and vegetables, more cereals — more of almost everything — but don’t get fat.” Thus, the really important question is whether we can afford to continue to recommend the same kinds of diets we have in the past while research continues at a maddeningly slow pace.

To continue to do something just because we decided to do it that way 30 years ago and to ignore the evidence that has accumulated in the last 10 or 15 years seems unjustified — even avoiding a responsibility to public health. Our responsibility is to weigh probable benefits and probable risks based on the evidence available. This is just as true of what we are doing now as it is to what we might do.

Nutrition is an inexact science. Its methodology is not as good in most areas as it should be. The main problem, however, is that people are different. We are exposed to different degrees of risk even though we follow a similar life style and dietary pattern. How then can we develop general dietary recommendations when we often do not know who is a high or low risk?

The way we have done this for essential nutrients — a recommended level of protein intake, for example — is to try to estimate the spread in requirements among a population group and then recommend an intake that would approximate the 95th percentile. That is, recommend an intake that is sufficiently high to cover the needs of practically everyone in the group. Obviously, this would be more than most of the individuals in the group actually need. This leads us to

the somewhat confusing conclusion that even though we establish recommended dietary allowances for various nutrients, the consumption of less than that does not mean the individual is malnourished.

In trying to make recommendations for constituents whose intake should be lowered, we could presumably follow the same pattern, i.e., recommend a diet that would produce minimal risk even in the most susceptible. There is every reason to believe, however, that few of us would accept such a diet. There is not much use in making dietary recommendations that are so extreme that no one will accept them.

The challenge then is to develop dietary recommendations which preserve an adequate intake of all essential nutrients (not difficult), reduce the risk of chronic disease significantly, and are reasonably acceptable to the American public. Note that I said reduce risk of — not eliminate — chronic disease. But, we must strive to greatly diminish premature heart attacks, cancer, hypertension, diabetes, etc., and that is what can be expected from dietary modification.

As one would expect, every producer group and industry feels that these recommendations threaten their market and have expressed opposition. They have acted as though the message was, don't eat meat, don't drink milk, don't eat sugar, etc. Obviously, that interpretation is ridiculous. Others, at the other extreme, reinforce these exaggerated statements by overemphasizing the evil effects of sugar, salt, and other constituents. The legitimate message is simply moderation.

I must say that I find it inconsistent that every food producer and manufacturer finds it perfectly legitimate to extol the nutritional virtues of his product — the protein content, the vitamin content, the mineral content — yet finds it abhorrent and unfair to have the disadvantages of his product mentioned. It is a fact that every product has disadvantages when consumed in excess. The problem is always how much we eat and what we eat it with. Perhaps eventually we can move toward a balanced presentation to the public, something like "Truth in Advertising."

Those who are unduly worried about these newer developments can take heart, because nutrition education has not been as effective in modifying dietary patterns as we would like it to be. Certainly no precipitous changes in market can be soon expected because of nutritional advice. Yet markets do change and we expect nutritional advice to be one of the factors affecting that change.

It should also be apparent that Americans already eat too much food. Per capita food demand is practically fixed, unless we become even more wasteful than we are now. In this situation, every product to some degree competes with every other product. There can be no nutrition policy which is equally favorable to all segments of the industry.

When one combines nutritional information with the fact that we have a very wasteful system — not only do we waste a lot of food, but most of the grain is consumed as animal products, a great deal of energy is used in unnecessary food processing, etc., — it is inevitable that nutritional policy will increasingly emphasize limitation of intake of certain foods and food constituents and moderation of dietary habits.