

EXECUTIVE SUMMARY



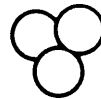
vitamins



fats



minerals



carbohydrates



proteins

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During this century, particularly since World War II, Americans have markedly altered their eating habits and lifestyles. Simultaneously there has been an equally significant change in the major causes of death.

Fifty to seventy-five years ago illnesses during infancy and infectious diseases, such as tuberculosis and pneumonia, dominated the mortality tables. Nutrient deficiency diseases, such as rickets and pellagra, were also significant public health concerns.

Today we find that most Americans die from degenerative illnesses such as heart disease and cancer. At the same time few Americans show any overt evidence of nutritional deficiency,

Unlike the infectious diseases, degenerative illness appears to result from the complex interaction of multiple factors. Although diet is one of the factors involved, to date there has been relatively little research into the direct relationship of diet to chronic disease. However, epidemiological studies indicate that overconsumption of food, especially certain kinds of foods, contributes to the incidence of and mortality from degenerative diseases such as heart disease, some cancers, stroke, hypertension, and diabetes.

The United States has gradually shifted its nutrition research focus away from domestic nutrient deficiency questions, and toward biochemical functions of nutrients and undernutrition in developing countries. This shift has left a vacuum in domestic human nutrition research. Today we need to know the answers to several key questions, such as: What specific elements in the American diet contribute to the physiological or biochemical changes which lead to the development of degenerative illnesses? By reorienting Federal nutrition research efforts, the links between diet and these diseases may soon be discovered. Obtaining better knowledge, and conveying it to the public, could reduce or delay the incidence of a number of major ailments.

Research on the links between diet and heart disease has brought widely publicized recommendations to reduce consumption of cholesterol and saturated animal fats. These recommendations have changed the eating habits of many Americans. We are eating more polyunsaturated fats and less saturated fat and cholesterol. In the last 10 years, the mortality rate from coronary heart disease has gone down over 20 percent, although heart disease still remains the leading cause of death. No conclusive cause and effect have been established, but diet, along with exercise and improved medical care, is considered a factor in this decline.

Most human nutrition research in the United States is conducted or sponsored by the Federal Government, primarily through the Department of Agriculture (USDA), the State agriculture experiment stations, and the Department of Health, Education, and Welfare (HEW). Alternatives for redefining and refocusing Government nutrition research have been put forward in recent legislation and several studies. This report assesses these alternatives, along with the state of Federal nutrition research.

The principal finding of this OTA assessment report is that the Federal Government has failed to adjust the emphasis of its human nutrition research activities to deal with the changing health problems of the people of the United States. The consequences of continuing to pursue the present preoccupation with nutritional deficiency diseases will seriously affect the quality of life of present and future generations into the 21st century.

OTA'S assessment explores several optional paths that the U.S. Congress might consider to deal with this finding. Each of these options are discussed from the perspective of the three issue areas critical to the assessment's principal finding. These are:

- 1) Goals and priorities of human nutrition research,
- 2) Definition and funding of human nutrition research, and
- 3) Personnel resource requirements.

CONGRESSIONAL OPTIONS

Congress can elect to maintain the status quo with or without minor shifts or choose among the strategies and options offered by OTA, the General Accounting Office (GAO), and the Office of Science & Technology Policy (OSTP). These alternatives are outlined in table 1. Either alternative has economic, institutional, and health implications.

Congress could choose to maintain the overall status quo by refraining from any action, awaiting the recommendations of the President's Reorganization Project,

Congress could also choose to make small alterations to the existing system without changing its overall priorities and structure. This could be accomplished by amending the Food and Agriculture Act of 1977 to clarify the designation of lead agency for human nutrition research, by developing nutrition research goals and priorities for HEW that complement the goals and priorities outlined for USDA in the Food and Agriculture Act of 1977, by enacting legislation establishing a coordinating mechanism for Federal human nutrition research activities, or by considering legislation to improve data storage and retrieval systems currently in use,

If Congress chooses to change the emphasis of federally funded nutrition research, such change could be based on the strategies and options put forward by OSTP, GAO, or OTA. Before any path is chosen, however, more information is required on Federal expenditures and nutrition research personnel. This could be gained through a GAO audit of Federal expenditures for human nutrition research and a census of research personnel. Based on these findings, Congress could consider increased training grants and fellowships to fill any existing gaps in research personnel,

Table 1.—Alternative Human Nutrition Research Strategies

Components of strategy	Office of Technology Assessment	General Accounting Office	office of Science and Technology Policy
Research priorities	<ul style="list-style-type: none"> • Role of diet in prevention of chronic disease and obesity • Role of nutrition in treatment of disease and support of therapy . Requirements for essential nutrients . Nutrition education and consumer information • Nutritional aspects of food science and food safety . Monitoring nutritional status . Nutrition policy and management 	<p>Research gaps:</p> <ul style="list-style-type: none"> . Knowledge of dietary nutrients required to promote or maintain growth or well-being at various stages and conditions of life . Information on the composition of the current U.S. food supply and the extent that nutrients are biologically available . Evaluation of long-term health consequences of the modern diet . Assessment of the Nation's current nutritional status in terms of dietary excesses and imbalances, as well as deficiencies <p>Research needs:</p> <ul style="list-style-type: none"> . Long-term studies of human subjects across the full range of both health and disease . Comparative studies of populations of differing geographic, cultural, and genetic backgrounds • Basic Investigations of the functions and interactions of dietary components . Updated and expanded food composition data . Improved techniques for assessing long-term toxicological risks 	<ul style="list-style-type: none"> . Effects of nutrition on human health and performance . Food sciences • Nutrition education research . Diet and nutritional status surveillance
Definition and funding	<p>Definition should recognize degree of relationship to stated goals. Before Congress considers appropriations for nutrition research, an audit of Federal expenditures should be performed using a constant definition.</p>	<p>Does not define nutrition research. Instability of federally funded extramural research is a barrier to progress. Endorses development of federally funded regional research centers in conjunction with universities.</p>	<p>Definition includes basic physiological and biochemical research. Establishes FY 1977 research spending at \$116.6 million, Recommends no increases in funding with reallocation of resources to the higher priority areas.</p>
Personnel requirements	<p>No reliable figures are available for numbers of nutrition research scientists in the laboratory or in training. Before a comprehensive research program is established, must consider ability of the field to implement and sustain a program.</p>	<p>There is a shortage of nutrition research scientists.</p>	<p>Not considered.</p>
Research organization	<ul style="list-style-type: none"> • Maintain pluralistic approach with well-defined agency responsibilities . Initiate an interagency committee with rotating chairmanship . Implement a uniform data storage and retrieval system • Improve congressional oversight through joint planning and hearings 	<ul style="list-style-type: none"> • Assign each area to a lead Federal agency • Eliminate unnecessary research . Promote Government-wide research planning, coordination, and reporting 	<ul style="list-style-type: none"> • Coordinate agency activities through the Federal Coordinating Council on Science, Engineering, & Technology • Conduct external reviews of intramural programs • Improve intra-agency coordination . Establish an ad hoc inter-agency nutrition education research committee