

Update: Dietary Goals

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Background:

The Select Committee on Nutrition and Human Needs came into existence in 1968 primarily to develop programs designed to eliminate hunger. By the mid 1970's, Congress was considering terminating the Select Committee on Nutrition and Human Needs. In 1976, the Select Committee began holding hearings on diet related to "killer diseases" and published its first report on July 27, 1976.¹ At a press conference on January 14, 1977, Senator McGovern announced the release of "Dietary Goals for the United States."^{2,3} At this conference, he stated:

"The simple fact is that our diets have changed radically within the last 50 years, with great and often very harmful effects on our health. These dietary changes represent as great a threat to public health as smoking. Too much fat, too much sugar or salt, can be and are linked directly to heart disease, cancer, obesity, and stroke, among other killer diseases. In all, six of the ten leading causes of death in the United States have been linked to our diet."²

The following "Dietary Goals" were established in order to alleviate these perceived problems with the American diet. These goals made the following recommendations:

1. Increase carbohydrate consumption to account for 55 to 60 percent of the energy (caloric) intake.
2. Reduce overall fat consumption from approximately 40 to 30 percent of energy intake.
3. Reduce saturated fat consumption to account for about 10 percent of total energy intake; and balance that with polyunsaturated and monounsaturated fats, which should account for about 10 percent of energy intake each.
4. Reduce cholesterol consumption to about 300 mg a day.
5. Reduce sugar consumption by about 40 percent to account for about 15 percent of total energy intake.
6. Reduce salt consumption by about 50 to 85 percent to approximately 3 grams a day.

These first goals were immediately met with so much controversy throughout the scientific community that additional hearings were held by the Select Committee during the spring and summer of 1977. (The proceedings of these hearings have been published in an 8 volume set on "Diet Related to Killer

Diseases"⁴⁻¹¹ and in "Dietary Goals for the United States—Supplemental Views"¹²)^a.

As a result of the controversy related to the first edition of Dietary Goals, a second edition of Dietary Goals for the United States was published in December, 1977.¹³ With the exception of the addition of one new goal, a brief discussion of alcohol use in the preface and a very brief footnote and minor refinements in three other goals, the second edition is essentially the same as the first edition.

The "Dietary Goals for the United States," December, 1977¹³ contain the following recommendations:

1. To avoid overweight, consume only as much energy (calories) as is expended; if overweight, decrease energy intake and increase energy expenditure.
2. Increase the consumption of complex carbohydrates and "naturally occurring" sugars from about 28 percent of energy intake to about 48 percent of energy intake.
3. Reduce the consumption of refined and processed sugars by about 45 percent to account for about 10 percent of total energy intake.
4. Reduce overall fat consumption from approximately 40 percent to about 30 percent of energy intake.
5. Reduce saturated fat consumption to account for about 10 percent of total energy intake; and balance that with polyunsaturated and monounsaturated fats, which should account for about 10 percent of energy intake each.
6. Reduce cholesterol consumption to about 300 mg a day.
7. Limit the intake of sodium by reducing the intake of salt to about 5 grams a day.

In conjunction with the dietary goals, the Select Committee recommended the following changes in food selection and preparation for the American people.¹³

1. Increase consumption of fruits and vegetables and whole grains.
2. Decrease consumption of refined and other processed sugars and foods high in such sugars.
3. Decrease consumption of foods high in total fat, and partially replace saturated fats, whether obtained from animal or vegetable sources, with polyunsaturated fats.
4. Decrease consumption of animal fat, and choose meats, poultry and fish which will reduce saturated fat intake.
5. Except for young children, substitute low-fat and nonfat milk for whole milk, and low-fat dairy products for high fat dairy products.

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Reciprocal Meat Conference Proceedings, Volume 33, 1980

^aAll volumes are for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402

6. Decrease consumption of butterfat, eggs and other high cholesterol sources. Some consideration should be given to easing the cholesterol goal for pre-menopausal women, young children and the elderly in order to obtain the nutritional benefits of eggs in the diet.
7. Decrease consumption of salt and foods high in salt content.

In order to encourage the achievement of the dietary goals, the Select Committee also recommended:¹³

1. That Congress provide money for a public education program in nutrition based on the foregoing or similar goals. The initial minimum period for the promotion of these dietary goals should be five years

Such a campaign should involve the following five functional areas:

- (1) health and nutrition education in the classroom and cafeterias of our schools;
 - (2) nutrition and health education for school food service workers;
 - (3) nutrition education in the federally-funded food assistance programs;
 - (4) nutrition education conducted by the Extension Service of the Department of Agriculture; and
 - (5) extensive use of television to educate the public in the potential benefits of following certain dietary goals.
2. That Congress require food labeling for all foods, containing the following information to enable the consumer to make informed comparisons between foods:
 - (1) percent and type of fats;
 - (2) percent sugar;
 - (3) milligrams of cholesterol;
 - (4) milligrams of salt;
 - (5) caloric content;
 - (6) a complete listing of food additives for all foods, including those now covered by standards of identity; and
 - (7) nutrition labeling which is currently voluntary.
 3. That Congress provide money to the Departments of Agriculture and Health, Education, and Welfare to jointly conduct studies and pilot projects that would develop new techniques in food processing and institutional and home meal preparation aimed at reducing risk factors in the diet.
 4. That Congress increase funding for human nutrition research in the Department of Agriculture in accordance with the plan of the Agricultural Research Service, contained in Appendix D, and that Congress establish a committee for the coordination of human nutrition research undertaken by the Departments of Agriculture and Health, Education and Welfare.
 5. That the Department of Agriculture and Department of Health, Education, and Welfare form a joint committee to periodically consider the implications of nutritional health concerns on agricultural policy.

Public Controversy:

Publication of the first edition of the "Dietary Goals" re-

sulted in immediate and heated public discussion by both eminent scientists and professional and trade associations. Testimony on the "Dietary Goals" by some 30 individual scientists, nutritionists and dietitians, the American Medical Association and National Dairy Council is published in *Supplemental Views*.¹² Also, hearings requested by the livestock industry and the egg industry are published in *Diet Related to Killer Diseases*, Vol. III and VI⁶⁻⁹. It was these and the other hearings held during 1977^{4,5,7,8,10,11} that resulted in the minor changes in the second edition of the "Dietary Goals."

Still the debate continued. In a supplemental foreword to the second edition of the dietary goals, 3 of the 8 committee members state that "*the value of dietary change remains controversial and that science cannot at this time insure that an altered diet will provide improved protection from certain killer diseases such as heart disease and cancer.*"¹³

Numerous papers by eminent scientists have pointed out what they perceive as serious fallacies, misinterpretations of research, unsubstantial theories and in some cases deceptions in both the first and second editions of the "Dietary Goals." Other equally eminent scientists have endorsed the "Dietary Goals" with enthusiasm. Still other individuals and groups have carefully analyzed the "Dietary Goals" without being strongly pro or con in their point of view.

Among the professional associations who have moderate to serious reservations about the "Dietary Goals" is the American Medical Association which states that:

"... evidence that links the American Diet with the American death rate from ischemic heart disease is suggestive, fragmentary, and even conflicting. The epidemiological data showing associations between diet and cancer of the colon and breast cancer are very tenuous. While epidemiological observations suggest a relation between salt ingestion and hypertension, they fail to support the hypothesis that salt consumption is a major factor in causing hypertension in persons in the United States. Diabetes is a multifactorial disease; its precise etiology has not been established and there are no primary studies that establish any specific dietary factors as diabetogenic. Moreover, patients with diabetes require diets tailored to the individual."

They also conclude that:

"... the evidence for benefits to be derived from the adoption of the dietary goals as set forth in this Report is insufficient and the potential for harm for the radical long term dietary change in 'the American diet' is unknown."

"... the American Medical Association believes that at this time it would not be appropriate to adopt such dietary goals."¹²

In a statement before the Select Committee, Professor E. H. Ahrens, Jr. of the Rockefeller University stated that:

"... Dietary Goals for the public that you have outlined in the belief that the evidence on which those goals are based is solid. To the contrary, I submit that the evidence obtained to date on these issues is provocative and suggestive but seriously flawed in every case. Therefore, to attempt to reshape the eating habits of 200 million people on the basis of that evidence is unwise and premature."¹⁴

Conversely, Latham and Stephenson¹⁵ from the Division of Nutritional Sciences at Cornell University state that:

"There is no evidence whatsoever that consuming a diet consistent with the dietary goals will cause an individual harm. As a matter of fact scientific evidence indicates that such a diet may be beneficial to health, and that our present diets are contributing to disease."

...and an dietary recommendations, the levels specified in the Dietary Goals are a matter of discussion and refinement, but the direction of change is appropriate by all available evidence and carries no nutritional risk. The Dietary Goals, therefore, are appropriate."

For a more complete understanding of the debate regarding the "Dietary Goals," references 17-31 are recommended.

In addition to the debate over the "Dietary Goals," several point by point reviews or criticisms of the Goals have been published. CAST published one of the first reviews of the "Dietary Goals" and concluded that:

"A goal of public education based on sound and generally accepted principles of nutritional health for all segments of the public should, in the long run, prove more realistically productive than a pronouncement of specific dietary goals."

A commentary and point by point review of the Goals by the American Dietetic Association makes the following conclusion:

"The Goals are aimed toward prevention of degenerative diseases. The diseases implicated are of multiple etiology; the interactions among the factors and dietary intakes need further investigation."

The National Live Stock and Meat Board also published a point by point criticism of the "Dietary Goals."³⁴ Most of the criticism in this paper is directed not at the goals *per se* but at many of the statements in the "Dietary Goals" upon which the Goals are supposedly based.

Two very extensive reviews of the role of diet upon disease as suggested by the "Dietary Goals" have been recently published. Under the sponsorship of the American Society of Clinical Nutrition, 9 distinguished scientists reviewed over 500 scientific papers and summarized the current knowledge on the relationship between cholesterol, fat, carbohydrate, calories, alcohol, and sodium and health.³⁵

This group concluded that although considerable evidence supports the relationship between fats, cholesterol and heart disease, the data supporting a diet-heart disease relationship is still the most controversial and least conclusive of the topics reviewed. This is shown by the results of a very arbitrary rating system based upon:

4. Animal models.
5. Biological explanation.

Table 1 gives the relative mean score and standard deviation for 10 relationships voted upon. This group concluded that the available information is not yet completely convincing that there is a strong relationship between diet and heart disease.

Another major review of the research relative to diet and heart disease is "Diet Modification: Can it Reduce the Risk of Heart Disease?" published by the American Council on Science and Health.³⁶ It is similar to the ASCN report in that 25 noted scientists and doctors reviewed the evidence relative to diet and heart disease and published the report. No conclusions relative to the goals are presented but the various schools of thought are given.

Partially as a result of the debate over the role of diet upon disease, three overviews have been recently published in Food Technology. These overviews each contain several papers and are titled: "Nutrition, Diet, and Disease: 1. The Case for Dietary change"^{16,20,37-39}; "Nutrition, Diet, and Disease; 2. Implementation of Dietary Improvements"^{22,40-44}; "Role of Nutrition in Chronic Diseases"⁴⁵⁻⁴⁹. In addition to the above references, references 50-58 on the relationship between diet and health may be of interest.

The numerous references presented in this section are by no means complete but are presented in an effort to demonstrate the extent of the debate and to provide a partial reference for those who desire to read further in this area.

Present Directions:

Not only has the "Dietary Goals" precipitated considerable debate among the scientific community, it has placed the science of nutrition squarely into the middle of national politics. For a review of the politics involved in nutrition, the reader is referred to two articles published in Science^{59,60} and reprinted in Nutrition Today^{61,62}—with editorial comment⁶³.

Since publication of the "Dietary Goals," USDA has accepted the preventive ethic of the "Dietary Goals" and has been named the "lead agency" in the area of nutrition essen-

Table 1. Strength of Evidence Scores On Role of Diet Upon Disease³⁵

<i>Issue</i>	<i>Mean Score</i>	<i>SD</i>
Cholesterol on atherosclerosis	62	20
Dietary fat on atherosclerosis	58	15
Cholesterol and dietary fat on atherosclerosis	73	15
Carbohydrate on atherosclerosis	11	8
Carbohydrate on diabetes	13	17
Carbohydrate on dental caries	87	6
Alcohol on liver disease	88	8
Alcohol on atherosclerosis	13	15
Salt on hypertension	74	9
Excess calories on health and longevity	68	18

tially superseding HEW as the major agency involved in human nutrition. The result has been an increase in funding for nutritional research at both USDA and HEW. In addition, USDA has funding for a Human Nutrition Center (now called "Human Nutrition") headed by Dr. Mark Hegsted which includes a program on infant nutrition at the Baylor College of Medicine, and a center in Boston to study nutritional needs of the elderly.

Also, the USDA has become more active in nutrition education. One publication, "Food"⁵⁴, has done a commendable job toward consumer nutrition education. It is designed, however, to support the "Dietary Goals" in both nutritional instruction and recipes. The 1979 Yearbook of Agriculture⁵⁵ is also directed at consumer nutrition education. Little if any direct reference to "Dietary Goals" are mentioned in this publication.

The latest USDA/USDHEW publication relating directly on "Dietary Goals" is "Nutrition and Your Health"⁵⁶. This publication lists 7 "Dietary Guidelines for Americans" that are very general.

1. Eat a variety of foods.
2. Maintain ideal weight.
3. Avoid too much fat, saturated fat and cholesterol.
4. Eat foods with adequate starch and fiber.
5. Avoid too much sugar.
6. Avoid too much sodium.
7. If you drink alcohol, do so in moderation.

There are no specific recommendations for cholesterol, saturated fat, unsaturated fat, sodium etc. suggested by this booklet as there are in the "Dietary Goals." In fact, there is little in the booklet that nutritionists have not been suggesting for years.

In addition to an increased budget for nutrition research and increased emphasis on nutrition education, several additional programs designed, in part, to implement the "Dietary Goals" have either been planned or are already implemented. These programs include "model menus" from USDA's Human Nutrition Center which will include specific amounts and types of food to help consumers meet the guidelines, new labeling regulations, additional consumer information booklets, and new grading nomenclature for several foods.

It appears at present that USDA will be the major agency dealing with human nutrition but that USDHHS (formerly USDHEW) will also continue to be active in this area. Funds available for human nutrition research will continue to increase and nutrition education will certainly receive much more emphasis than it has in the past. These developments are important and commendable. However, there is still some concern about the future direction of the USDA Food and Consumer Services section under the direction of Carol Tucker Foreman.

One area of concern is the school lunch program over which Ms. Tucker has administrative control. Several changes in the program have been implemented or proposed. One such change already in effect is the requirement relative to the type of milk served in the school lunch program. Schools participating in the USDA school lunch program must now provide skim milk and buttermilk for the students but are no

longer *required* to serve whole milk even though the "Dietary Goals" imply that young children should receive whole milk.

In addition to the concern over possible regulation by the various government agencies, congressmen turned nutritionists have also continued to be heard. One example is house bill number HR6496 sponsored by Congressman Richmond which would provide a 10 cent per lunch bonus to school systems providing a "nutritionally superior lunch." A "nutritionally superior lunch" is defined as a lunch consisting of:

- ½ pt whole or low fat milk
- 2 oz protein
- 2 or more vegetables, salads or both
- 1 slice whole wheat bread
- a fresh fruit for dessert

The lunch must be planned to be low in fat, salt, and sugar and salt and sugar shall not be available on the tables. Competitive foods must be limited to foods which could be included in the lunch and the school could not sell soft drinks, candy, ice cream or chewing gum but must make available for sale 1 fresh fruit, 1 fruit drink and whole or low-fat milk.

This bill has been referred to the committee on education and labor and no hearings are planned. While this particular bill is probably dead, it is an example of an additional move of politics into the science of nutrition.

It is apparent that the recommendations made by the Select Committee to encourage achievement of the "Dietary Goals" are alive and well and are being followed by the various agencies of the government. However, the emphasis on the ability of the "Dietary Goals" to prevent disease has been decreased considerably. The no-risk aspects of the "Goals" seem to be the defense more and more frequently used. To quote Dr. Hegsted, "The question to be asked is not why should we change our diets, but why not? What are the risks associated with eating less meat, less fat, less cholesterol, less sugar and less salt? There are none that can be identified and important benefits that can be expected."^{60,62}

It appears that the scientific and political debate will continue. In April and May of 1980, the GAO, American Health Foundation and National Academy of Sciences issued reports focusing on the "Dietary Goals" or the American diet. The GAO report⁶⁷ generally supports the "Dietary Guidelines" published by the USDA and USDHHS and also makes the following recommendations:

1. more specific dietary guidelines in the areas of fat, cholesterol, salt, sugar, alcohol and fiber;
2. setting up an external expert panel to review controversial diet issues to increase public acceptance of the guidelines;
3. raising the government's priority level for compiling an adequate, timely food composition data base;
4. examination of alternative ways to provide nutrition information.

The American Health Foundation also held an international conference on implementing the "Dietary Guidelines" in New York.⁶⁸ Numerous recommendations were made in the proceedings to increase the rate of implementation of the "Dietary Goals." The recommendations which are probably of most interest to meat scientists and which appear to be the

most radical are the recommendations on the potential for the modification of fats and oils. They are:

1. There should be a strong emphasis on the development of legislation and regulations which are conducive to the development of foods with reduced fat levels and/or substitutions higher in polyunsaturated fats.
2. The agricultural development of more desirable vegetable oils such as greater sunflower seed oil production and reduction in C18-3 fatty acid in soybean oil should be encouraged.
3. A substitution, wherever possible, of more unsaturated fats as food ingredients should be encouraged.
4. Investigations of products and processes to stimulate greater use of unsaturated fats through the use of antioxidants, and nitrogen protection during processing as well as in packaging should be encouraged.
5. Feasibility and economics of substituting polyunsaturated fats for more saturated fats in formulated meats and dairy products should be carefully examined.
6. By judicious selection of fat frying conditions and selection of frying fats, the quantity and composition of the fats in deep-fried products can be materially altered.

Other recommendations involving foods including meat, seafood and egg products and protein analog foods, carbohydrates and sodium levels in foods are given.

The Food and Nutrition Board of the National Research Council has published "Toward Healthful Diets"⁶⁹ which is essentially their version of "Dietary Goals" for the U.S. The position of the Food and Nutrition Board has been much more conservative in recommending changes in the American diet than the "Dietary Goals for the United States." The Food and Nutrition Board's conclusion and recommendations are:⁶⁹

In a sound program of preventive medicine, appropriate nutritional guidance is an essential part of a comprehensive plan involving immunization, improvement of physical fitness, prevention of accidents, and avoidance of cigarette smoking and alcohol abuse. Individual variation in human populations with respect to susceptibility to the chronic degenerative diseases is large; therefore, surveillance of risks by health professionals is recommended for all healthy persons. Each individual should be aware of his personal metabolic risk factor profile, which includes assessment of hyperglycemia, hypercholesterolemia, hypertension, and family history. The Board expresses its concern over excessive hopes and fears in many current attitudes toward food and nutrition. Sound nutrition is not a panacea. Good food that provides appropriate proportions of nutrients should not be regarded as a poison, a medicine, or a talisman. It should be eaten and enjoyed.

In view of these premises, the Board makes the following recommendations to adult Americans. It believes that these guidelines will improve general nutritional status, may be beneficial in preventing or delaying the onset of some chronic degenerative diseases, and incur no appreciable risks. Recommendations for infants and children and for pregnant and lactating women have been made previously (FNB, 1980).

- Select a nutritionally adequate diet from the foods available, by consuming each day appropriate servings of dairy products, meats or legumes, vegetables and fruits, and cereal and breads.
- Select as wide a variety of foods in each of the major food groups as is practicable in order to ensure a high probability of consuming adequate quantities of all essential nutrients.
- Adjust dietary energy intake and energy expenditure so as to maintain appropriate weight for height; if overweight, achieve

appropriate weight reduction by decreasing total food and fat intake and by increasing physical activity.

- If the requirement for energy is low (e.g., reducing diet), reduce consumption of foods such as alcohol, sugars, fats, and oils, which provide calories but few other essential nutrients.
- Use salt in moderation; adequate but safe intakes are considered to range between 3 and 8 g of sodium chloride daily.

Although the Food and Nutrition Board has been involved in recommending healthful diets for the American people since 1941, their statement will likely have little effect on the general directions taken by the USDA since Dr. Hegsted used a major portion of his keynote speech to the Institute of Food Technologists to criticize "Toward Healthful Diets."⁷⁰ It is therefore important that we as meat scientists remain cognizant of the recommendations and regulations involving the "Dietary Goals."

Discussion

A. Milkowski, Oscar Mayer: We recently found out that the school lunch program, for some reason, downgraded their calculations of the amount of available protein from a typical hot dog. This will have the effect of essentially making it uneconomical for schools to provide hot dogs in their lunch program.

J. D. Fox: I am not familiar with all the changes, but one of our members told me he had just received the school lunch guidelines and that there had been very significant changes. Thank you for informing us about the situation with hot dogs.

C. E. Allen, University of Minnesota: I don't care to get involved in the saturated fat cholesterol aspects, but I think the American Meat Science Association should not fail to recognize that there is one thing in most of the reports mentioned—and that is that being overweight or obese is a major medical problem in the United States. There is fairly wide agreement that we have too many calories from fat in our diet. I think it is high time that the animal industry recognize this as a major problem; it is being recognized by two conferences, or symposiums, which involve animal people—namely the Michigan Conference and the recent Iowa State Symposium. There will be recommendations coming out of these that we begin to recognize that we need to reduce fat content in animal products. It is possibly quite easy to do that if we just set our minds to it.

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