Nutrition Guidelines and Education of the Public

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ABSTRACT Guidelines on diet and nutrition serve two important purposes: to guide policy makers and to educate consumers, be they healthy or ill, about healthful ways to eat. Other lifestyle behaviors such as weight, physical activity and smoking status are sometimes also included. The soundness of the resulting guidelines depends on the strength of the evidence attesting to the presence of diet-health relationships. Precedent and the larger environment also have powerful influences. The degree to which guidelines are used will depend on how well they are crafted with respect to communication and how the recommendations are publicized. Holistic approaches rather than single silver bullet approaches that are targeted to reduction in risks of dietary deficiencies, food-borne illnesses and multiple chronic degenerative diseases are probably the most useful for the nutrition education of the public. The Dietary Guidelines for Americans are one example. Such dietary and nutritional recommendations based on sound science, reviewed periodically and communicated effectively have a positive and helpful role in cancer prevention and risk reduction.

KEY WORDS: • aging • quality of life • nutrition • functional status • health-related quality of life

Guidelines on diet and nutrition serve two important purposes, i.e., to guide policy makers and to educate consumers, be they healthy or ill, about healthful ways to eat (1). Other lifestyle behaviors such as weight, physical activity and smoking status are sometimes also included (2). The soundness of the resulting guidelines depends on the strength of the evidence attesting to the presence of diet-health relationships. Precedent and the larger environment also have powerful influences. The degree to which guidelines are used will depend on how well they are crafted with respect to communication and how the recommendations are publicized.

Science base

All nutritional guidelines must have a sound evidence base in science. Fundamental and applied knowledge in the biological sciences that undergird the relationships between nutrition and health have expanded rapidly in past decades (3). Today, to summarize this knowledge, it is mandatory to carry out exhaustive evidence-based reviews of the literature. The strength of the evidence for possible diet-disease relationships must be graded and assessed. Various types of human data and data from experimental animals and other models are useful (4).

One grading system used by the National Heart, Lung, and Blood Institute of the NIH uses a three-point scale. Category A includes the strongest evidence from well-designed, randomized clinical trials with a rich body of consistent evidence. Recommendations based on randomized clinical trials in humans represent the most convincing evidence, especially when they are coupled with other types of evidence from human, animal and in vitro studies and biological plausibility. Unfortunately, for most pressing questions involving diet, few category A studies exist and more are needed. Category B consists of limited randomized trials or interventions, post-hoc or subgroup analyses, or meta-analyses of randomized clinical trials used when the existing trials are few, small, or have inconsistent results. Category C consists of observational or nonrandomized studies. Other types of evidence may also be available, but these are weaker than the three grades and must be regarded as less definitive.

Who should formulate dietary guidelines?

In crafting guidelines, it is important to consider who should make them and what process should be used. In most countries, governments are active players in making dietary recommendations. Professional organizations, voluntary associations and other groups are also involved. The experts involved must include nutritionists, epidemiologists, appropriate clinical subspecialists and communications experts who can evaluate the scientific aspects of the issues involved.

Process

It has often been said that nutrition policy is too important to be left to nutrition scientists. The scientific process of
Focus

Whether the guidelines are directed toward prevention or therapy is also important. The target group also must be considered; guidelines should be targeted to the well public in general or specific subgroups such as those at risk or patients and their families. Each use and target group requires different emphases.

Implementation

The extension of scientific knowledge into practical actionable dietary recommendations involves not only the biological but also the behavioral and communication sciences (6). The framers of guidelines and recommendations tend to be experts in biology, not in syntax or the communication sciences. Their excessively cautious verbiage often clouds intended meanings. At the very least, the meaning of the recommendations to target groups must be examined by consumer testing. Examination of existing food habits and dietary intakes to assess the feasibility of likely recommended changes should ideally be done before, not after, such recommendations are promulgated.

Dietary guidelines should be reviewed and tested before they are finalized to ensure that they are feasible and affordable. Guidelines must be communicated effectively to the target audiences. In the future, more needs to be done in this regard. Factors that are barriers and facilitators to self-management of diet and nutrition also require more attention (7).

Dietary guidelines and nutritional recommendations arise from the specific scientific, social and political contexts of the times in which they were developed; thus they require periodic reassessment and updating (1).

General and diet cancer-specific recommendations

The most widely publicized general dietary guidelines to promote health and prevent disease including cancers is the Year 2000 Dietary Guidelines for Americans (8) (Table 1). Compared with earlier editions of the Dietary Guidelines, increased emphasis is given to the consumption of fruits and vegetables and whole grains. In addition, emphasis is paid to control of weight, physical activity and exercise, decreasing dietary fat and saturated fat, and increasing foods high in dietary fiber. Nutrient supplements are suggested but only for specific conditions. Other countries (Western and non-Western) also emphasize decreasing both diet-related chronic disease and deficiency disease risks (3,9). Two other widely disseminated sets of guidelines, now over a decade old, were those generated by the Food and Nutrition Board’s Committee on Diet and Health in 1989 for Americans (10) and those produced for a global audience by the WHO (11).

The first cancer-specific guidelines issued by an authoritative group were those of the Committee on Diet, Nutrition, and Cancer of the National Academy of Sciences in 1982 (12) (Table 1). Later the American Cancer Society developed guidelines, which were revised in 1997 (13). These guidelines provided more specific advice on diet, including encouragement of physical activity, limitation of consumption of high-fat meats and encouragement of a grain-based diet. More recent nutrition guidelines that deal specifically with preventively oriented recommendations for diet, nutrition and cancer include those published by the World Cancer Research Fund and the American Institute of Cancer Research (AICR) (14). The AICR guidelines are designed to be holistic, also taking into account other diseases that are linked to diet, and are designed to be updated as new evidence accumulates. Unlike the Dietary Guidelines, they are designed for a global audience. A more recent set of AICR guidelines distilled from the very specific larger set simplifies these messages into some actionable statements that are particularly important in the United States (15) The American Cancer Society guidelines, published several years before the AICR report, are similar to them in most respects (13). Cancer experts recently provided authoritative reviews of recent evidence that may be useful in
The evidence on therapies or dietary treatments that are ineffective or harmful should be summarized, reviewed and made available to patients who want to have it. Alternative and complementary diet regimens must be judged by the same standards of efficacy and safety as other treatments. They should also provide symptomatic relief and improve quality of life while not adversely affecting outcomes. Health care providers do no service to patients by telling them that nutritional matters are up to them while providing no guidance with respect to diet, use of supplements and the like. “Harmless” nutritional therapies can be harmful in ill patients.

The evidence that various dietary regimens such as dietary supplements, whole foods, macrobiotics and raw foods improve either prognosis or quality of life in symptomatic patients is weak. More blind, randomized studies of such treatments and conventional dietary measures on quality of life and medical outcomes are warranted because many patients are using these treatments. Other lifestyle strategies as well as more effective management of pain may provide more symptomatic relief than that provided by diet.

### Needs for the future

Food science and technology are now sufficiently advanced to permit the development of hypernutritious foods containing large amounts of various nutrients and nonnutrients (21). Various dietary supplements are now widely available (22). These create numerous policy issues. Such foods and supplements may have to be considered in future dietary guidelines.

Guidelines targeted to specific population groups may be helpful for educational purposes. As our knowledge of gene-nutrient interactions expands, tailored dietary advice may be possible; at present it is not a reality (23).

Beneficial dietary constituents must be identified in foods before studies can be done to link diet to health and dietary guidelines can be crafted to address them (24). Many phytochemical and some zoochemicals in foods with potentially beneficial effects are now being identified and are of great interest. Some may prove to be important in cancer prevention, but food composition databases are too incomplete to provide the types of definitive data required to link their presence in diets to cancer and to develop dietary recommendations. Better food composition data will be critical if more specific dietary guidelines that include some of these compounds are to be developed.

Science is constantly developing; therefore, all guidelines must be reexamined periodically in the light of the totality of evidence. In addition, surveillance and reexamination provide the basis for further research and action, as a recent supple-
tment devoted to the Dietary Guidelines for Americans demonstrated (25). On a worldwide basis, sustainability, environmental concerns, preservation of traditional cuisines and food problems must also be considered in formulating guidelines for the public.

In conclusion, holistic approaches rather than single silver bullet approaches that are targeted to reduction in risks of dietary deficiencies, food-borne illnesses and multiple chronic degenerative diseases are probably the most useful for the nutrition education of the public. The Dietary Guidelines for Americans are one example. Such dietary and nutritional recommendations based on sound science, reviewed periodically and communicated effectively have a positive and helpful role in cancer prevention and risk reduction.

LITERATURE CITED