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What can and what cannot be achieved by nutrition education? A challenge for the 1990s

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Nutrition education can be defined in many different ways. Nutrition education is the development of an understanding capable of producing decisions and actions. It is the meaningful interpretation of knowledge and not merely the acquisition of information (Roberts, 1978). Nutrition education can change knowledge, attitudes, beliefs and behaviour. Nutrition education, *per se*, cannot change the food supply or the unsubstantiated claims and misleading information put forth by some advertising. To change the larger environment, working through the political process is necessary.

One consistent characteristic of nutrition education is that it is viewed as a form of planned change that involves a deliberate effort to improve nutritional well-being by providing information or other types of educational and behavioural interventions (Sims, 1987). One fundamental feature of nutrition education is its emphasis on dietary behaviour change as a result of the educational intervention. Guthrie (1978) has suggested: 'If nutrition education is to be effective, it must focus on communicating clearly defined pieces of information with a goal of influencing behavior'.

Successful nutrition education has four key components: (1) teaching valid information, (2) understanding and responding to public attitude and beliefs, (3) changing behaviour to alter dietary practices, and (4) marketing the nutrition message in today's marketplace.

TEACHING VALID INFORMATION

Teaching valid information requires agreement and validation about knowledge in nutrition. Dietary recommendations, as primary sources of nutrition information in the United States, date back to the early 1900s. The United States Department of Agriculture's (USDA) first food guide was published in 1917 and contained five food groups: flesh foods, starch foods, fat foods, watery fruits and vegetables, and sweets (Langworthy, 1916; Hunt, 1917). The message to the public was 'eat a variety of foods'.

In the 1920s vitamins and minerals were discovered and their roles and function defined. Nutrition educators identified specific foods as sources of these new nutrients.

Revisions in government food guides reflected this new information and in 1933 a food guide with twelve food groups at four different cost levels was published (Stiebelling & Ward, 1933).

During World War II, two guides used extensively by nutritionists were The National Wartime Nutrition Guide (War Food Administration, Nutrition and Food Conservation Branch, 1943) and its revision, the *National Food Guide*, known as 'The Basic Seven Food Group Guide' (Bureau of Human Nutrition and Home Economics, Agricultural Research Administration, 1946). In 1958 it was revised by the USDA to four basic food groups and used to educate the American public. The publication was entitled, *Food For Fitness – A Daily Food Guide* (United States Department of Agriculture, Agricultural Research Service, 1958). This guide collapsed the three fruit and vegetable groups of the 'basic seven' into a single group and eliminated the butter and margarine group. Today it is still a very popular nutrition education tool in the United States.

During the 1950s and 1960s deficiency diseases had become less of a problem than diseases of affluence, such as heart disease and obesity. However, official recognition of this shift was slow to emerge. In 1977 a United States Senate Select Committee chaired by Senator George McGovern published a set of recommendations entitled *Dietary Goals for the United States* (United States Department of Agriculture, 1977). These recommendations focused on eating patterns which would reduce the risk of nutritionally related diseases for the general public. This publication stirred controversy because the authors were consumer groups, health providers, and others interested in nutrition and food programmes; not nutrition scientists.

The Federal government responded to this controversy by appointing a select group of scientists, research nutritionists and other academic professionals to develop prudent dietary advice for the US populace. The guidelines from this select group were published in 1980 and revised in 1985 (United States Department of Agriculture & United States Department of Health and Human Services, 1980, 1985). They are specifically designed for healthy Americans. The first two guidelines form the framework for a good diet: (1) eat a variety of foods that provide enough essential nutrients and (2) eat adequate amounts of energy to maintain desirable weight. The five remaining guidelines describe characteristics of good diets. They recommend consuming adequate amounts of starch and fibre and avoiding too much fat, cholesterol, sugar, sodium, and alcohol.

Today in the United States we have reached a point of general consensus on dietary recommendations for healthy adults. In the past 2 years a number of major documents have been published which speak with one voice with only a narrow range of disagreement.

The Surgeon General's Report on Nutrition and Health (United States Department of Health and Human Services, 1988) is an example of this same message regarding risk reduction. The 700-page report reviews the scientific evidence relating to dietary excesses and imbalances and makes recommendations consistent with the *Dietary Guidelines for Americans* (United States Department of Agriculture & United States Department of Health and Human Services, 1980, 1985) regarding limiting fat, dietary cholesterol, sodium and alcohol.

The National Research Council of the National Academy of Sciences in the United States recently published its recommendations on diet in *Diet and Health: Implications for Reducing Chronic Disease Risk* (National Research Council, 1989). It complements the Surgeon General's report (United States Department of Health and Human

Services, 1988) by providing an in-depth analysis of the overall relationship between diet and the full spectrum of major chronic diseases. The American Heart Association (1987) guidelines, the recently developed National Cholesterol Education Program from the National Heart, Lung and Blood Institute (United States Department of Health and Human Services, National Institute of Health, 1988) and the recommendations of the American Cancer Society (1984) are other examples of current nutrition education developed for the American public.

UNDERSTANDING AND RESPONDING TO PUBLIC ATTITUDE AND BELIEFS

To develop appropriate and effective programmes, the educator must recognize and respond to public opinion. An example of a change in attitude and beliefs by both the public and physicians was observed in the Cholesterol Awareness Survey conducted jointly by the National Institute of Health and The Food and Drug Administration.

The 1983 public survey examined 4000 adults to assess attitudes and knowledge about the risk of heart disease from high blood cholesterol levels and the public's efforts to lower blood cholesterol levels (Schucker *et al.* 1987a). In 1984, results from the Lipid Research Clinic's Coronary Primary Prevention Trial were published, which showed that a reduction in blood cholesterol reduced coronary heart disease. A follow-up public survey was conducted in 1986 to assess the impact of this new information on consumer attitudes.

The percentage of adults who believed that reducing high blood cholesterol levels would have a large effect on heart disease increased from 64% in 1983 to 72% in 1986. The importance attached to reducing high blood cholesterol levels approached the level of importance attributed to reducing smoking and high blood pressure. The number of adults reporting that they had their cholesterol level checked increased from 35% in 1983 to 46% in 1986. In both surveys, diet change was the most frequently chosen way to control blood cholesterol levels and the reduction of dietary fat was believed to be as important as the reduction of dietary cholesterol. By 1986, 23% of adults reported that they made dietary changes specifically to lower their blood cholesterol level, an increase of 14% from 1983.

A survey of physicians was also conducted in 1983 and the spring of 1986 (Schucker *et al.* 1987b). A national probability sample with equal numbers in the speciality areas was identified; cardiologists and internists in one area, and general and family practitioners in the other. Physicians believing that reducing high blood cholesterol levels would have a large effect on heart disease increased from 39% in 1983 to 64% in 1986. Whereas in 1983, physicians attributed considerably less preventive value to reducing the cholesterol level than to reducing blood pressure or smoking, this disparity was substantially smaller in 1986. The median range of blood cholesterol at which diet and drug therapy was initiated was significantly reduced.

In 1986, 87% of physicians surveyed believed that medical evidence warranted the recommended treatment levels set forth in the 1984 National Institutes of Health Consensus Conference on Lowering Blood Cholesterol, while 59% believed the treatment goals were feasible in routine practice. These changes indicate that by 1986, physicians were more convinced of the benefit of lowering high blood cholesterol levels and were treating patients accordingly.

CHANGING BEHAVIOUR TO ALTER DIETARY PRACTICES

Recent trends show that nutrition education has made an impact on the US diet. Findings produced by the USDA provide information on changes in food availability which reflect food selection (United States Department of Health and Human Services, 1988). Meat, poultry, and fish increased by 10% since 1965–67, with poultry, fish and shellfish showing the greatest increase. Red meat increased substantially after World War II, peaking in 1970, but has declined to approximately 1965 levels.

Egg availability reached its peak about 1950. During the past 20 years, it has declined by 18%: this is equivalent to a decrease of one egg/week per person (from about six to five eggs/week).

The availability of fluid whole milk declined by 48% from 1965–67, while available levels of low-fat milk and milk products, including yoghurt, more than doubled from 1965–7 to 1982–5.

Availability of fats and oils increased by approximately 23% since 1965–7, primarily due to a 77% increase in salad and cooking oil and a 36% increase in shortening. Availability of total animal fat declined by 20% since 1965–7, although a slight increase has been noted in the past few years. During the 1970s and 1980s vegetable sources of fats and oils increased from 67 to 79%, in marked contrast to the first half of the century when animal sources provided most of the fats and oils.

Vegetable and fruit availability increased from 1965–7 by 19 and 7% respectively. This was due to the increased availability of fresh produce in the market. There was, however, no consistent change in availability of legumes or starchy vegetables.

In 1985, the USDA conducted the first Continuing Survey of Food Intakes by Individuals (United States Department of Agriculture, 1985, 1986). Fat contributed 36% of energy for men and 37% of energy for women (19–50 years of age), compared with 40% of energy for both in 1968. Dietary cholesterol intake has also decreased significantly from an average of 550 mg in 1968 to 435 mg (men) and 304 mg (women) in 1985. However, although the total fat and dietary cholesterol appear to be on the decline, Americans now weigh more than ever. Metropolitan Life Insurance Company (1959) values reveal that 24.5% of adults were overweight. In 1983, 27.1% of the US population was considered above desirable body-weight (Metropolitan Life Insurance Company, 1983).

MARKETING THE NUTRITION MESSAGE IN TODAY'S MARKETPLACE

To be successful in marketing the message of nutrition, nutritionists and other health-care professionals need to identify and understand the marketplace.

Industry has always depended on knowing and responding to their market. Nutritionists must examine and react to demographic surveys. In the US, as in many other industrialized countries, demographics reveal a growing elder population. In addition, 30% of all American households are headed by a single person. Of US women of child-bearing age, 75% work outside of the home; this one segment is more than fifty million consumers.

Market surveys not only educate nutritionists about who the consumer is, but what they want. In 1988 the Food Marketing Institute published a study on the priorities consumers use to select a food product. In descending order consumers identified taste,

product safety, nutrition, price, storability and ease of preparation. Although convenience was listed last in this particular survey, other surveys have ranked it as high as the second most important consideration in selecting a product.

In the real world, people do not shop for the basic four food groups. According to 'What America Eats', a survey by MRCA, a Market Research Group in Chicago, Illinois, the trend is toward convenience – frozen foods, presweetened cereals, and prepared and packaged bakery products. In addition, nutritionally oriented items such as yoghurt are growing in popularity as are snack foods. Television and cinemas have been associated with increased snacking. Recently snack items have had an additional jump in sales in part due to an increase in video cassette recording (VCR) viewing. Nearly 60% of American households own a VCR. This pattern reinforces the consumption of snack items as well as convenience foods that can be easily popped into the microwave oven, present in 70% of US homes.

It is imperative that nutritionists educate the consumer to purchase the foods they desire in ways that the food exists for them. In US supermarkets the fresh fruits, vegetables, dairy and meat, fish and poultry items are found on the store perimeters. However, the consumer tends to shop in the centre aisles, where prepackaged, heavily processed, convenience foods are located. Nutritionists must work with industry to develop products which are consistent with the present dietary guidelines and to ensure that easy-to-read, appropriate nutrition labelling appears on the product.

NUTRITION EDUCATION IN THE 1990s

The past 10 years have brought a better understanding of the role of nutrition in the development and maintenance of good health. A number of important studies have been completed which have resulted in a general consensus from the scientific community about the focus for nutrition education and the extent to which nutrition can reduce or reverse, or both, chronic health problems. A change in attitude about health issues and the significance that the consumer places on nutrition information has gained attention and importance over the past few decades. Dietary practices have been altered, as evidenced by a decline in the intake of dietary cholesterol and the percentage of energy from fat. However, more work is required to meet our goals.

The challenge to nutrition education in the 1990s is in two areas: (1) designing effective intervention strategies in a variety of settings, and (2) conducting research to determine the behavioural and health effects of the best available interventions.

To plan effective intervention strategies, nutrition and health-care educators must arm the consumer with skills to become effective in the marketplace. More work is required to expand the commitment to promoting healthy eating patterns in a variety of sectors, such as work-site health services, schools and communities. Each of these constituencies has an important and vital contribution to make toward improved nutritional status and good health. A 1985 US survey found that 65% of companies with fifty or more employees offer some type of employee health promotion programme. However, only 16.8% of the companies had nutrition education activities and only 14.7% offered weight-control programmes (Windom *et al.* 1987). Recent growth in the area of work-site health promotion underscores the nutrition education opportunities in this setting.

In addition to the workplace, settings for nutrition education include all types of community organizations, schools, health-care settings, food stores, and restaurants.

These settings allow for the greatest possible exposure to nutrition messages and combine application of educational and environmental strategies. Educational strategies involve providing appropriate and useable information, motivation, and behaviour change techniques directly to individuals or groups. Environmental strategies encourage positive nutrition behaviour by providing opportunities for action and removing barriers to following a healthy diet (Sims & Smiciklas-Wright, 1978). Environmental strategies can reach entire populations efficiently. They include approaches such as making available healthy foods, providing point-of-purchase nutrition information and establishing policies that support risk-reduction practices.

Schools offer a particularly exciting and unique setting for nutrition education. It is generally agreed that many cardiovascular disorders have their origin at an early age. Education influences the lifestyle of an individual and if started early enough, could influence the course of a number of diseases.

Research must be designed to effectively evaluate the behavioural and health effects of the interventions. Some programmes will not be appropriate for all settings. Careful data collection and analysis must be completed for effective and appropriate delivery of the various nutrition education programmes.

Nutrition education's challenge in the 1990s is to develop a dynamic partnership with a visible spirit of cooperation among public, private and voluntary sectors, and among health educators, businessmen, scientists, market researchers, and food technologists. Small successes and significant progress have been made; however, much work remains to meet the challenges that lie ahead.

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