Free Radicals: The Pros and Cons of Antioxidants

Consumer Perspectives about Antioxidants

Cheryl Toner

International Food Information Council, Washington, DC 20036

EXPANDED ABSTRACT

KEY WORDS: • attitudinal research • functional foods • antioxidants

The obesity epidemic, issues around what constitutes the “perfect diet,” and emerging science on the health benefits of foods and food components have reached epic proportions, which affects efforts to communicate with patients and other consumers about healthful eating (1). Specifically, consumer perceptions of antioxidant health effects and food sources are influenced by these factors, and can be considered within the broader context of “functional foods,” or foods that may have health benefits beyond basic nutrition.

The International Food Information Council (IFIC) initiated quantitative consumer attitudinal research related to functional foods in 1998, and repeated the survey in 2000 and 2002. Telephone surveys were utilized for data collection because higher levels of nonresponse bias are typically associated with alternative methodologies, such as mail or Web surveys. Participants in the telephone surveys were selected using random-digit dialing to phone numbers in the continental United States. Participants included 1004 adults (18 y or older) yielding a sampling error of ±3.1 percentage points at the 95% confidence level. To ensure that the survey results were representative of the target population, data were weighted to reflect the U.S. Census distributions (2).

Results in 2002 indicated that Americans had positive attitudes about nutrition and health, with 90% feeling they had moderate to great control over their health and 71% stating that nutrition plays a great role in maintaining or improving health (versus 63% for exercise and 41% for family health history). Ninety-three percent believed that certain foods, food components, and dietary supplements have health benefits that may help to reduce the risk of diseases or other health concerns, and 85% wanted to know more about the health benefits of food.

In general, from 1998 to 2002, consumers demonstrated awareness of the role of food in cardiovascular disease and cancer. These conditions are identified as “top health concerns” (in 2002, 50% named cardiovascular conditions, including heart attack, stroke, high cholesterol, and blood pressure, and 30% named cancer). The foods that consumers identified as potentially reducing the risk of disease included broccoli (9%); fish, fish oil, and seafood (9%); green leafy vegetables (9%); oranges and orange juice (9%); carrots (8%); garlic (7%); fiber (6%); milk (6%); oats, oat bran, and oatmeal (6%); and tomatoes (6%).

Consumer awareness of specific health condition–food component relations was in part based on the length of time the public had been exposed to the message. For example, in 2002, 79% of consumers were aware of the association between calcium and osteoporosis, compared to 54% for antioxidants and cancer, and 35% for soy protein and heart disease. The calcium– osteoporosis association had been communicated to consumers consistently over time from a variety of trusted resources. In comparison, the antioxidants–cancer association was just emerging.

Belief in efficacy was more clearly tied to the quantity of information consumers had been exposed to regarding a particular relation. Belief in efficacy was measured using a 5-point Likert scale measuring respondents’ perceptions of antioxidant efficacy (“not at all effective,” “probably not effective,” “may or may not be effective,” “probably is effective,” or “definitely is effective”). Level of awareness was measured by asking participants if they had heard “a lot,” “some,” “a little,” or “nothing at all.” Those who had heard a lot about the relation between antioxidants and cancer were significantly more likely to believe in the efficacy of antioxidants for cancer risk reduction than those who had heard only some or a little (P < 0.05).

The effectiveness of a health message is also potentially affected by knowledge regarding food sources. Antioxidant food sources are not well known; this is named by consumers as a barrier to efforts to increase consumption of antioxidants (12%). In comparison, consumers are overconfident in the presence of calcium in the diet due to its presence in numerous familiar foods. Knowledge of and perceived seriousness of a health condition also affects message effectiveness. Health claims that specifically name serious health conditions, such as

1 Presented as part of the conference “Free Radicals: The Pros and Cons of Antioxidants,” held June 26–27 in Bethesda, MD. This conference was sponsored by the Division of Cancer Prevention (DCP) and the Division of Cancer Treatment and Diagnosis, National Cancer Institute, NIH, Department of Health and Human Services (DHHS); the National Center for Complementary and Alternative Medicine (NCCAM), NIH, DHHS; the Office of Dietary Supplements (ODS), NIH, DHHS; the American Society for Nutritional Science; and the American Institute for Cancer Research and supported by the DCP, NCCAM, and ODS. Guest editors for the supplement publication were Harold E. Seifried, National Cancer Institute, NIH; Barbara Sorkin, NCCAM, NIH; and Rebecca Costello, ODS, NIH.

2 To whom correspondence should be addressed. E-mail: toner@ific.org.
cancer, demand greater attention from consumers than health claims that deal with osteoporosis, for example.

Recently, the FDA announced the Consumer Health Information for Better Nutrition initiative to make information available on food labels as it is emerging—provided the “weight of the scientific evidence” supports the claim, and the FDA approves the claim (3). Since the FDA announced the task force report for this initiative in July 2003, the first qualified health claim for conventional foods was approved, specifically for tree nuts and peanuts and reduced risk of heart disease. This development will provide both opportunities for improved access to emerging science information and challenges in communicating that information accurately and responsibly.

In focus groups conducted by IFIC in 2002, another emerging issue that may involve antioxidant health effects was presented to consumers. The groups were introduced to the concept of genetic variability as a factor to consider when determining the right foods or supplements to use for health benefits. Consumers expressed some awareness of the concept, but were cautious about privacy concerns surrounding information about their personal genetic makeup. The word nutrigenomics was not perceived to be a consumer-friendly term, and researchers should be aware of the sensitivity of such technical terms. Personalized nutrition was easily understood and, although less specific to the application of genetic information to nutrition science, is more appropriate for consumer communications.

Ongoing assessment of self-reported attitudes, knowledge, beliefs, and behavior provides insight into effective strategies for communicating with consumers. Attitudinal research does not replace observational data aimed at measuring actual intake and behavior. However, comparison of self-reported and actual behaviors may help to elucidate perceptions that create barriers to behavior change.

**LITERATURE CITED**