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## Development and Supermarket Field Testing of Videotaped Nutrition Messages for Cancer Risk Reduction

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### Synopsis .....

*This article describes the development and field testing of five 1-minute videotaped nutrition public service announcements focusing on the role of nutrition in reducing cancer risks. Topics include dietary fat, vitamin A, vitamin C, cruciferous vegetables, and fiber.*

*Produce departments in two large supermarkets were the test sites. Videotapes were shown over a*

*3-day period for a total of 20 hours in each store. Of the total 1,196 customers intercepted, 1,050 (88 percent) agreed to be interviewed to determine whether they had viewed the video; the impact of the video on nutrition awareness, diet, and immediate purchases; and their perception of the stores' providing nutrition information.*

*Only 26 percent of the customers viewed the videotapes. The main reason cited for nonviewing was lack of time. Forty-three percent of viewers stated that this was new information to them, and 21 percent said they would change their eating habits as a result of seeing the tape. Seventeen percent of viewers stated that they actually purchased foods recommended in the tapes. Of all the customers surveyed, 40 percent said they would shop more often at a supermarket that showed nutrition videos.*

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**O**VER THE PAST DECADE, a compilation of both laboratory and epidemiologic research has shown that eating patterns are linked to the development and prevention of some cancers (1-6). Cancer is the second leading cause of death in the United States. It has been estimated that 35 percent of all cancer mortality is related to diet (7). The National Research Council of the National Academy of Sciences (3), the American Cancer Society (8), and the National Cancer Institute (9) have all issued dietary recommendations aimed at reducing cancer risks.

"The Surgeon General's Report on Nutrition and Health" (1) suggests that research and surveillance of special priority issues related to the role of diet in cancer should include investigations into the methods of dietary guidance that are most effective in helping people improve patterns of food intake (4). Among strategies to encourage positive nutrition behaviors, environmental interventions are an important part of efforts to improve the health of populations (10). Environmental approaches, such as point-of-purchase (P-O-P) nutrition information, can reach large segments of the population at a relatively low cost, yielding a great health promotion potential.

Marketplace interventions have shown that while P-O-P nutrition education can influence knowledge and attitude, changes in consumer purchasing behavior are more difficult to achieve (11-14). Light and coworkers (15) have suggested that although consumers are interested in improving their health, it is clear that health information "must be packaged in ways that fit in with busy schedules, competing interests and a reluctance to make drastic lifestyle changes."

Most supermarket interventions that have been evaluated have studied print media. Reviewers of these studies have found mixed results concerning nutrition knowledge and purchase behavior (16, 17). In one study by Friend and coworkers (18), only 2.4 percent of supermarket customers who passed a printed nutrition display actually looked at it. Achabal and coworkers (19) showed that P-O-P signs in a supermarket produce department had little or no effect on purchase behavior; however, shoppers gave higher ratings to stores using nutrition signs. Mayer and associates (16), in a review of P-O-P nutrition interventions, recommended that because in-store interventions must compete with many other nonnutritional displays, exposing customers to more salient and powerful

Table 1. Reasons given by grocery shoppers for not viewing in-store nutrition videotape

Reason	Number	Percent
Did not have time .....	256	33
Did not notice display.....	190	24
Gave no reason.....	136	17
Did not pay attention to tape .....	74	9
Not interested.....	53	7
Did not shop in produce aisle .....	45	6
Other <sup>1</sup> .....	22	3
Could not hear or see display .....	3	<1

<sup>1</sup> Already knew information, do not watch television.

Table 2. Decisions about diet changes made as a result of viewing in-store nutrition video

Diet change decision	Number	Percent
Diet change not specified .....	18	32
Reduce fat and cholesterol.....	18	32
Eat more fruit or vegetables.....	13	23
Eat more varied diet.....	6	11
Include more fiber.....	1	2

cues such as video displays should be evaluated further.

Public service announcements (PSAs) are recognized by the public as valuable, credible sources of health information (20). While PSAs alone are not going to create long-term behavior changes, they can raise awareness of nutrition issues, prompt audiences to stop and think about nutrition choices, and be combined with other formats to supplement nutrition education.

The objective of this project was to develop and evaluate five 1-minute videotaped PSAs focusing on the role of nutrition in cancer risk reduction to determine impact on grocery store shoppers' (a) awareness of the topic, (b) diet, and (c) immediate purchasing behavior.

## Methods

Using the dietary recommendations of the American Cancer Society (8) as a basis, a series of scripts were composed for the production of five 1-minute videotaped PSAs with the theme of diet and cancer risk reduction. The videos combined visual, voice, and written messages and used professional home economists as actors. The series, titled "Learn to Eat Smart to Reduce Cancer Risk," included the topics of vitamin A, vitamin C, cruciferous vegetables, fiber, and fat. The contents addressed the role of each nutrient and

tips for inclusion of food sources in the diet. The tapes were produced through our university's Academic Computing and Instructional Technology Department.

A survey was designed to field test the videotapes to determine their impact on consumers' nutrition awareness, diet, immediate food purchases, and perception of stores' providing nutrition education. Human subjects clearance was obtained prior to beginning the survey. The questionnaire was developed and pretested on a small sample in the University Nutrition Clinic. The intercept interview technique was used to obtain information from grocery store customers.

Two Shop-Rite grocery stores in suburban areas of New Castle County, DE, were chosen as locations for field testing. Their local ownership permitted expeditious access to the sites. Eight human resource majors served as interviewers and three senior nutrition majors served as research assistants for the study. Four interviewers and one assistant were assigned to each store at any given time during the course of the survey. Research assistants managed the in-store survey operation. All interviewers and research assistants attended an intensive 2-hour training session conducted by the investigators prior to the study.

Days and hours for showing the video were selected to coincide with peak shopping times to assure a high volume of customer traffic and involve the greatest customer mix—Thursday and Friday, 4 p.m. to 7 p.m., and Saturday, 1 p.m. to 5 p.m. Monitors for viewing were placed in a central location in each produce department, positioned either at eye-level on a cart or on a shelf over the produce approximately 6 inches above eye-level. Videos were shown in the produce departments on a continuous basis. The produce department was chosen because the customer first encountered this area upon entering either store. Also, many foods discussed in the videos were fruits and vegetables because these are good sources of vitamin A, vitamin C, and fiber. The theme changed every half-hour.

Three interviewers were positioned at the primary exits of the produce department to intercept as many incoming customers as possible. The fourth interviewer was positioned in either the frozen food section (presumably the last place a shopper would go before checking out), or in the checkout area in an attempt to intercept customers who may have been missed in the produce area.

Customers were intercepted and interviewed using a brief (eight items) questionnaire to determine

whether or not they had viewed the videotape; the impact of the videotape on nutrition awareness, diet, and immediate purchases; and perception of the stores' providing nutrition information. All customers who participated in the survey were offered an incentive gift (orange peeler).

Data analysis was completed using the SPSSx statistical package (21). Descriptive statistics and chi-square analysis were utilized.

## Results and Discussion

A total of 1,196 shoppers were intercepted; 1,050 (88 percent) agreed to be interviewed. The majority of participants (77 percent) were females. This was expected since women still do most of the shopping for groceries (22). The number of customers who viewed the videotapes was 271 (26 percent). This percentage compared favorably with a study mentioned earlier in which only 2.4 percent of shoppers who encountered a print display stopped to read it (18). Shoppers in this study who indicated they had not seen the videotapes were asked to explain why (table 1). Lack of time was the predominant reason for nonviewing.

A majority of respondents, 248, who had viewed the videos was able to identify the topic as being related to nutrition and cancer. More specifically, 119 viewers (44 percent) correctly identified the nutrient presented or theme of the videotape being shown. Only 23 viewers (8 percent) were unable to identify any related topic. Among the "other" responses provided by the remaining 48 percent were "nutrition," "nutrition and cancer," "food and cancer," and "fruits or vegetables."

Only 43 viewers (16 percent) stated the information presented was new to them. Yet, 56 viewers (21 percent) said they would change their eating habits as a result of seeing the videotape, possibly indicating that prompting old information may also have an impact on behavior. When asked to identify the changes they would make, responses reflected the videotape themes (table 2).

Forty-six viewers (17 percent) answered affirmatively to the question, "Will you or did you purchase any specific foods today because of the videotape?" Table 3 presents responses when viewers were asked to specify what they would or did purchase. Fifty-nine percent of these 46 chose fruits or vegetables.

Those shoppers who expressed a willingness to modify their diet after viewing the videotape appeared to act on their intentions. There was a statistically significant relationship ( $\chi^2 = 3.54$ ;

Table 3. Foods purchased as a result of viewing in-store nutrition videotape

Foods purchased	Number	Percent
Did not identify specific food . . . . .	18	39
Cruciferous vegetables . . . . .	10	22
Fruit or vegetables for fiber . . . . .	9	20
Vitamin C fruits . . . . .	6	13
Vitamin A vegetables . . . . .	2	4
Low fat foods . . . . .	1	2

$P < .05$ ) between expression of willingness to change diet and immediate purchases made.

Comments offered varied for the 209 who said they would not change their diet. Nineteen respondents stated they had already made these changes, and 23 thought they already ate well. Other responses included "I'm a diabetic," "I follow another diet," and "My doctor didn't advise me to change." One person stated simply, "I just won't change."

Of the 1,050 shoppers interviewed, 402 (38 percent) had or have had an immediate family member with cancer. The presence of cancer in one's immediate family did not appear to be impetus for making diet changes. No relationship was noted between the presence of cancer in the family and expression of willingness to alter one's diet ( $\chi^2 = 0.58$ ;  $P < .45$ ).

Shoppers were asked whether they would shop more often at a store that showed videotapes as a source of nutrition information. Of the 423 (41 percent) who said "yes," many did so even though they had not seen the in-store video display. Some additional supportive comments were also offered. They described this service as important, educational, helpful, and interesting. Several said it was an "added plus" and suggested menus, recipes, and food demonstrations as well. Of those who answered "no" to this question, some stated time to be a problem, some were influenced only by food prices, and others said they obtained their nutrition knowledge from other sources.

Eight respondents offered a qualified "yes." Two shoppers noted that they want other services as well, and they expected good prices or products. Three persons said videotapes would influence their decision if they were shopping alone. Time, a recurring theme, was cited by three shoppers who agreed their choice of stores would be influenced by nutrition videotapes if they had more time.

Because this was a convenience sample consisting of volunteers, inherent biases may exist. Types of bias include sampling bias due to days and hours

chosen to present the videos. Also, results were based on self-reporting, which is another source of potential bias.

## Conclusions

Results of field testing the "Learn to Eat Smart" videotapes demonstrate that the tapes should prove a useful resource for increasing public awareness of nutrition and cancer risk reduction. Most viewers needed to see the 1-minute videotape more than once to correctly identify the theme. A single viewing does not constitute a nutrition education program, but the usefulness of the videotapes might be enhanced if used as a tool to be incorporated as part of a total program. The videotapes did have some impact on public awareness of the association between diet and cancer, diet change decision, and immediate purchases in this population. In addition, a large number of customers expressed a favorable perception of supermarkets providing nutrition education, although they would not necessarily shop more often at a store simply because nutrition videotapes were offered.

Time constraint was the number one reason cited by those who did not view the nutrition videotape. The impact of lack of time was confirmed by respondents who offered this as a reason for not shopping more often at a store that showed videotapes.

The video series, "Learn to Eat Smart," is now available to nutrition educators from the American Cancer Society. The videotape can be obtained by calling the local branch offices and requesting "Point of Purchase Nutrition Announcement" code number 2329.05.

## References.....

1. The Surgeon General's report on nutrition and health. DHHS (PHS) Publication No. 88-50211. Public Health Service, Washington, DC, 1988.
2. National Research Council: Diet, nutrition, and cancer. National Academy of Sciences, Washington, DC, 1982.
3. Food and Nutrition Board: Diet and health: implications for reducing chronic disease risk. National Academy of Sciences, Washington, DC, 1989.
4. Healthy people. The Surgeon General's report on health promotion and disease prevention. DHEW (PHS) Publication 79-55071. Public Health Service, Washington, DC, 1979.
5. Aherns, E. H., and Conner, W. E., editors: Report of the task force on the evidence relating six dietary factors to the nation's health. *Am J Clin Nutr* 32 (supp.) 1979.
6. Doll, R., and Peto, R.: The causes of cancer. Oxford University Press, New York, NY, 1981.

7. Doll, R., and Peto, R.: The causes of cancer: quantitative estimates of avoidable risk of cancer in the United States today. *J Natl Cancer Inst* 66: 1192-1308 (1981).
8. American Cancer Society: Nutrition and cancer: cause and prevention. *Cancer* 34: 121-126 (1984).
9. National Cancer Institute: Cancer control objectives for the nation: 1985-2000. NCI Publication No. 86-2880, NCI Monographs, No. 2, Washington, DC, 1986.
10. Glanz, K., and Mullis, R. M.: Environmental interventions to promote healthy eating: a review of models, programs, and evidence. *Health Educ Q* 15: 395-415 (1988).
11. Soriano, E., and Dozier, D. M.: Selling nutrition and heart-healthy diet behavior at the point of purchase. *J Appl Nutr* 30: 56-65 (1978).
12. Jeffery, R. W., et al.: Nutrition education in supermarkets: an unsuccessful attempt to influence knowledge and product sales. *J Behav Med* 5: 189-200 (1982).
13. Levy, A. S., et al.: The impact of a nutrition information program on food purchases. *J Food Policy Market* 4: 1-13 (1984).
14. Russo, J. E., et al.: Nutrition information in the supermarket. *J Consumer Res* 13: 48-69 (1986).
15. Light, L., et al.: Eat for health: a nutrition and cancer control supermarket intervention. *Public Health Rep* 104: 443-450, September-October 1989.
16. Mayer, J. A., Dubbert, P. M., and Elder, J. B.: Promoting nutrition at the point of choice: a review. *Health Educ Q* 16: 34-13 (1989).
17. Scharf, J. N., Leblanc, E. L., and Kling, N.: Nutrition information in the supermarket. *Can Home Econ J* 39: 103-105 (1989).
18. Friend, T. H., Dellmeier, G. R., Cross, H. R., and Savell, J. W.: Time-lapse videos of a 'nutri-facts' display. *J Nutr Educ* 22: 56D (1990).
19. Achabal, D. D., Bell, C. H., McIntyre, S.H., and Tucker, N.: The effect of nutrition P-O-P signs on consumer attitudes and behavior. *J Retail* 63: 9-24 (1987).
20. Frank, G.: Tips for developing radio public service spots. *Am Diet Assoc Courier* 29: 2-3 (1990).
21. Statistical Package for the Social Sciences: SPSSx user's guide. McGraw-Hill Book Co., New York, NY, 1988.
22. Ackerman, N. M.: Money resources, time demands, and situational factors as predictors of shopping time. *J Consumer Stud Home Econ* 13: 1-19 (1989).