Dairy Calcium Advertising Awareness, Attitudes, and Behavior: A Survey of 13-17 Year Old Females

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DAIRY CALCIUM ADVERTISING AWARENESS, ATTITUDES AND BEHAVIOR: A SURVEY OF 13-17 YEAR-OLD FEMALES

BY

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B.A., University of Central Florida, 1983

THESIS
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INTRODUCTION

In April 1984, at a conference convened by the National Institutes of Health, a panel of experts issued a statement listing calcium as a "mainstay in the prevention and management of osteoporosis." Osteoporosis, or "brittle bone disease," affects one out of every four American women over 50 and is the 12th leading cause of death in the United States.

In January 1985, the National Dairy Promotion and Research Board began emphasizing dietary calcium in the promotion of milk and dairy products. Television commercials and print advertising were developed which focused on the calcium contained in dairy products and stressed the importance of this nutrient to a woman's diet.

Recent consumer research conducted by Market Facts, Inc. of Chicago indicates that this positive calcium message designed to increase dairy product intake may not be effectively reaching the 13-24 year old female. The study shows that subjects in this age group report that they are doing less about their calcium deficiencies than subjects who were studied prior to the time that the dietary calcium advertising began. In addition, the research indicates that those women who are taking steps to increase calcium intake are less likely to use dairy products.

Teenage females offer the dairy industry a challenging opportunity. While average male milk consumption jumps dramatically during the ages of 13-19, average female milk consumption experiences
only a slight increase. Reaching this audience at this habit-forming age and changing their attitudes and behavior could provide lifelong use of dairy products.

The purpose of this study is to determine the efficacy of past dairy calcium advertising messages in affecting the health attitudes and dietary behavior of 13-17 year old women in Florida.
BACKGROUND

A shopper in a grocery store will only purchase a small percentage of the 6,000 items he/she will see (Applbaum and Anatol, 1974, p. v). The selections he/she makes will depend, to some degree, on the messages he receives from his environment. His culture, the norms of the groups to which he belongs and the people with whom he associates interact to influence his behavior. In addition, he is persuaded by product advertising messages.

Advertising is basically an act of persuasion designed to influence consumers. The communication source, the content of the message, the channel used to transmit the information and the targeted receiver each play a role in determining the effectiveness of the advertising.

Two dimensions of source have been widely studied: credibility and attractiveness. Credibility refers to the perceived characteristics of the source which affect the believability of the message. Hovland and Weiss (1951) found that although highly credible sources brought about more attitude change initially, the effects of source credibility appeared to be short-lived. Over time, subjects tended to dissociate the content of the message from the source. Their research suggests that while the use of a highly credible source may be beneficial in short-term advertising campaigns (sale promotion, point
of purchase materials), source credibility is less important in establishing long-term product preferences.

Attractiveness is based on two characteristics: physical attractiveness and similarity. Snyder and Rothbart (1971) found that with both male and female students, an attractive male communicator was more persuasive than an unattractive or unpictured communicator, regardless of differences in perceived expertise or trustworthiness.

The research dealing with similarity supports the basic hypothesis of the "Theory of Identification": when a person finds he has some characteristics in common with a person, he tends to perceive himself as having other characteristics in common (Burnstein, Stotland and Zander, 1961). Berscheid (1966) concludes that communicator-communicatee similarities which are relevant to the communicator's influence attempt to bring about considerably more opinion change than similarities which are irrelevant.

The content of the message is the next element in the persuasion process. McCroskey (1971) investigated how the use of evidence affected persuasion. He found that in four out of five cases, inclusion of supportive material significantly increased the amount of attitude change retained over time.

Fear appeal research offers inconsistent findings, suggesting a complex relationship. What may be the key is that specific solutions need to be offered for fear appeals to be effective. Leventhal, Singer and Jones (1965) found subjects who were exposed to fear arousing messages were more likely to get inoculation shots if they were given
a plan of action. Rogers and Mewborn (1976) found that regardless of what the potentially dangerous event was or how likely it was to occur, the stronger the belief that the coping response could prevent the danger, the more strongly people intended to adopt the communicator's recommendations.

The major function of an advertising message is to establish a link between the product or service and the needs and wants of the prospective buyer. According to Maslow (1954), people are motivated by the following needs: physiological, safety, love, esteem and self actualization. The first or lower level needs must be satisfied before the higher level needs become important.

A great number of factors relate to the channels and media used in message transmission. Perhaps the advertiser's most important concern would be which medium would best serve their needs. Chaiken and Eagly (1976) found that with difficult messages, persuasion was greater when the message was written as compared with video or audio tapes. With simple messages, persuasion was greatest when the message was on videotape, moderate when presented on audiotape, and least when written.

There are two different views of the audience in persuasive situations: the traditional view and the realistic view. The traditional theory views advertising as a stimulus (S) that triggers a desired response (R). On the other hand, the realistic view involves a two-way-flow. What may be most important in effective advertising persuasion is not what the message brings to the audience, but what the
audience brings to the message. While the communicator, message and channel play major roles, it is the audience who decides if and how much it will be influenced (Applbaum and Anatol, 1974, p. 157).

According to Cox (1961), in order for an audience to be influenced by an advertising message, several conditions must be met: exposure, perception, retention or integration and decision. Exposure (in the context of Cox's research) is defined as the capability of seeing or hearing the message. Perception involves the selective choice of an individual to attach meaning to the message. Integration is achieved when the person remembers the concepts and retains the relevant attitudes. The decision is made when the individual takes action and buys, advocates or endorses the product or position.

The importance of this "integration" step is supported by other studies. Watts and McGuire (1964) found that the receiver's recall of the specific argument used was positively related to opinion change, both one week and six weeks after the communication occurred. Eagly (1974) observed that as comprehension of the message increased, reported agreement with the communicator's position also increased.

The dairy industry has been working to persuade consumers for over 45 years. Foundations for the formation of national dairy product promotion began in the 1930s. During this time, surpluses of butter, cheese and other dairy products were increasing. The Minnesota Department of Agriculture Dairy and Food Bulletin reported in 1938: "There remains no alternative except production control or increased consumption of all dairy products." O.K. Story, an Iowa dairy farmer,
was credited with saying, "If dairy products are as good as we say they are, let's tell the public!...let's advertise!" (American Dairy Association, 1965, p. 45).

The American Dairy Association was founded on January 26, 1940. Since that time, this organization has been responsible for unified advertising and marketing services.

But during the past decade, the dairy industry has again faced the problem of surpluses. According to a USDA Nationwide Food and Consumption Survey, Americans had doubled their consumption of soft drinks but were consuming only half as much milk in 1984 as they did 20 years earlier (Tyler, 1985). This decrease in fluid milk consumption was of great concern to dairy product marketers across the country. A tremendous imbalance of supply and demand existed in the industry, a result of several factors.

Lifestyles had changed. Consumers were reducing the amount of animal fat in their diets. Parents no longer exerted as much control over their children's diets, and many young people had gone to soft drinks.

The increased popularity of soft drinks (and the decreasing popularity of milk) appears to have also been associated with the promotion of these products. In 1979, milk advertising (branded and non-branded) totaled $27,487,000, an increase of 28% over the previous year. Yet milk's most direct competitors, soft drinks, spent over 12 times as much (nearly $337.9 million) in advertising their products to consumers (United Dairy Industry Association, 1981, p. 22).
In addition to this decline in demand, supplies of dairy products were on the rise. Inflation meant that dairy farmers had to increase milk production in order to make a profit. William R. Boardman, Executive Vice President of Dairy Farmers, Inc., said, "We are in such a surplus situation that the entire dairy marketing structure we have in place is very likely to collapse if milk production is not decreased nationwide" (Collier, 1984, p. E-1).

Farmers worked with Congress in an effort to find a solution to the surplus problem. A farmer funded promotion program was initiated to increase consumption of dairy products.

The National Dairy Promotion and Research Board was established by Congress through the Dairy and Tobacco Adjustment Act of 1983. The Board is financed by a mandatory 15 cents per hundredweight assessment on all milk produced by dairy farmers. These funds support dairy research, education and promotion programs (Thorton, 1984).

The majority of the funds collected have been used in advertising and sales promotion, making the dairy industry the nation's 69th largest advertiser in 1986 ("Top 100 Eke Out," 1986). This additional advertising provided by the Board appears to have been successful. Since the implementation of the program, use of dairy products has increased dramatically in almost every product category. In 1985, total milk use jumped 3.7 percent, the biggest year-to-year increase in the last 25 years ("Milk Use Climbs," 1986). A Cornell University study showed that cheese sales jumped eight percent higher with advertising than it would have without it (Tyler, 1985).
The first advertising campaign designed for the Board at its direction was the calcium, or "dairy foods value," campaign. This new approach began in January 1985.

Why promote calcium? The "calcium craze" dates back to April 1984, at a conference convened by the National Institutes of Health. The panel of experts issued a statement listing calcium and the hormone estrogen as the "mainstays of prevention and management of osteoporosis" (Clark, Gosnell, Hager and Doherty, 1986, p. 48). Due to an enormous amount of consumer publicity, people were learning more about this "brittle bone disease" (osteoporosis) and were showing interest in finding ways of preventing the ailment.

Briefly, osteoporosis is a disease in which the formation of bone mass does not proceed normally, usually due to a dietary deficiency or a disorder in metabolism (Albanese, Edelson, Lorenze and Wein, 1978). One out of four American women over 50 suffers from this crippling disease, and it is now the 12th leading cause of death in the United States. Some 1.3 million fractures are attributed to osteoporosis yearly (National Dairy Board Annual Report, 1985, p. 7). A diet which includes adequate intakes of calcium, phosphorus and Vitamin D helps to ensure proper bone formation and peak bone mass (Albanese et al., p. 4).

Recent research also suggests that adequate calcium intake may reduce the risk of colorectal cancer (Lipkin and Newmark, 1985) and may lower blood pressure in persons with mild to moderate hypertension (Clark et al., p. 49).
The sale of calcium supplements has skyrocketed during the past two years. According to Warner-Lambert Company, maker of three calcium products currently on the market, sales of supplements in 1985 increased 50 percent over 1984. The company anticipates 1986 calcium tablet sales to reach $166 million, up 33 percent from 1985 (Bishop, 1986).

Marlee R. Norton, spokeswoman for the National Dairy Promotion and Research Board, said that the dairy industry was not going to "sit by and let the pharmaceutical companies reap the benefits" of this interest in calcium (Tyler, 1985, p. A-3). This increased health concern offered the dairy industry an opportunity to promote the benefits of natural calcium. Most medical experts have advised patients against relying on supplements for their calcium requirements (Clark et al., p. 51). Harvard Medical School professor Kurt Isselbacher, M.D. said that is is "preferable to take calcium in the form of food rather than tablet supplements" (Bishop, 1986, p. 19). "Three dairy products in a day and you've got it," said Dr. Lawrence Riggs of the Mayo Clinic (Clark et al., 1986, p. 51).

Over 22% the Board's 1984-85 advertising funds ($15.1 million) was used in an effort to persuade women to increase their calcium intake by consuming dairy foods. Three television commercials and nine print advertisements were created. Target groups were: Young Women (ages 12-24), Adult Women (ages 25-49) and Mature Women (ages 50+). The television commercials were kicked off in January 1985, carrying the theme "Softly She Moves" (National Dairy Promotion, 1985).
The advertising does not feature a doctor or medical expert. Instead, an attractive woman of approximately the same age as the target audience was used as the source. The spots did not attempt to "scare" women into consuming dairy products. Rather, a positive approach was used. The message emphasized that physical grace, flexibility, vitality and strength were the result of a well cared-for body, and eating dairy foods helps to provide the nutrition a woman's body requires. The print ads took a similar approach, using the tag line "Calcium the way nature intended."

During 1985, the Board sponsored more than 200 calcium commercials on network television, and a thousand more spots on cable and syndicated shows. One and two page print advertisements appeared in dozens of magazines including Cosmopolitan, Teen, Good Housekeeping and Working Woman. Combining print and TV, 95% of the women in all three target groups were reached an average of once a week (National Dairy Promotion, 1985, p. 7).

In its second year of advertising dairy calcium, the Board continued to use a similar strategy. In planning for the new spots, an advertising evaluation was done which showed that both the 25- to 49-year-old and the 50+ target groups could be reached using the same television advertising. In addition, it was felt that advertising geared to the 12-24 year old group would also reach many of the women in the middle category. Thus, "Ballet" (target audience ages 12 - 24) and "Schoolteacher" (target audience ages 25+) were the two television
spots developed. The ads aired for an 18 week period during Fall 1985 - Summer 1986 (National Dairy Promotion, 1986, p. 8).

Print advertising was also developed for this promotion. While calcium print ads in fiscal 1985 featured all dairy products, the new ads were made product-specific. Rather than continue the general theme, the new advertising highlighted the individual product, an effort to possibly tie the promotion closer to actual sales. Print ads were created for yogurt, cottage cheese and hard cheese for each of the target age group categories. These ads ran 99 times in 31 different magazines. (National Dairy Promotion, 1986, p. 8). Almost 30% of the Board's $61.1 million total advertising expenditures was used in promoting dairy calcium (National Dairy Promotion, 1986, p. 18).

The media buyers estimated that 95% of the women were being exposed to the dairy calcium message once a week. But were Cox's conditions of perception, integration and decision being met? In other words, has the advertising persuaded the audience?

Research commissioned by the National Dairy Board Evaluation staff provides support for the calcium campaign. Beginning in November 1984, tracking research has been conducted to evaluate consumer attitudes toward the need for dietary calcium. Periodic telephone surveys were performed using a national random sample of at least 500 women between the ages of 13 and 69. While the survey was originally designed to represent a "point in time," revisions which began in November 1985 enabled the survey to be done on a continuous basis.
The latest report (May 1986) reveals some very positive findings. The percentage of women who are doing something about osteoporosis or calcium deficiency rose to 55% from 47% in November 1984. Of these women, 44% are eating or drinking dairy products to meet their calcium needs, up from 33% in the first surveys.

The study also reports an increased awareness of calcium advertising. Seventy-two percent of the women surveyed reported they knew of calcium advertising, up from 56% in November 1984. However, much of this increase is due to awareness of brand calcium supplement advertising (31% in May 1986) rather than knowledge of advertising sponsored by dairy industry, which dropped from a high in December 1985 of 19% to a 12% score in May 1986.

While much of the resulting data from this study supports the significance of dairy calcium advertising, there does appear to be some areas where the current campaign may not be effective. When demographic age groups are reported on individually, some alarming trends appear. While 45% of women 13-24 said they were doing something about osteoporosis or calcium deficiency in November 1984, only 36% reported this behavior in May 1986.

Based on all women interviewed, the "women using dairy products to avoid osteoporosis/calcium deficiency" percentage in November 1985 for ages 13-24 was 41%. Six months later, this figure dropped to 30%. This data indicates that the current combination of television and print advertising is not effectively reaching the youngest target audience.
This research grouped "13-24 year old females" in reporting the survey results. Too many differences in health attitudes may exist for this to be considered a homogeneous group. While older teens may show a significant concern for their dietary habits and their intake of calories, fat and cholesterol, younger teens may not be as interested in nutrition as it relates to health. At this young age, a health problem which may occur 30 years in the future may not be relevant enough for them to change their immediate behavior.

In addition, the younger portion of this group may differ from the older segment in their ability to take the "decision" step which Cox described. Many of these young girls may not be responsible for any grocery shopping. Their parents or guardians would then determine, to some degree, what foods were consumed. Those 18 years of age and over are more likely to be a primary food shopper in their households, thus making their own decisions. An examination of the younger teens (13-17) would determine whether there is a need to segment this demographic group in developing new advertising and promotion materials.

No other dairy industry-funded advertising is aimed at 13-17 year old teens (excluding efforts in California, Washington and Oregon). Target audiences for current campaigns are as follows: Adult fluid milk - age 18-34, Childrens fluid milk - age 2-12, Butter - females age 25-49, Cheese - age 25-54 and Ice cream - age 18+ (National Dairy Promotion, 1986). Therefore, the calcium advertising serves an important role in reaching the young female teen and establishing healthy eating habits which include dairy products.
Subjective measures such as opinion and attitude surveys can provide useful suggestions and serve as a source of guidance for future advertising efforts. While many research methods investigate the respondent's attitudes toward the advertising, the advertiser's real concern is with the consumer's attitude toward the product or service itself (Lucas and Britt, 1963, p. 130). Evidence of exposure to a product's advertising may be associated with the evidence of product preference, implying to some degree that the advertising is the cause and the favorable attitudes are the effect (Lucas and Britt, 1963, p. 5).

Therefore, the following study will examine the health attitudes and dietary behavior of females age 13-17 as a measure of the effectiveness of past dairy calcium advertising messages.
RESEARCH QUESTIONS

1. Does the awareness level of Florida females age 13-17 toward dietary calcium advertising messages differ significantly from the national sample of women 13-24?

2. How does recall of dairy calcium advertising messages compare with other types of calcium advertising messages in Florida females 13-17?

3. Is advertising an important factor to Florida females 13-17 in selecting their food and beverage choices?

4. Is nutritional value an important factor to Florida females 13-17 in selecting their food and beverage choices?

5. How much of the family grocery shopping is the responsibility of Florida females 13-17?

6. Do Florida females age 13-17 who know the meaning of \textit{osteoporosis} differ significantly in their attitudes regarding the importance of calcium from those subjects who are not aware of the disease?

7. Does the reported dairy product consumption behavior of Florida females age 13-17 differ significantly from national samples?

8. Does the reported dairy product consumption behavior of Florida females age 13-17 who know the meaning of \textit{osteoporosis} differ significantly from subjects who are not aware of the disease?
METHODOLOGY

This study was designed to evaluate the awareness of dietary calcium advertising messages and consequent attitudes towards dairy products and consumption behavior of 13-17 year old females in Florida.

Subjects were randomly selected using a computer listing of 528 teachers of "Life Management Skills." This course is mandated by law for all students attending Florida public schools, and is offered either at the middle or high school level (depending on the county). According to Mae Waters, Health/Safety Specialist for the Florida Department of Education, there are approximately 647 teachers of "Life Management Skills" in the state, representing about 50,000 students ages 12-18. The list used contains approximately 80% of the total teachers who conduct this class.

One hundred teachers were sent 30 surveys each, and were instructed to distribute them to their male and female students. Only the female student's surveys were used in compiling the data.

A few of the questions used in the survey were modeled after questions used in the telephone survey conducted by Market Facts, Inc. of Chicago. The data collected in the present study was compared to the results from this national survey to determine whether age/regional differences appear to exist.

The bulk of the survey was designed to provide research information for ideas presented in this paper. General questions concerning "the reasons teens make their food choices" and "the
percentage of their household's food shopping teens do" provides insight into the dietary habits of young women. More specific questions regarding calcium advertising (including an aided recall section on advertising themes) help to determine how aware the subjects are of the current campaign.
RESULTS

Fifty-one percent of the teacher survey packets were returned. Of these, one teacher (one percent) responded that "Life Management Skills" was no longer their teaching responsibility. The remaining 50 packets resulted in 621 properly completed surveys from respondents in the female 13-17 age group. (Those surveys where respondents did not complete the age or sex portions were not used in compiling the data.)

All data was tabulated as a total and then segmented into age groups (13-year-olds, 14-year-olds, etc.). In addition, the results were examined based on those subjects who were aware of osteoporosis (39.5% of all subjects) as compared to those subjects who were not knowledgable about the disease (60.5%).

Calcium Advertising Awareness

Subjects in the present study were significantly more aware of calcium advertising than the national sample of women 13-24 ($X^2=18.89$, p<.001). Over 80% of the subjects recalled seeing, hearing or reading advertising or promotion concerning the need for calcium in the diet.

Calcium Advertising Sponsor

Table 1 summarizes the subject's responses concerning the sponsor of the calcium advertising. Over 21% made reference to the dairy industry ("milk people," "American Dairy Association," "National Dairy Council," "dairy farmers," or the name of a particular brand). Six
TABLE 1
RECALL OF CALCIUM ADVERTISING SPONSORS

<table>
<thead>
<tr>
<th></th>
<th>YES</th>
<th>NO</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dairy</td>
<td>24.1%</td>
<td>20.2%</td>
<td>21.7%</td>
</tr>
<tr>
<td>Possible correct match</td>
<td>12.7%</td>
<td>10.1%</td>
<td>11.1%</td>
</tr>
<tr>
<td>Correct match</td>
<td>9.0%</td>
<td>4.8%</td>
<td>6.4%</td>
</tr>
<tr>
<td>Supplement</td>
<td>22.4%</td>
<td>9.6%</td>
<td>14.7%</td>
</tr>
<tr>
<td>Other</td>
<td>2.9%</td>
<td>3.2%</td>
<td>3.1%</td>
</tr>
</tbody>
</table>
percent of the respondents were classified as "winners," indicating that they had properly matched the dairy industry with one or both of their advertising themes ("Softly She Moves" and "Calcium the Way Nature Intended"). Eleven percent were classified as "possibles," indicating that they had named the dairy industry as a sponsor and had recognized one or both of the dairy advertising themes (among other themes).

Over 14% recalled calcium supplements or a brand of calcium supplements as the sponsor of the advertising. A small number of respondents (three percent) named other food products (cereals, cola products, etc.).

When subjects who knew the meaning of osteoporosis and subjects not aware of the disease were examined separately, significant differences were found ($X^2=10.58, p<.01$) in the recall of calcium supplement advertising. There were no significant differences in recall of dairy calcium advertising.

Out of the six calcium advertising themes that were mentioned on the survey, the dairy industry's "Calcium the Way Nature Intended" received the most recognition (67.8% of all subjects). The other dairy calcium advertising theme, "Softly She Moves," was ranked fifth (25.3% of the subjects indicated that they had heard or seen this theme).
Importance of Advertising and Nutrition

Few subjects (3.7%) ranked "saw or heard it advertised and wanted to try it" as the primary reason for selecting foods and beverages. Based on their responses, the overwhelming reason teens eat and drink what they do is "taste" (63.3% ranked it first), followed by "calories" (18%), "nutritional value" (17.9%) and "easy to prepare" (9.7%).

However, there appear to be trends in these rankings when examined by individual age groups (Figure 1). Eighty five percent of the 13-year-old subjects ranked "taste" first, compared to 60.9% of the 17-year-olds. Only 8% of the 13-year-olds ranked "nutritional value" first, while 19.5% of the 17-year-olds reported that their food and drink choices were based on this factor.

Food Purchase Responsibility

Though few of the subjects were responsible for all of the grocery shopping in their households (2.7%), over 45% reported that they do at least some of the shopping.

As the age of the subject increased, the participation in grocery shopping also increased. There was a significant difference ($X^2=6.33$, $p<.02$) between 14-year-olds who did at least some of the shopping (37.3%) and 17-year-olds with the same responsibility (58.6%). (The 13-year-old group was not used in this comparison due to the relatively small cell size.)
Figure 1. Ranking of "Taste" and "Nutritional Value" as the Primary Reason for Food and Beverage Selection
Although many of them may not actually do the shopping, subjects reported a great deal of influence over which foods and beverages are purchased. Thirty-three percent responded that they had "a lot" of influence, while 45% said they had "some" influence. Only 3.9% of the subjects felt they had no influence over what was bought in their households.

**Knowledge of Osteoporosis and Its Effects on Rating Calcium**

Calcium was reported to be significantly more important to subjects who correctly identified osteoporosis than to those unaware of the disease ($X^2=19.16$, $p<.001$). Only 5% of those subjects knowledgable about "brittle bone" disease responded that they did not know how important the calcium was, compared to 13% of the subjects who weren't familiar with osteoporosis.

**Reported Dairy Product Consumption**

The subjects' reported consumption of dairy products significantly differed in all product areas from the national sample of women 13-69 (consumption levels were not available segmented for certain age categories). Milk and ice cream were reportedly consumed more often ($X^2=6.18$, $p<.02$ and $X^2=5.1$, $p<.05$) by Florida females 13-17. Almost 68% of the subjects reported that they drank milk five times a week or more, and 71% ate ice cream once a week or more.
Cheese, cottage cheese and yogurt were consumed less often by the present study's subjects than the national sample ($X^2=20.6$, $p<.001$, $X^2=67.7$, $p<.001$ and $X^2=6.6$, $p<.02$). While 86% of the national sample ate cheese at least once a week, only 69% of the teen subjects consumed this amount. The reported difference in consumption of cottage cheese was tremendous, with 39% nationally eating the product once a week compared to 18.4% of the present study subjects.

Figure 2 illustrates how daily milk, soft drink and diet soft drink consumption was reported for each age category.

There were no significant differences in reported dairy product consumption between subjects aware of osteoporosis and those who were not.
Figure 2. Percentage of Subjects who Reported Daily Consumption of Milk, Soft Drinks and Diet Soft Drinks (by Age)
DISCUSSION

The results of this study indicate that Florida teen females age 13-17 are very aware of advertising dealing with the dietary need for calcium. There are two possible explanations for the exceptionally high response rate in this area based on the conditions of the study.

First, the present research was conducted while the subjects were in an environment where they were likely to be thinking and/or discussing topics relating to health and nutrition (their "Life Management Skills" class). There is no way of knowing if that particular day's curriculum was somehow associated with issues that were addressed in the survey. In addition, it is not known how the individual teachers presented the survey to their class.

The national study was conducted by telephone. Hence, the subjects were in their own homes. The activity they were involved with at the time the researcher called may not have involved, or for that matter, may not have been conducive to thinking about diet and health.

Secondly, subjects in the present study were completing the surveys in a group situation. There may have been some "peer pressure" to report that they had seen the calcium advertising (such as other subjects looking at their survey) even if they had not done so. In the national study, all surveys were completed on an individual basis.
Yet the responses given on the "sponsor of advertising" portion of the survey verify that many of the subjects had indeed viewed product advertising concerning calcium. For example, there were those respondents who could identify the theme and the sponsor, leaving no question that they were quite acquainted with the advertising. Also, some subjects responded to the sponsor question with the reply "America's dairy farmers" or "American Dairy Association," actual taglines used in the advertising. Without seeing the television commercials or the print advertisements, it is doubtful that they would use this exact terminology.

In addition, a breakfast cereal or soft drink would not be the type of product one would likely select if they were just "guessing" who sponsored calcium advertising. If the subjects were simply drawing on their knowledge of nutrition, it is more conceivable that they would name a product known for its calcium content. Apparently, these individuals have seen or heard the recent advertising executed by such products in which the additional calcium is promoted.

The high unaided recall of the dairy industry as the sponsor of calcium advertising is a positive sign for the effectiveness of the program. However, the results from that segment of the total subject population who were aware of osteoporosis are not as encouraging. This group is predisposed with a "reason" to be interested in calcium: to avoid the "brittle bone" disease. Since these subjects may be more prone to actually take action and do something to
increase their calcium intake, it is important for advertising messages to reach, appeal to and persuade this group.

However, there was not a significant difference between recall of the dairy industry as the sponsor of the advertising (24.1%) and recall of supplements as the sponsor (22.4%) among subjects in this group. This segment also recalled the supplement advertising significantly more often than those subjects who were unaware of the disease.

These results suggest that while the dairy industry calcium advertising receives greater attention from the overall teen female population, those teens who may be more concerned about their calcium intakes find the supplement advertising as informative and/or appealing.

Based on the recall of the various advertising themes, it seems to be important for the word "calcium" or "bone" to be featured in product promotion emphasizing calcium content. Themes such as "Helps Keep Your Body in Mint Condition" or "Softly She Moves" did not score high on subject recall. Both the print and television dairy calcium advertising for 1987 uses the "Calcium the Way Nature Intended" theme. Since this theme was the most recognized out of all which were tested, this research supports its use in the creative execution.

"Advertising" and "nutritional value" were not shown to be prime reasons for teen girls to select a particular food or beverage. Therefore, it is questionable whether advertising which focuses on
the nutritional advantages of a product will be effective in increasing the consumption of that product among teen females. The data suggests that this group, especially the younger portion, would be influenced more by dairy advertising which addressed the taste of the milk (and other dairy products) versus any other aspect of the product.

The 1987 dairy calcium advertising is targeted to two groups: Women 25-49 and Women 50+. The youngest target group was removed after evaluation studies determined that teens had fewer concerns about their future health (National Dairy Board News, March 1987).

The results concerning grocery shopping and grocery influence imply that it is no longer sufficient to target food and beverage advertising to the "mother" of a household. The shopping responsibility today is shared among different members of the family. The teen female is influencing what is purchased in her household, and even beyond that, is selecting from among those products which ones she will consume. In addition, she determines much of her out-of-home consumption. This suggests that attempts must be made to directly reach the teen female in order to increase her consumption of a particular product. The dairy industry would be wise to develop advertising specifically targeted to this group.

Knowledge of osteoporosis does appear to affect judgement of the importance of calcium. However, this knowledge did not appear to influence the subject's actual consumption of dairy products, since there were no significant differences between her consumption and
that of subjects unaware of the disease. There was also no significant difference between the two groups in the use of calcium supplements. These findings suggest that educational efforts should not only inform people about osteoporosis, but instill sound medical advice on methods to prevent the disease. Perhaps this would encourage an increase in the consumption of high calcium foods, including dairy products.

Milk was consumed significantly more often by the present study's subjects as compared to the national sample age 13-69. This is probably due to a great extent to the inclusion of the beverage in the school lunch program. However, there were subjects who reported that they never drank milk. This is an important finding to the dairy industry, because these women will probably continue to exclude milk from their diets, and a lifetime of product sales will have been lost. Marketing research should be done to determine "why" and "at what point" these particular teens abandon the beverage. Pre-teen advertising may be developed which would keep them drinking milk, and increase the consumption levels of those young women who are already drinking.

The reported consumption figures for cheese, yogurt and especially cottage cheese were very low. These findings are surprising. Cheese has accounted for a great deal of the national increase in dairy product sales over the past few years. It is possible that subjects are not aware of the inclusion of cheese in many types of casserole dishes.
Frozen yogurt has enjoyed a great deal of popularity recently, presumably with a younger crowd. Subjects may not have understood "yogurt" to include the frozen variety.

In both cases, however, the reported consumption levels may be actual accounts. It may be older consumers who are responsible for much of the sales in these areas.

The target audience for the non-branded cheese advertising campaign is adults 25-54 (National Dairy Promotion, 1986, p. 7). There may be an opportunity to increase sales of dairy products such as cheese by developing advertising programs which are targeted to a younger market.
CONCLUSION

The present study supports the National Dairy Promotion and Research Board's decision to cease calcium advertising targeted to females age 13-17. Although subjects were aware of calcium advertising, "nutritional value" did not appear to be an important factor in their food and beverage decisions. In addition, the knowledge of a health concern such as osteoporosis did not seem to influence their actual dietary intake.

Still, lifelong habits are being formed at this age, and the dairy industry cannot afford to lose these customers. An advertising campaign designed to appeal to this age group could maintain (and possibly increase) their demand for milk and dairy products in the years ahead. Based on the results from the present study, creative strategies targeted to teenage females should emphasize the "taste" of a cold glass of milk or a melted slice of cheddar cheese.

There are many areas where further research is needed. First, replicative studies should include younger subjects (possibly 10 or 11 years and up). There were some areas in the present study (such as recall of dairy calcium advertising) where there appeared to be age-related "trends." However, the cell size of 13-year-old subjects (n=13) made it difficult to achieve significance in statistical tests. The addition of younger subjects would allow for solid age-related conclusions.
whether "cost of product" has an influence on this age's eating and drinking habits. Since many of the subjects reported that they do at least some of the grocery shopping, it would be interesting to determine what (if any) influence price has on their selections. Product cost may also be a factor in their out-of-home consumption. This information would be useful in the development of future dairy advertising campaigns, especially if "price" proves to be a consideration.

Another area for possible research involves advertising strategies. An experiment could be designed to test whether the reported reasons which teenage females gave for selecting foods would actually serve as effective advertising appeals.

Research is also needed which more closely examines the teenage female consumption of cheese, yogurt and cottage cheese. If results resemble the behaviors reported in the present study, researchers may want to include questions designed to ascertain why the intake of these products is not greater (they do not like the taste, lack of versatility, etc.). Although this age group is not a segment of the current target market for cheese advertising, this knowledge may serve to provide insight into ways of increasing consumption in these areas.
APPENDIX

Dear "Life Management Skills" Student:

We are a promotion and education organization involved in the food industry. We are interested in the products you use and the food and beverages you consume.

Please help us by completing this survey and returning it to your "Life Management Skills" teacher.

Thank you in advance for your assistance.

SEX (Male or Female) _______ AGE ______

1. The following is a list of foods. Please indicate how often you consume these foods, either at home or away from home.

   a. every day  d. two to three times a month
   b. several times a week  e. about once a month or less
   c. about once a week  f. never
   ___ chicken
   ___ yogurt
   ___ green leafy vegetables
   ___ cottage cheese
   ___ peanut butter
   ___ natural or processed (Velveeta) cheese
   ___ ice cream or ice milk

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2. The following is a list of drinks. Please indicate how many times a week you drink these beverages.

a. every day  
b. six days a week  
c. five days a week  
d. four days a week  
e. three days a week  
f. two days a week  
g. one day a week  
h. less than one day a week  
i. never

- fruit or vegetable juice
- milk
- carbonated regular soft drinks
- carbonated diet drinks
- coffee

3. Do you currently take any vitamin or mineral pills or capsules on a regular basis?  
   ___ Yes  ___ No

   If so, do you take (check the ones which you take)...
   ___ multivitamins  ___ Vitamin E tablets
   ___ iron supplements  ___ Vitamin A, B or B complex
   ___ Vitamin C tablets  ___ calcium supplements  ___ Other

4. The following is a list of vitamins and nutrients. Indicate how important each of these are to you, personally, as an element of your diet.

a. very important  
b. somewhat important  
c. not too important  
d. not at all important  
e. don't know

   ___ iron  
   ___ protein  
   ___ zinc  
   ___ carbohydrates  
   ___ calcium  
   ___ riboflavin  
   ___ Vitamin C  
   ___ Vitamin D  
   ___ Potassium

5. How much of your household's grocery shopping do you do?  
   ___ All of the shopping  
   ___ Most of the shopping  
   ___ Some of the shopping  
   ___ Little of the shopping  
   ___ None of the shopping
6. How much influence do you have over what groceries are bought in your household?
   ____ A lot
   ____ Some
   ____ Little
   ____ None

7. The following is a list of reasons for making food and beverage choices. Rank them in order of importance to you (1-most important to 5-least important).
   ____ calories
   ____ taste
   ____ easy to prepare
   ____ nutritional value
   ____ saw or heard it advertised and wanted to try it

8. Do you know what osteoporosis is? ____ Yes  ____ No

9. If so, is it a....
   ____ a form of lung cancer
   ____ a blood-related illness
   ____ a metabolic bone disease
   ____ a condition where hardening of the arteries occurs
   ____ a disease involving the pituitary gland

10. Are you doing anything to prevent osteoporosis?
    ____ Yes  ____ No

11. If so, are you ...(check the things you are doing)
    ____ taking calcium tablets
    ____ limiting salt intake
    ____ eating more chicken and fish
    ____ eating or drinking dairy products
    ____ drinking eight glasses of water a day
    ____ exercising
    ____ eating foods high in calcium

12. In the past few months, do you recall seeing, hearing or reading any advertising or promotion which talks about the need for calcium in your diet? ____Yes  ____ No

13. If so, can you recall who sponsored the advertising?
14. Where did you see, hear or read the calcium advertising?  
(check all that apply)  
___ television  ___ magazine  
___ radio  ___ store display  
___ newspaper  ___ other  

15. The following lists some of the advertising themes used to promote calcium. Check those which you recognize. If you know who sponsors the advertising, write the name of the product or organization in the space to the right of the theme.  

___ Helps keep your body in mint condition  
___ Softly she moves  
___ Helps keep bones strong and straight  
___ When you stopped drinking milk...you didn't stop needing calcium  
___ Soft calcium for strong bones  
___ Calcium the way nature intended
REFERENCES


Top 100 eke out 2.7% ad increase. (1986, September 4). *Advertising Age*, p. 6.
