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CONSUMERS' SHIFT TOWARD LOWER FAT DAIRY PRODUCTS: 1990

by

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CONSUMERS' SHIFT TOWARD LOWER FAT DAIRY PRODUCTS: 1990

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INTRODUCTION

In recent years substantial media attention has focused on the need for the American public to reduce its fat intakes. Nutritionists suggest such reductions would have several benefits. (Kantor, 1990). These include reducing the risk of coronary artery disease, the risk of cancer and weight control problems. The public has been urged to limit their fat intakes to 30 percent of their total calorie intake. Currently, fat provides about 37 percent of the calories in American diets (Morrison, 1990).

The public has responded to these recommendations by health professionals. Surveys of dietary practices among the public indicate that fat and cholesterol have become the most widespread concerns in the past few years. In 1990, 46 percent of the American adults questioned said they were concerned about their fat intake and 44 percent said they were concerned about cholesterol (Opinion Research Corp., 1990).

Dairy products have been a focus of particular attention since they provide 14.5 percent of total fat intake and 24.6 percent of saturated fat intake (Morrison, 1990). Saturated fats have been an increasing concern because of growing evidence of their linkage to the production of blood cholesterol. The saturated fats in milk, in particular, are of the type which can be expected to raise blood cholesterol levels (Kantor, 1990).

A variety of low-fat (e.g., lowfat cheeses) and nonfat (e.g., nonfat frozen desserts) dairy products have appeared in response to consumers' concerns about their fat intakes (Morrison, 1990). These products have made inroads into the sales of traditional, higher fat items. At the same time, old familiar products, such as skim milk have scored significant sales gains.

This study examined recent changes in the consumption of frozen desserts, fluid milk and several other major dairy product categories in a nationwide sample of adult consumers. The characteristics of those who changed their usage patterns and their reasons for these changes were investigated. Linkages between changes in one product category and changes in others also were investigated.

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THE STUDY

Data for the study were collected in a telephone survey in August 1990. Adult men and women age 18 and over living in the continental United States were questioned. Random digit dialing was used to ensure that both listed and unlisted telephone numbers were reached. A total of 1200 completed interviews was obtained, which represented 83.9 percent of the eligible households. In order to include roughly equal numbers of men and women, once a household was contacted the interviewer asked to speak to an adult male. Females were interviewed when no adult male was available or willing to cooperate. As a result, 54 percent of the respondents were women.

The respondents were questioned about their current use of frozen desserts and recent changes in their consumption. They also were questioned about their use of fluid milk and several other major dairy products.

CHANGES IN FROZEN DESSERT USE

The respondents were asked about their use of five major categories of frozen desserts in the previous four weeks. Survey pretests suggested these five categories were less confusing to consumers than the more numerous categories used by the dairy industry. For the survey questioning sherbet, ice milk and lite frozen desserts were combined in a single category.

Usage was found to vary widely across the five product categories (see Figure 1). The most widely used product was regular ice cream, which was used by 53 percent in the previous four weeks. Frozen yogurt, a relatively new product was second with 44 percent reporting use. Some 38 percent said they had eaten premium ice cream in the previous year. Premium ice cream was explained as "higher-priced ice cream with a creamier flavor." A somewhat smaller percent had eaten lower fat frozen dessert products (sherbet, ice milk and lite frozen desserts). Nonfat ice cream, an even newer product, had established a clear foothold in the market.

Respondents who had used a product in the past year were asked how their consumption had changed from a year earlier. The responses indicated large percentage increases in the use of frozen yogurt and lower fat products (Figure 2). The actual number of nonfat frozen dessert increasers was small since a relatively small number of the total sample had used the product in the previous year. At the same time, many indicated they had reduced their use of higher fat regular and premium ice cream.

Figure 1. Frozen Dessert Use In Previous Four Weeks

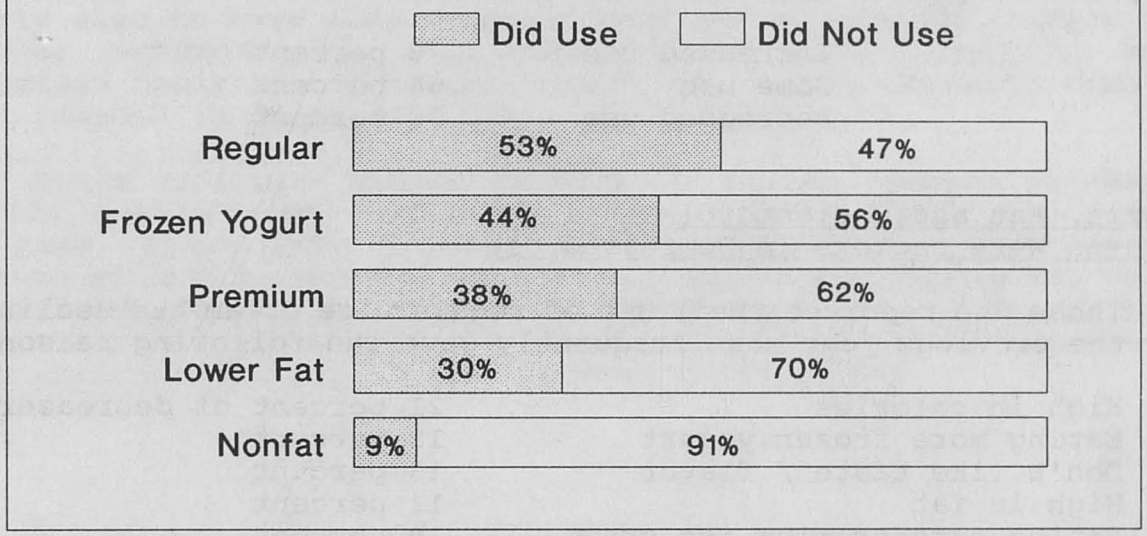
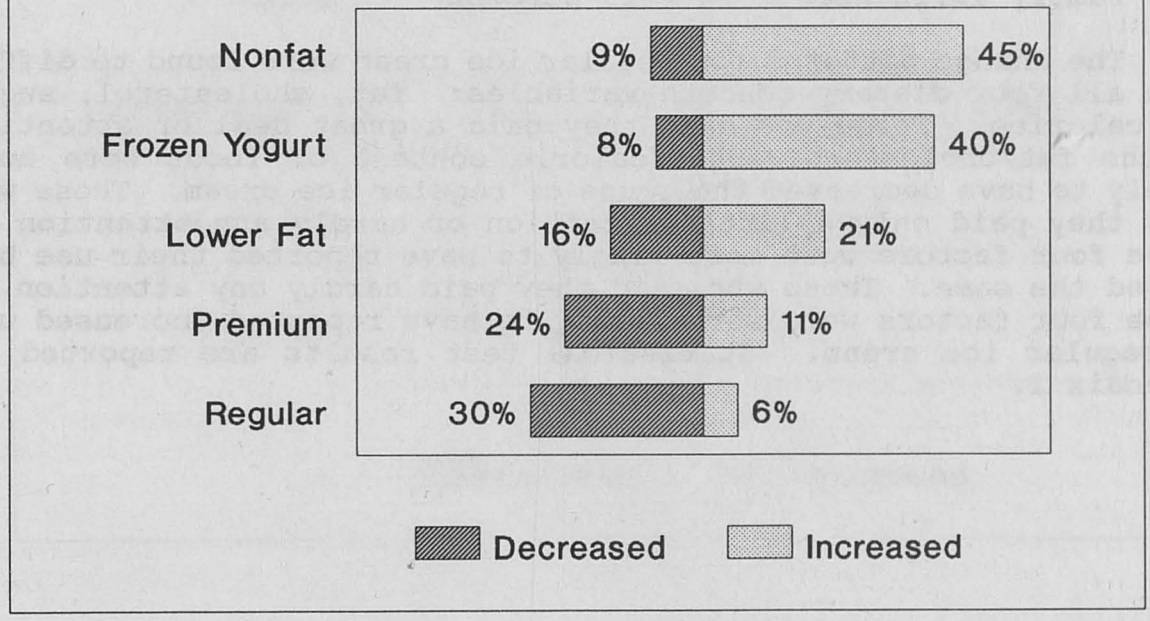


Figure 2. Change In Frozen Dessert Use By Past Year's Users



Cuts in Regular Ice Cream Use Were Common

As noted earlier, regular ice cream was the most widely used of the five frozen dessert categories studied. The survey questioning revealed, however, that cuts in usage were widespread. When those who had eaten regular ice cream in the previous year were asked how their use of regular ice cream had changed over the year, the responses were as follows:

Increased use	6 percent
Same use	64 percent
Decreased use	30 percent

Calorie, Fat and Cholesterol Concerns Were Factors In Decreased Use

Those who reported their use of regular ice cream had declined over the previous year most frequently gave the following reasons:

High in calories	21 percent of decreasers
Eating more frozen yogurt	18 percent
Don't like taste / flavor	13 percent
High in fat	11 percent
Eating more premium ice cream	10 percent

Less frequently reported reasons have been omitted. Those who had increased their use of regular ice cream over the previous year most frequently gave the following reasons for the change:

Like taste / flavor	30 percent of increasers
Family influences	15 percent

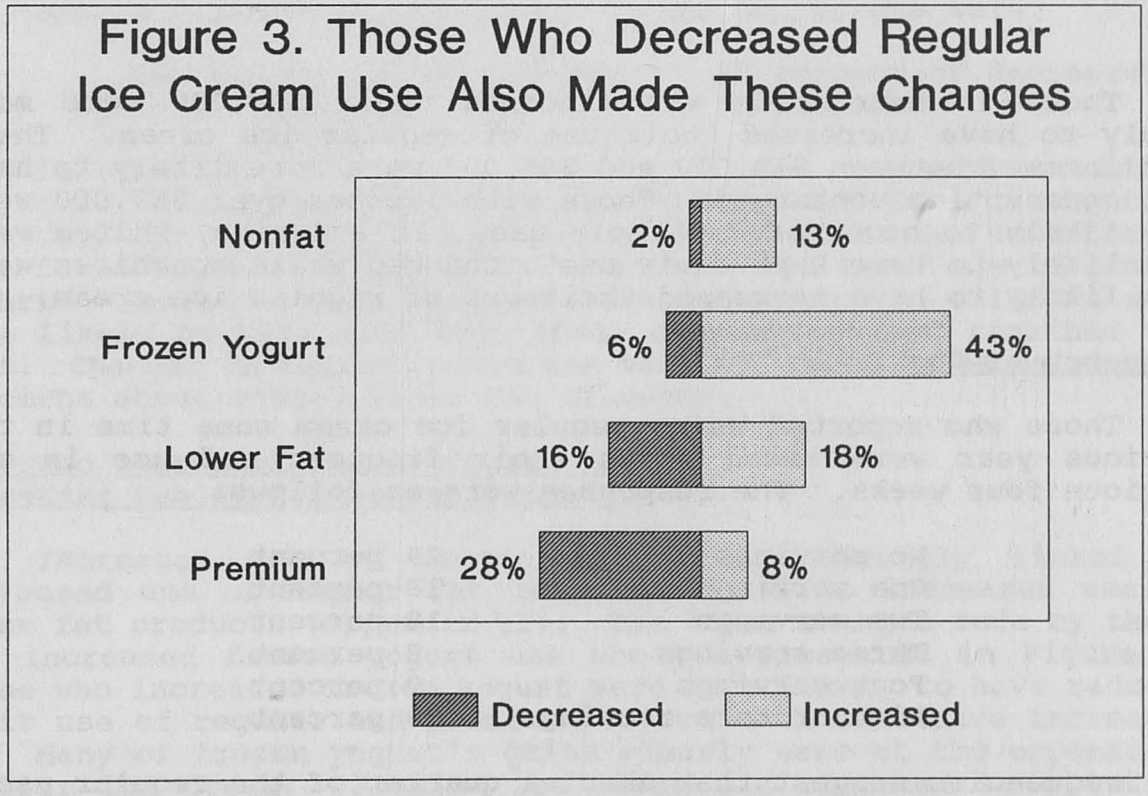
The change patterns for regular ice cream were found to differ with all four dietary concern variables: fat, cholesterol, sugar and calories. Those who said they paid a great deal of attention to the fat/cholesterol/sugar/calorie content of foods were more likely to have decreased their use of regular ice cream. Those who said they paid only a little attention or hardly any attention to these four factors were more likely to have reported their use had stayed the same. Those who said they paid hardly any attention to these four factors were more likely to have reported increased use of regular ice cream. Statistical test results are reported in Appendix I.

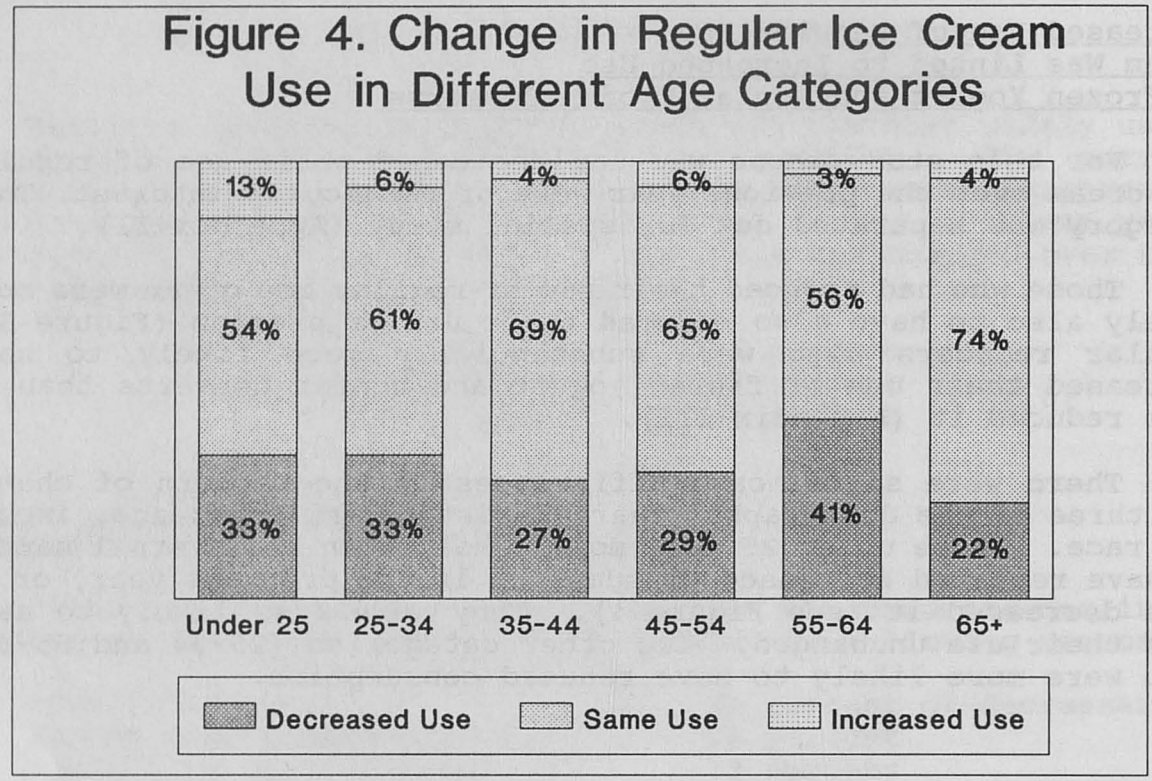
Decreased Use of Regular Ice Cream Was Linked to Increased Use of Frozen Yogurt and Nonfat Frozen Desserts

For this study those who had decreased their use of regular ice cream over the previous year were of particular interest. This category was separated out for special study (Appendix II).

Those who had reduced their use of regular ice cream were more likely also to have also reduced their use of premium (Figure 3). Regular reducers also were substantially more likely to have increased their use of frozen yogurt and nonfat desserts than to have reduced it (Appendix III).

There were significant differences in the pattern of change for three of the demographic characteristics employed: age, income and race. Those under 25 were more likely than the overall sample to have reported increased consumption in the previous year, or to have decreased it (see Figure 4). They were less likely to have kept their use unchanged. Two other categories (25-34 and 55-64) also were more likely to have reduced consumption.





Those in households with incomes under $30,000 were more likely to have increased their use of regular ice cream. Those with incomes between $30,000 and $65,000 were more likely to have kept consumption unchanged. Those with incomes over $65,000 were more likely to have reduced their use. In addition, whites were more likely to have kept their use unchanged while nonwhites were more likely to have increased their use of regular ice cream.

Frequency of Use

Those who reported using regular ice cream some time in the previous year were asked about their frequency of use in the previous four weeks. The responses were as follows:

No servings	29 percent
One serving	18 percent
Two servings	18 percent
Three servings	8 percent
Four servings	9 percent
Five or more servings	18 percent

The frequencies suggest that about a quarter of the regular users were frequent users, consuming the product once a week or more.

Increased Use of Frozen Yogurt Was Widespread

Because of the rapid growth of the frozen yogurt market, changes in the use of frozen yogurt were of particular interest. Survey participants who had eaten frozen yogurt in the previous year were asked how their use of frozen yogurt had changed from a year earlier. The responses were as follows:

Increased use	40 percent
Same use	52 percent
Decreased use	8 percent

Taste, Healthfulness and Availability Were Factors in Increased Use

Those who reported increased or decreased use of frozen yogurt were asked the reasons for their changed use. The reasons cited most frequently by the increasers were:

Like taste / flavor	21 percent of increasers
More available	19 percent
Lower in fat	18 percent
Lower in calories	16 percent

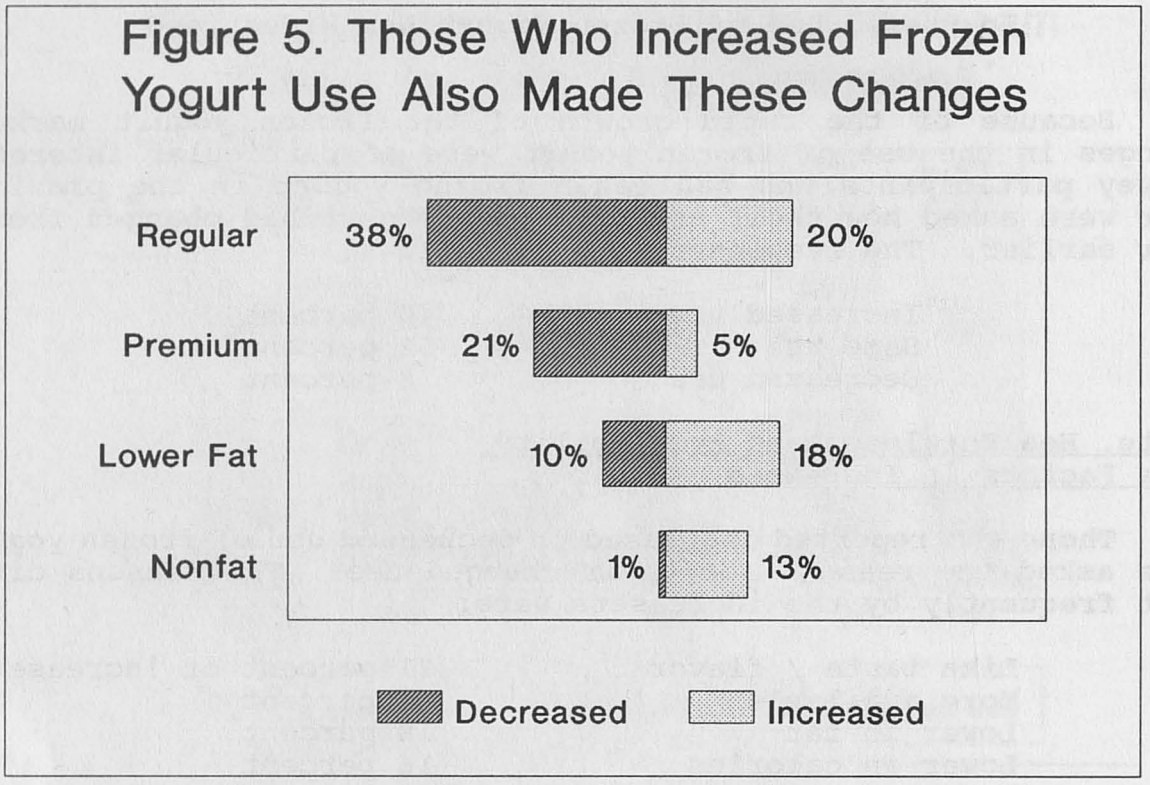
The reasons cited most frequently by the decreasers were:

Don't like taste / flavor	38 percent of decreasers
Less available	12 percent

In addition, the respondents were asked how much attention they paid to the fat, cholesterol, calories and sugar content of what they ate. Those who said they paid more attention to calories were found to be more likely to have increased their use of frozen yogurt. Those who said they paid less attention to calories were more likely to have said that their consumption had remained the same. Changes in frozen yogurt use were not found to be related to concerns about cholesterol, fat or sugar.

Many Who Increased Use of Frozen Yogurt Decreased Use of Higher Fat Products

Increased use of frozen yogurt was strongly linked to decreased use of higher fat ice creams and to increased use of lower fat products (Appendix II). The other changes made by those who increased frozen yogurt use who are presented in Figure 5. Those who increased frozen yogurt were more likely to have reduced their use of regular and premium ice cream than to have increased it. Many of frozen yogurt's gains clearly were at the expense of regular ice cream. Premium ice cream was affected to a lesser extent largely because many of those who increased their frozen yogurt use had not been premium users.



At the same time, frozen yogurt increases were linked to increased use of other lowfat products. The relative shift for nonfat frozen desserts is especially notable. Frozen yogurt increasers were much more likely to have increased their use of nonfat frozen desserts than to have decreased it. The actual numbers of users involved were, however, small since most of the frozen yogurt increasers had not consumed nonfat frozen desserts during the previous year.

Differences in the patterns of change were examined for a number of demographic and socio-economic characteristics. No differences in change patterns were found to be significant. Throughout the study demographics proved to have limited usefulness in helping to explain changes in consumption. These results suggest that changes in dairy product use typically were not concentrated in any particular segment of the population.

Frequency of Use

Those who reported consuming frozen yogurt during the previous year were asked how much they had consumed in the previous four weeks. About one-third of the respondents reported that they had not consumed frozen yogurt recently. About half of the respondents had consumed the item only once a week or less (1-4 times over the

last four weeks). A smaller group of heavier users had consumed the item more than once a week (5 or more times in the previous four weeks).

The frequency of frozen yogurt consumption in the previous four weeks was as follows:

No servings	33 percent
One serving	24 percent
Two servings	17 percent
Three servings	7 percent
Four servings	8 percent
Five or more servings	11 percent

These frequencies suggest that only about one-fifth of the users were heavy users, consuming the product once a week or more. There were no significant differences in frequency of use for the various demographic variables employed.

One-Quarter of Premium Ice Cream Users Reported Cutting Use

Those who had eaten premium ice cream in the previous year were asked how their consumption had changed from a year earlier. The reported changes in consumption were as follows:

Increased use	11 percent
Same use	65 percent
Decreased use	24 percent

Calories, Fat and Cholesterol Were Factors in Reduced Use

Those who had decreased their use of premium ice cream from a year earlier most frequently gave the following reasons:

High in calories	27 percent of decreasers
Eating more frozen yogurt	15 percent
High in fat	13 percent
Don't like taste / flavor	13 percent

Those who indicated that they had increased their consumption of premium ice cream most frequently gave the following reasons:

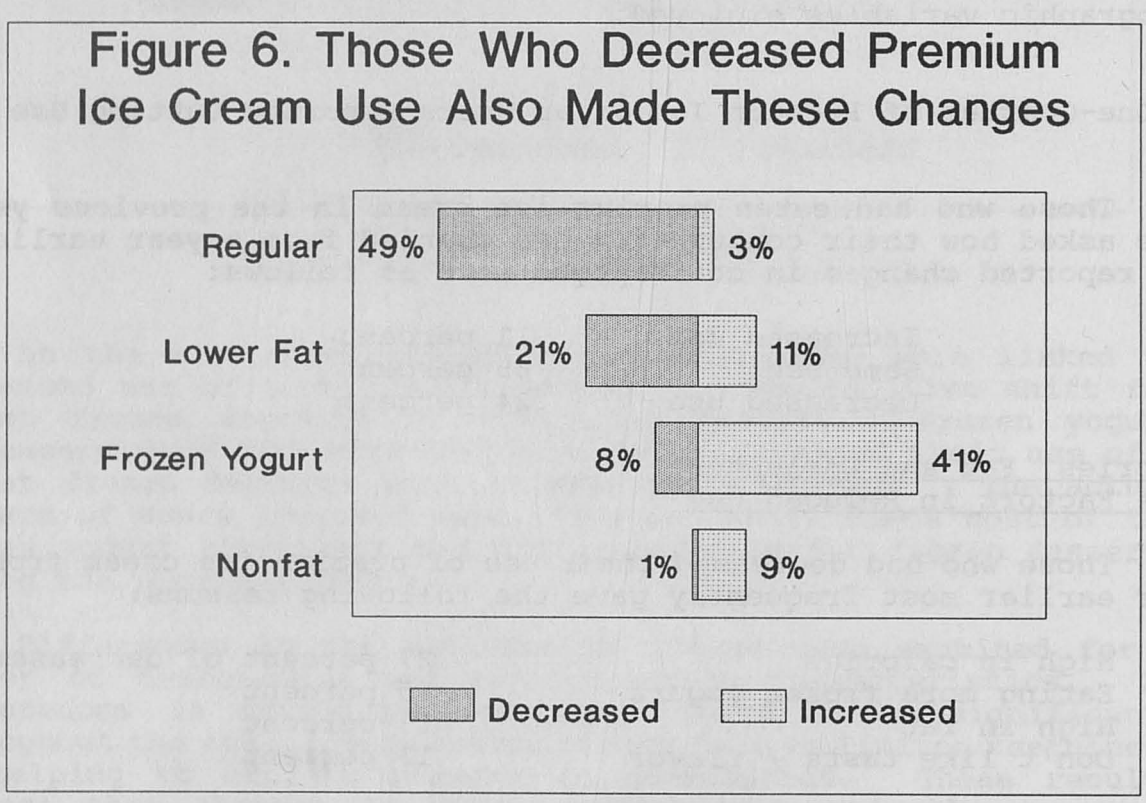
Like the taste / flavor	47 percent of increasers
Ready availability	11 percent

The patterns of change in premium ice cream use differed significantly with the amount of attention paid to fat and cholesterol. Those who said they paid a great deal or a fair amount of attention to the fat or cholesterol content of food were

more likely to have reduced their use of premium ice cream. Those who said they paid only a little or hardly any attention were more likely to have kept their consumption of premium ice cream the same or increased it.

Many Who Reduced Premium Ice Cream Use Also Cut Regular Ice Cream Use

For this study, those who reported their use of premium ice cream had declined over the previous year were of particular interest (see Appendix II). Among the premium decreasers, some 49 percent also had cut their use of regular ice cream (see Figure 6). Twenty-one percent reported they had cut their use of lower fat frozen desserts. Many of the premium decreasers had, however, increased their use of frozen yogurt.



Middle-Aged More Likely to Have Had No Recent Use of Premium Ice Cream

Those who indicated that they had used premium ice cream at some time in the previous year were asked about their use in the past four weeks. The results were as follows:

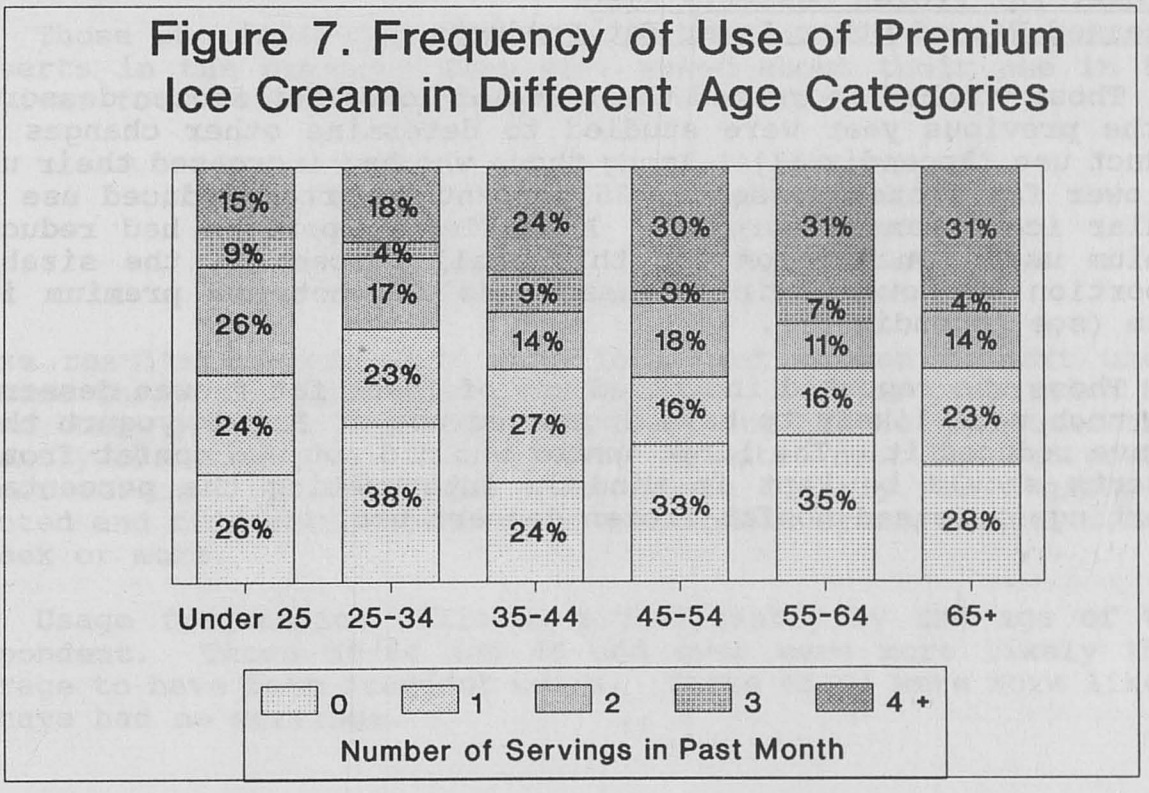
No servings	31 percent
One serving	22 percent
Two servings	17 percent
Three servings	6 percent
Four servings	8 percent
Five or more servings	16 percent

Significant differences in usage frequency were found among various age groups (see Figure 7). Those in the three oldest age categories were more likely to have reported use of four or more servings in the previous four weeks. The two middle-aged categories 45-54 and 55-64 tended to be either heavy users or nonusers, rather than consumers of intermediate amounts.

Lower Fat Frozen Dessert Increasers Slightly Exceeded Decreasers

Respondents were asked a single question about their use of light frozen desserts, ice milk and sherbet. Those who had eaten these items in the past year were asked how their current consumption compared to a year earlier. The proportion reporting increases somewhat exceeded the number reporting decreases:

Increased use	21 percent
Same use	63 percent
Decreased use	16 percent



Calorie and Sugar Concerns Were Factors In Increased Use

Those who had increased their use of lower fat frozen desserts over the previous year most frequently gave the following reasons for the change:

Low in calories	29 percent of increasers
Like taste / flavor	20 percent
Low in fat	19 percent

Those who had reduced their use of lower fat products over the previous year gave the following reasons most often:

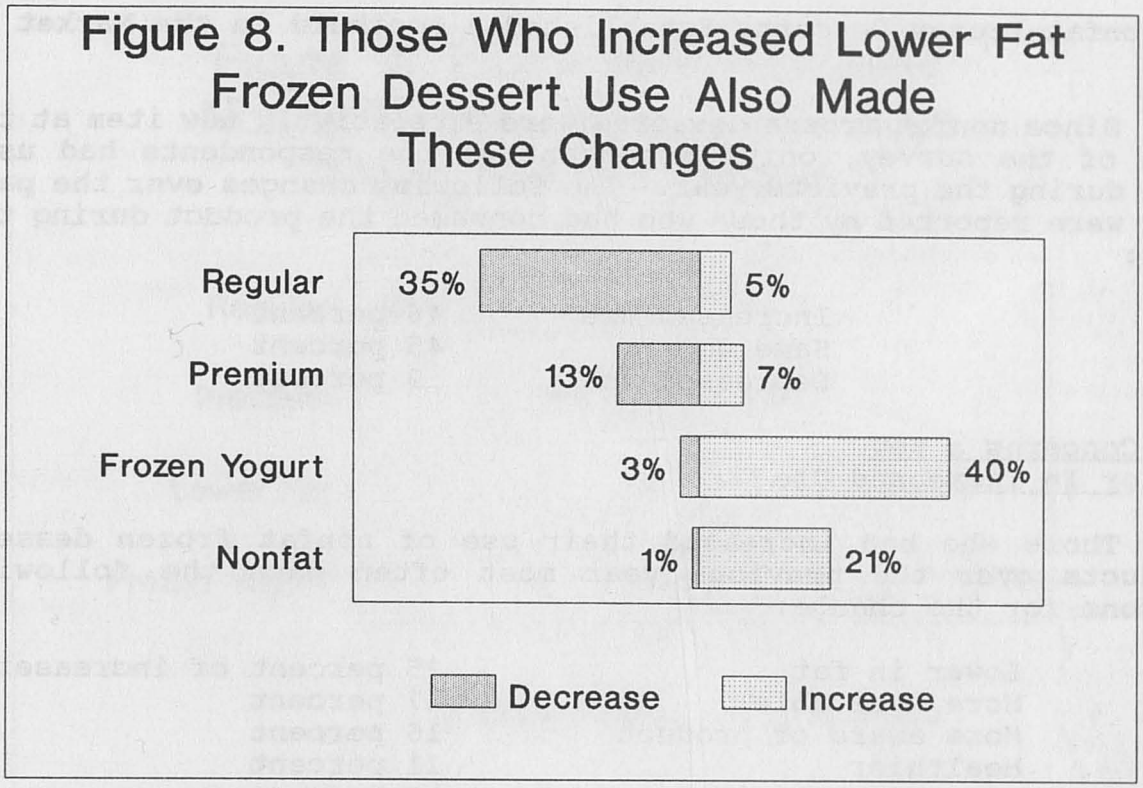
Don't like taste / flavor	34 percent of decreasers
Eating more frozen yogurt	20 percent

The patterns of change for the lower fat frozen desserts differed significantly with the amount of attention respondents said they paid to sugar and calories. Those who said they paid a great deal of attention to the sugar or calorie content of food were more likely to have increased their use. Those who said they paid only a little or hardly any attention to sugar or calorie content tended to say their use had remained the same. Those who said they paid hardly any attention to sugar content in choosing were more likely to have reduced their use of lower fat frozen desserts.

Many of Those Who Increased Use of Lower Fat Frozen Desserts Also Increased Use of Other Lower Fat Products

Those who had increased their use of lower fat frozen desserts in the previous year were studied to determine other changes in product use (Appendix II). Among those who had increased their use of lower fat frozen desserts, 35 percent reported reduced use of regular ice cream (Figure 8). A smaller proportion had reduced premium use. One reason for this small percent is the sizable proportion of lower fat increasers who did not use premium ice cream (see Appendix II).

Those who reported increased use of lower fat frozen desserts were much more likely to have increased use of frozen yogurt than to have reduced it. The large number who did not use nonfat frozen desserts should be kept in mind in interpreting the percentage reporting increased nonfat frozen dessert use.



Frequency of Use

Those who indicated that they had consumed lower fat frozen desserts in the previous year were asked about their use in the previous four weeks. Their responses were as follows:

No servings	43 percent
One serving	20 percent
Two servings	12 percent
Three servings	7 percent
Four or more servings	18 percent

These results suggest that many lower fat frozen dessert users consume these products only occasionally. A major proportion had eaten these products over the past year, but had not consumed them recently even though the survey was conducted near the end of the summer season. On the other hand, there clearly was a group of devoted and frequent consumers who eat nonfat frozen desserts once a week or more.

Usage frequencies differed significantly by the age of the respondent. Those 55-64 and 65 and over were more likely than average to have been frequent users. Those 45-54 were more likely to have had no servings.

Nonfat Frozen Desserts Established a Foothold in the Market

Since nonfat frozen desserts were a relatively new item at the time of the survey, only 15 percent of the respondents had used them during the previous year. The following changes over the past year were reported by those who had consumed the product during the year:

Increased use	46 percent
Same use	45 percent
Decreased use	9 percent

Fat Concerns a Key Factor In Increased Use

Those who had increased their use of nonfat frozen dessert products over the previous year most often gave the following reasons for the change:

Lower in fat	25 percent of increasers
More available	17 percent
More aware of product	16 percent
Healthier	11 percent
Lower in calories	11 percent

Those who had reduced their use of nonfat items over the previous year most frequently gave the following reason:

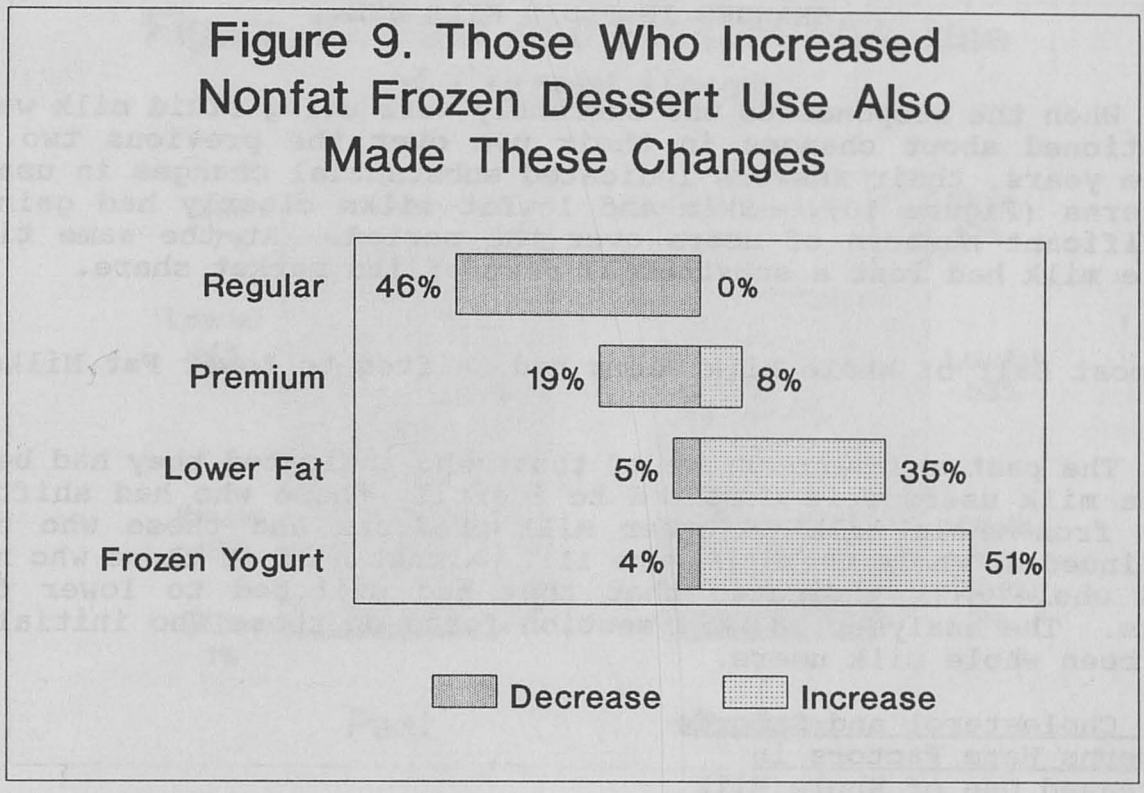
Don't like taste / flavor	62 percent of decreasers

The patterns of change in use of nonfat frozen desserts differed with the amount of attention paid to the fat content of food. Those who said they paid a great deal of attention to fat content tended to have increased their use of nonfat frozen dessert items. Those who said they paid less attention tended to have kept their consumption the same.

Many of Those Who Increased Use of Nonfat Frozen Desserts Also Increased Use of Lower Fat Frozen Desserts

Increased use of nonfat items was linked to decreased use of high fat frozen dessert items (Appendix II). Among those who had increased their use of nonfat frozen desserts in the previous year many reported decreased use of regular ice cream (Figure 9). A smaller percent reported decreased use of premium ice cream. Increased use of nonfat ice cream also was associated with increased use of frozen yogurt and lower fat ice cream.

None of the demographic variables employed were associated with changes in use.



Frequency of Use

Those who indicated they had consumed nonfat frozen dessert items during the past year were asked about the frequency of their recent use. The frequencies of use in the previous four weeks were as follows:

No servings	40 percent
One serving	25 percent
Two servings	11 percent
Three servings	7 percent
Four or more servings	17 percent

As was the case with the lower fat items, many of the nonfat product users appear to be only occasional users. Forty percent of those who had consumed the product during the previous year had not consumed the product in the previous four weeks.

There were no significant differences in usage frequency for the demographic variables used.

CHANGES IN FLUID MILK USE

When the respondents who currently were using fluid milk were questioned about changes in their use over the previous two to three years, their answers indicated substantial changes in usage patterns (Figure 10). Skim and lowfat milks clearly had gained significant numbers of users over the period. At the same time whole milk had lost a substantial part of its market share.

Almost Half of Whole Milk Users had Shifted to Lower Fat Milks

The past and current use of those who indicated they had been whole milk users were compared to identify those who had shifted away from whole milk to other milk products and those who had continued as whole users (Figure 11). Almost half of those who had used whole milk indicated that they had switched to lower fat milks. The analyses in this section focus on those who initially had been whole milk users.

Fat, Cholesterol and Calorie Concerns Were Factors in Decreased Use of Whole Milk

Shifts from whole milk to lowfat and skim clearly were linked to expressed dietary concerns. Those who indicated that they gave a great deal of attention to cholesterol, fat or calories in choosing food were more likely to have shifted to lowfat or skim milk than those who expressed lower levels of concern. Those who indicated they gave little or hardly any attention to cholesterol, fat or calories were more likely to have remained whole milk users.

Shift to Lower Fat Milks Linked to Shifts to Lower Fat Frozen Desserts

Changes in whole milk use were related to changes in the use of all five of the frozen dessert categories studied. The changes were in the direction which would be expected. Those who shifted away from higher fat frozen desserts or increased their use of lower fat items were more likely to have shifted from whole milk to lowfat or skim milk.

Shift to Lower Fat Milks More Frequent Among Older People

Differences in change patterns were found for two of the demographic variables used in the study: age and race. Those who were 35 and over were somewhat more likely to have shifted to lowfat or skim milk, while those under 35 were somewhat more likely

Figure 10. Past and Present Milk Use of Current Users

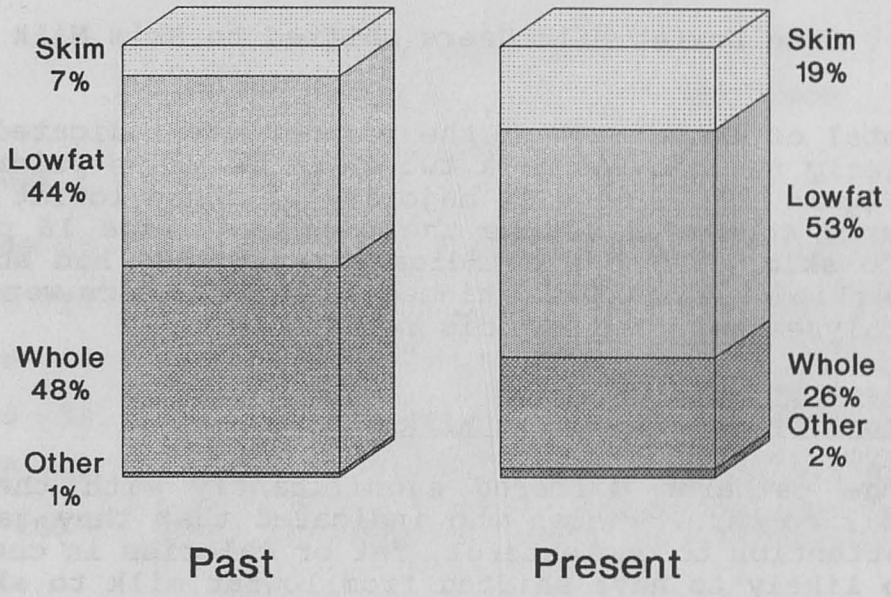
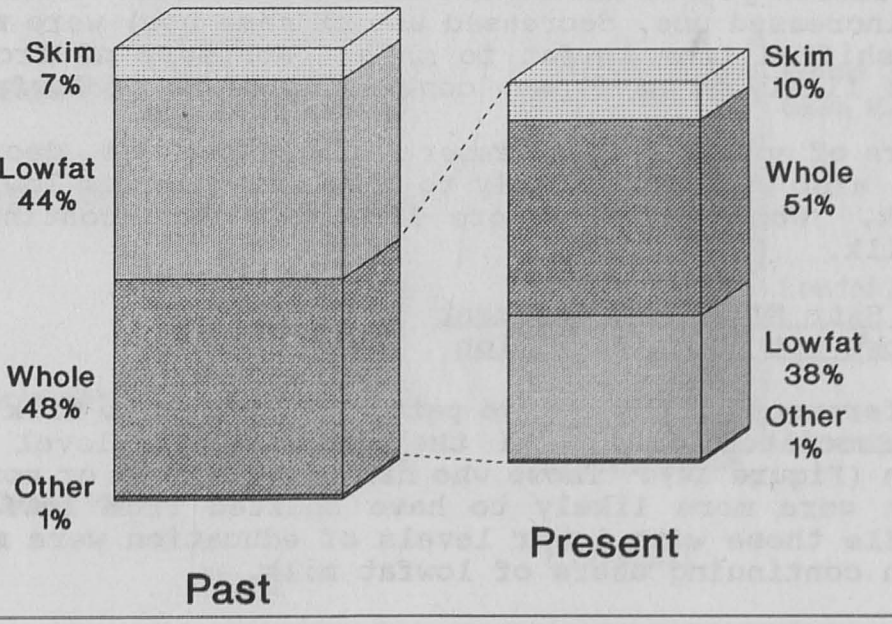


Figure 11. Current Milk Use of Past Regular Milk Drinkers



to have continued their use of whole milk (Figure 12). Whites werefound to have been more likely to have shifted from regular milk to lowfat, while nonwhites were more likely to have been continuing users of regular milk.

Some Lowfat Milk Users Shifted to Skim Milk

A total of 44 percent of the respondents indicated that they had regularly used lowfat milk two or three years prior to the survey (Figure 13). The vast majority of these lowfat milk users (79 percent) continued to use the product. Some 16 percent had shifted to skim. Those who indicated that they had shifted from lowfat to skim milk or had continued as lowfat users were the basis of the analyses reported in this section.

Fat, Cholesterol and Calories Were Factors in Shift to Skim Milk

Change patterns differed significantly with the level of nutritional concern. Those who indicated that they gave a great deal of attention to cholesterol, fat or calories in choosing food were more likely to have shifted from lowfat milk to skim. Those who indicated they gave less attention to cholesterol, fat and calories were more likely to have been continuing lowfat users.

Shift to Skim Milk Linked to Increased Use of Frozen Yogurt and Nonfat Frozen Desserts

Changes in the use of lowfat milk were found to differ with usage of frozen yogurt and nonfat frozen desserts. Users of frozen yogurt (increased use, decreased use or same use) were more likely to have shifted from lowfat to skim. Nonusers of frozen yogurt were more likely to have been continuing users of lowfat milk.

Users of nonfat frozen desserts (increased use, decreased use, same use) also were more likely to have shifted from lowfat milk to skim milk. Nonusers were more likely to have continued to use lowfat milk.

Shift to Skim Milk More Frequent Among Those with More Education

Differences in the change patterns for lowfat milk were found to be associated only with the respondent's level of formal education (Figure 14). Those who had completed 16 or more years of education were more likely to have shifted from lowfat milk to skim, while those with lower levels of education were more likely have been continuing users of lowfat milk.

Figure 12. Change in Whole Milk Use In Different Age Categories

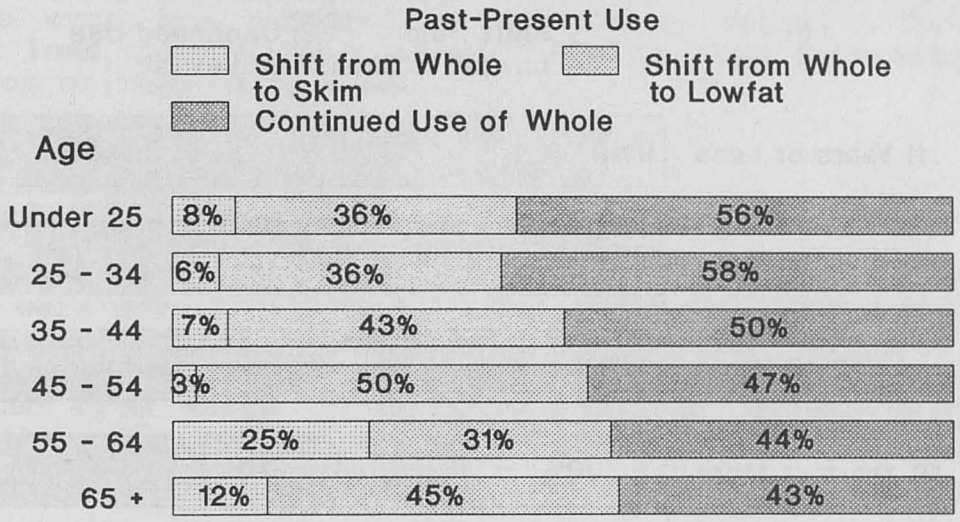
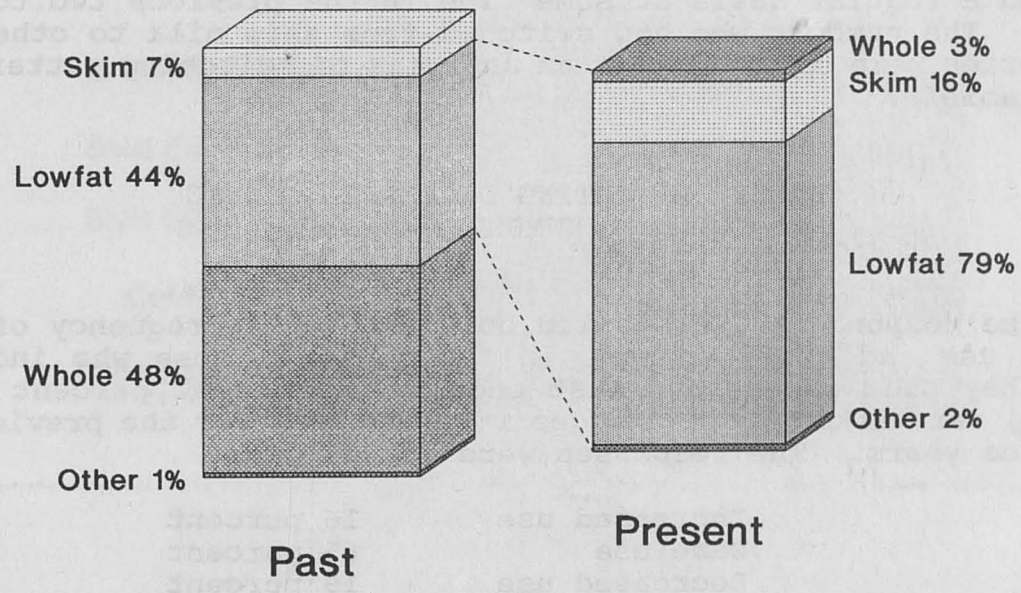
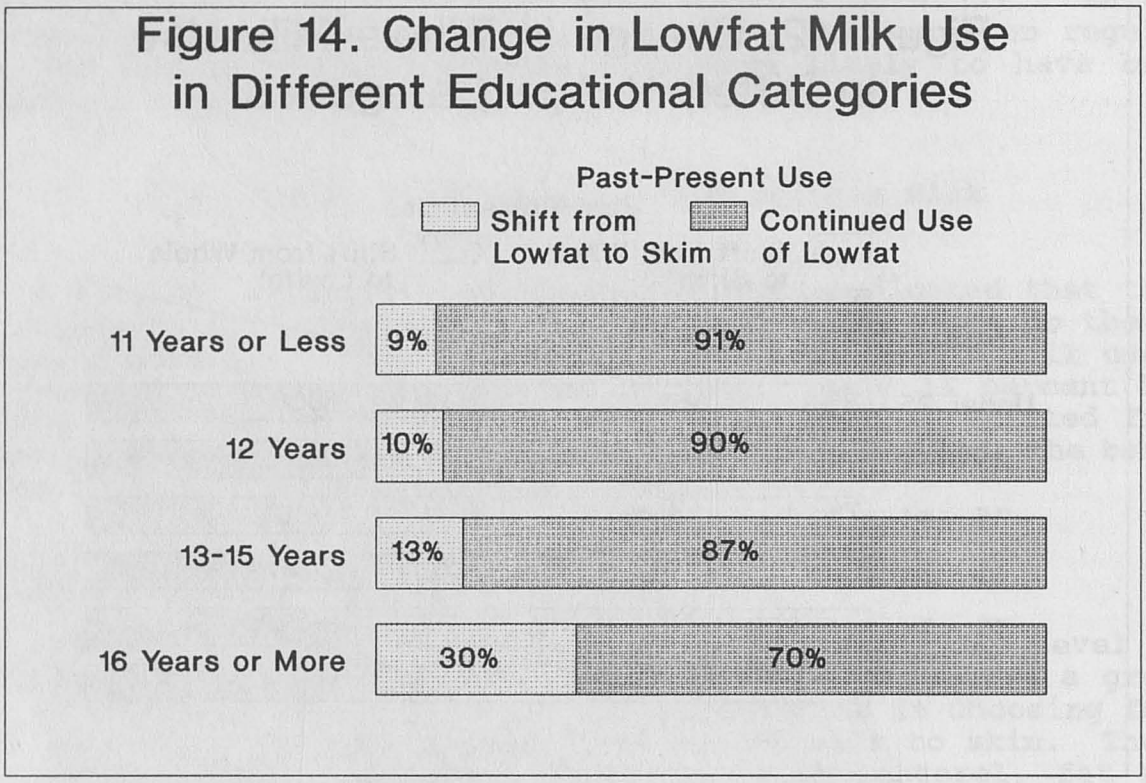


Figure 13. Current Milk Use of Past Lowfat Milk Drinkers





Changes in Skim Milk Use

Seven percent of the sample indicated that they had used skim milk on a regular basis at some time in the previous two to three years. The numbers who had switched from skim milk to other milk categories were so small that an analysis of switching patterns was not feasible.

NUMBER REPORTING DECREASED CHEESE USE EXCEEDED NUMBER INCREASING USE

The respondents were asked both about the frequency of their cheese use and about changes in their use. Those who indicated that they used cheese at least once in awhile (92 percent of the sample) were asked about changes in their use over the previous two or three years. The responses were as follows:

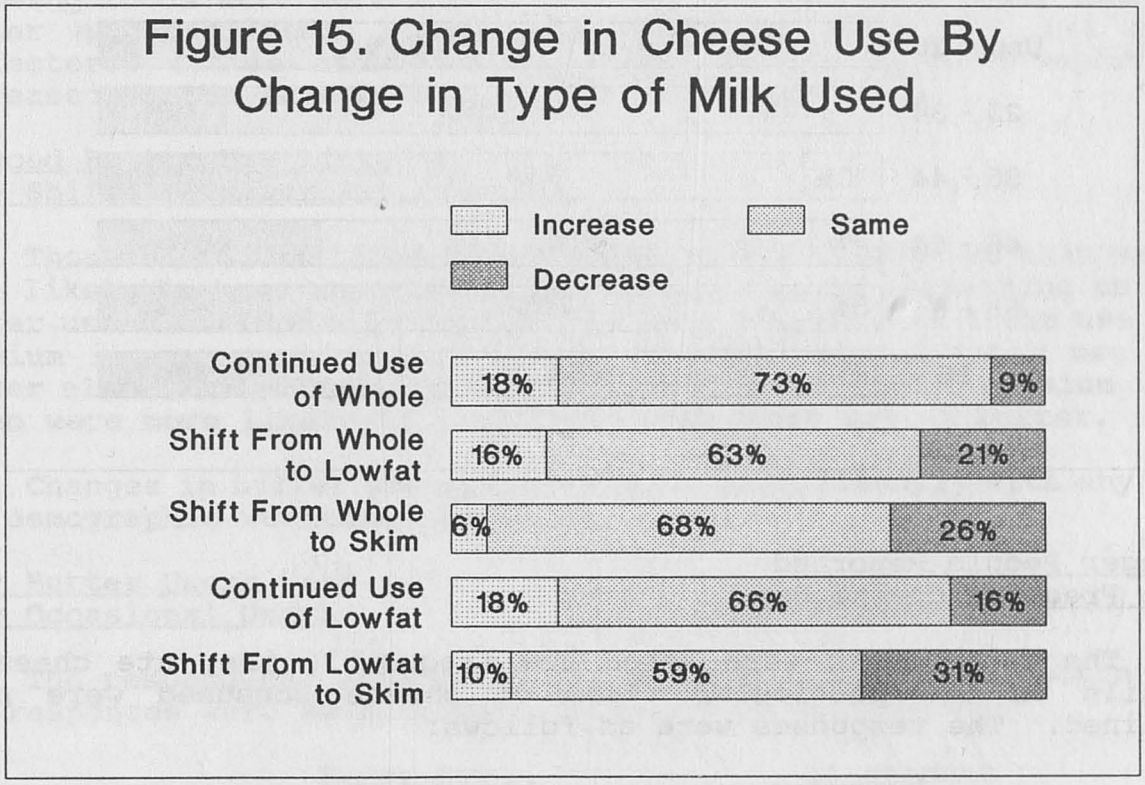
Increased use	16 percent
Same use	65 percent
Decreased use	19 percent

Fat, Cholesterol and Calories Were Factors in Decreased Use of Cheese

Those who indicated that they paid a great deal of attention to the fat, cholesterol and calorie content of the foods they eat were more likely to have indicated that they had reduced their use of cheese over the previous two or three years. Those who indicated less concern were more likely to have increased their consumption or kept it the same.

Those Who Shifted to Lower Fat Milks Were More Likely to Have Reduced Cheese Use

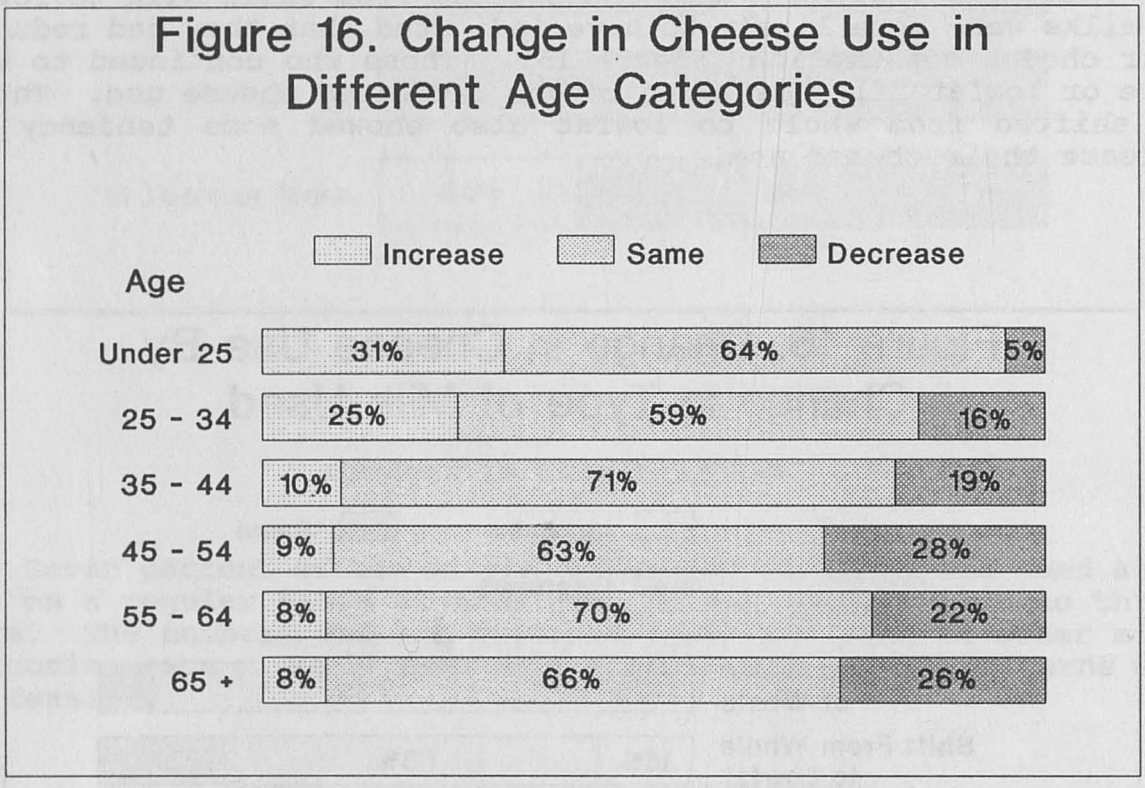
Those who indicated they had shifted from whole milk to lower fat milks were more likely to have indicated that they had reduced their cheese consumption (Figure 15). Those who continued to use whole or lowfat milk tended to report increased cheese use. Those who shifted from whole to lowfat also showed some tendency to increase their cheese use.



Older People Were More Likely to Have Reduced Cheese Use

Individuals who were 35 and over were more likely to have reported that they had reduced their use of cheese over the previous two or three years (Figure 16). Those under 35 were more likely to have reported that their cheese use had increased.

Usage change patterns also differed by education. Those with 16 or more years tended to have reduced use. Those who had completed 12-15 years of education tended to have increased cheese use. While those with 11 or less years tended to have kept cheese use the same.



Younger People Reported More Frequent Cheese Use

The respondents were asked how frequently they ate cheese. Details on the particular types of cheese consumed were not obtained. The responses were as follows:

Everyday	10 percent
Nearly every day	18 percent
A few times a week	41 percent
Once in awhile	31 percent

Usage frequency differed with a number of demographic characteristics. Older people were less frequent users. Females tended to be less frequent users as did nonwhites. Those with less formal education tended to be less frequent users. Differences in use with income and marital status were mixed.

ONE-FIFTH OF BUTTER USERS REPORTED THEIR USE HAD DECLINED

The respondents who said they used butter at least once in awhile (42 percent of the total sample) were asked how their use had changed over the previous two or three years. The responses were as follows:

Increased use	8 percent
Same use	71 percent
Decreased use	21 percent

Fat and Cholesterol Were Factors in Reduced Use

Those who gave more attention to fat and cholesterol in choosing foods were more likely to have reported that their use of butter had declined. Those who said that they gave fat and cholesterol little attention were more likely to have reported increased or the same butter use.

Reduced Butter Use Linked to Some Shifts to Lower Fat Products

Those who had shifted from regular milk to lowfat or skim were more likely to have reported either increasing or decreasing their butter use. Those who indicated that they had reduced their use of premium ice cream were more likely to have reduced their use of butter also, while those who had increased their use of premium ice cream were more likely to have increased their use of butter.

Changes in butter use did not differ significantly with any of the demographic variables employed.

Many Butter Users Were Only Occasional Users

The respondents were asked how often they used "real butter." The responses were as follows:

Every day	21 percent
Nearly every day	12 percent
A few times a week	20 percent
Once in awhile	47 percent

The responses suggest that many butter users are only very occasional users of the product.

SUMMARY AND CONCLUSIONS

This study reports the results of a nationwide telephone survey conducted in August 1990. A total of 1200 households were contacted using random digit dialing and an adult male or female household member was interviewed concerning changes in their use of frozen desserts and other dairy products.

Regular ice cream continued to be the most widely used frozen dessert with 53 percent reporting they had consumed it in the previous four weeks. Frozen yogurt was the second most widely used, with 44 percent reporting use. Premium was third with 38 percent reporting use, while 30 percent reported use of lower fat frozen dessert items (sherbet, ice milk and lite frozen desserts). Nonfat frozen desserts, a relatively new product, had been used by 9 percent, suggesting it had established a market foothold.

The responses indicated widespread reductions in regular ice cream use and increases in frozen yogurt use. There also was evidence of spreading use of lower fat frozen dessert products. Thirty percent of the regular ice cream users said they had cut their use over the previous year. Among this group, 43 percent said they had increased their use of frozen yogurt. These shifts were motivated by concern about calories and sugar and about cholesterol and fat. Reports of reduced use were most frequent in 55-64 age group and in the top income category, $65,000 and above.

Forty percent of the frozen yogurt users said they had increased their use over the previous year. This change was motivated by a liking for the taste of frozen yogurt and by concern about calories and about fat. Those who had increased their use of frozen yogurt were especially likely to have cut their regular ice cream use. They were somewhat less likely to have cut premium ice cream consumption since many did not use it.

Those who said they had reduced their use of premium ice cream outnumbered increasers by two-to-one. Those who had cut premium ice cream use indicated concern about calories and about fat and cholesterol. Among those who cut premium use, half also cut their use of regular ice cream. Frozen yogurt was the major beneficiary of the cuts in premium ice cream use. Two-fifths of those who had reduced their use of premium ice cream indicated that they had increased their use of frozen yogurt.

Sherbet, ice milk and lite frozen desserts were not major beneficiaries of the interest in lower fat products. The number of those who had increased their use of this group of lower fat

products outweighed the number who had cut their use by only a four-to-three margin. Those who increased their use were concerned about calories and sugar and about fat. Of those who had increased their use of these products, one-third reported they had reduced their use of regular ice cream. Forty percent had also increased their use of frozen yogurt and 21 percent had increased their use of nonfat frozen desserts.

Almost half of those who used nonfat frozen desserts said their use had increased over the previous year. This undoubtedly is due to the product's newness. Increased awareness of the product and improved availability were frequently cited reasons for increased use. Users also indicated concerns about fat and about calories. Of those who reported increased use on nonfat frozen desserts, almost half had cut their use of regular and half had increased their use of frozen yogurt over the previous year.

Among milk drinkers who 2-3 years previously had used whole milk, half reported they were continuing to use whole milk while the other half had switched to lower fat milks (skim and low-fat). Of those who had used lowfat milks (1 and 2 percent milks) 2-3 years previously, most continued to use lowfat milks while 16 percent had switched to skim milk. Almost all skim milk users had continued to use skim. The pattern of change suggests that shifts occur in a stepwise fashion with changers moving to the product which is next lower in fat.

Almost all of the respondents indicated they used cheese at least once in awhile. The number reporting decreased use did, however, exceed the number reporting increased use by a small margin. Fat, cholesterol and calorie concerns were associated with reduced use. Young people were more likely than average to have indicated increased use while older people were more likely to have indicated reduced use.

Forty-two percent of the respondents said that they used butter at least once in awhile. Among butter users, those who said they had cut use over the previous 2-3 years outnumbered increasers by a five-to-two margin. Fat and cholesterol concerns were associated with reduced use.

The results indicate that substantial numbers of consumers believe they have increased their use of lower fat dairy products in recent years. Many also believe that they have reduced their use of higher fat products. Many of these shifters continue to use higher fat products, at least occasionally. The evidence from another analysis of data from this study suggests that about 30 percent of all consumers do not consume higher fat frozen desserts on a regular basis. A cluster analysis of data from this study indicated that 14 percent of the respondents did not consume any of the frozen dessert items in the previous four weeks. Another 16

percent had consumed only the three lower fat items and did not report any servings of regular or premium ice cream.

While dietary concerns have come and gone over the past decade, concerns with dietary fat seem likely to have some staying power (Herrmann, 1991). The links of dietary fat to obesity, heart disease and cancer ensure continuing public concerns. These concerns provide strong motivations for dietary changes. At the same time, the appearance and widespread availability of attractive lower fat products has made switches relatively easy and painless. Continuing monitoring of these changes is planned in order to assess their impact on the American diet and the dairy industry.

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APPENDIX I. CHANGE IN PRODUCT USE BY DIETARY CONCERN, CHANGE IN USE OF OTHER PRODUCTS AND DEMOGRAPHIC CHARACTERISTICS.

Regular Ice Cream Use			
Variables	Chi-Square Statistic	Degrees of Freedom	Probability
Change in regular ice cream use			
X Cholesterol	26.05	6	.000
Fat	26.89	6	.000
Sugar	36.09	9	.000
Calories	43.09	9	.000
Change in regular ice cream use			
X Change in premium ice cream use	120.31	9	.000
Change in frozen yogurt use	70.20	9	.000
Change in lower fat frozen dessert use	82.31	9	.000
Change in nonfat frozen dessert use	34.10	9	.000
Change in regular ice cream use			
X Age	28.59	10	.000
Income	22.28	8	.000
Race	6.76	2	.030
Frequency of regular ice cream use			
X Age	52.61	25	.001
Urbanization - region	53.01	35	.026

Frozen Yogurt Use			
Variables	Chi-Square Statistic	Degrees of Freedom	Probability
Change in Frozen Yogurt use			
X Calories	12.69	6	.048
Change in frozen yogurt use			
X Change in premium use	51.79	9	.000
Change in regular use	70.20	9	.000
Change in lower fat frozen dessert use	116.51	9	.000
Change in nonfat frozen dessert use	42.31	9	.000

Premium Ice Cream Use			
Variables	Chi-Square Statistic	Degrees of Freedom	Probability
Change in premium ice cream use			
X Cholesterol	22.13	6	.001
Fat	25.55	6	.000
Change in premium use			
X Change in regular ice cream use	120.31	9	.000
Change in frozen yogurt use	51.79	9	.000
Change in lower fat frozen dessert use	47.82	9	.000
Change in premium ice cream use			
X Presence of children 17 or under	8.021	2	.018
Frequency of premium ice cream use			
X Age	38.55	25	.041
Race	12.45	5	.029

Lowfat Frozen Dessert Use			
Variables	Chi-Square Statistic	Degrees of Freedom	Probability
Change in lower fat frozen dessert use			
X Sugar	16.52	6	.011
Calories	20.94	6	.002
Change in lower fat frozen dessert use			
X Change in premium ice cream use	47.82	9	.000
Change in regular ice cream use	82.31	9	.000
Change in frozen yogurt dessert use	116.51	9	.000
Change in nonfat frozen dessert use	73.40	9	.000
Change in lower fat frozen dessert use			
X Marital status	18.41	4	.001
Frequency of lower fat ice cream use			
X Age	40.92	20	.004
Education	21.18	12	.048

Nonfat Frozen Dessert Use			
Variables	Chi-Square Statistic	Degrees of Freedom	Probability
Change in use of nonfat frozen desserts			
X Fat	13.32	6	.038
Change in nonfat frozen dessert use			
X Change in regular ice cream use	34.10	9	.000
Change in frozen yogurt use	42.31	9	.000
Change in lower fat ice cream use	73.40	9	.000

Regular Milk Use			
Variables	Chi-Square Statistic	Degrees of Freedom	Probability
Regular milk change			
X Attention to cholesterol	38.13	6	.000
Attention to fat	51.80	6	.000
Attention to calories	30.88	6	.000
Change in regular milk use			
X Change in frozen yogurt use	37.95	6	.000
Change in lowfat frozen dessert use	18.38	6	.005
Change in nonfat frozen dessert use	13.61	6	.034
Change in premium ice cream use	26.48	6	.000
Change in regular ice cream use	16.68	6	.011
Change in use			
X Age	24.99	10	.005
Income	23.71	8	.003
Urbanization	8.55	2	.014
Race	8.70	2	.013

Lowfat Milk Use			
Variables	Chi-Square Statistics	Degrees of Freedom	Probability
Change in lowfat milk use			
X Attention to cholesterol	20.75	3	.000
Attention to fat	17.36	3	.001
Attention to calories	13.66	3	.003
Change in use of lowfat milk			
X Change in frozen yogurt use	13.90	3	.003
Change in nonfat frozen dessert use	10.44	3	.015
Change in lowfat milk use			
X Education	21.21	3	.000

Cheese Use			
Variables	Chi-Square Statistic	Degrees of Freedom	Probability
Change in cheese use			
X Fat	82.29	6	.000
Cholesterol	76.27	6	.000
Calories	23.44	6	.001
Change in cheese use			
X Change in regular milk use	17.27	4	.002
Change in lowfat milk use	8.09	2	.017
Change in frozen yogurt use	14.51	4	.006
Change in regular ice cream use	17.84	4	.001
Change in lower fat frozen dessert use	11.66	4	.020
Change in nonfat frozen dessert use	12.85	4	.012
Change in cheese use			
X Age	84.15	10	.000
Sex	13.41	2	.001
Marital status	18.20	4	.001
Education	13.91	6	.031
Region	13.93	6	.030
Frequency of cheese use			
X Age	62.30	15	.000
Marital status	23.83	6	.001
Sex	11.52	3	.009
Education	26.67	9	.002
Income	29.07	12	.004
Race	18.92	3	.000

Butter Use			
Variables	Chi-Square Statistic	Degrees of Freedom	Probability
Change in butter use			
X Fat	18.98	6	.004
Cholesterol	21.60	6	.001
Change Linkages for Butter			
X Change in use of regular milk	23.28	4	.000
Change in premium ice cream use	11.50	4	.022
Frequency of Butter Use			
X Marital status	13.15	6	.041

APPENDIX II. CHANGE IN FROZEN DESSERT USE OVER PAST YEAR.

	Regular Ice Cream	Frozen Yogurt	Premium Ice Cream
Increased use	4.6	25.3	6.3
Decreased use	22.6	5.3	13.2
Same use	47.6	34.2	35.8
Did not use*	25.2	35.2	44.7
	100.0	100.0	100.0

	Lower Fat Frozen Dessert	Nonfat Frozen Dessert
Increased use	11.4	6.6
Decreased	8.4	1.3
Same use	33.4	6.7
Did not use*	46.8	85.4
	100.0	100.0

* Those who indicated they had not consumed product in past year.

APPENDIX III. CHANGE IN PRODUCT USE AND CHANGE IN USE OF OTHER PRODUCTS.

Changes in Use of Other Product Categories by Those Who Reported Decreased Use of Regular Ice Cream over the Previous Year				
	Premium Ice Cream	Frozen Yogurt Ice Cream	Lower Fat Products	Nonfat Products
Increased use	8 %	43 %	18 %	13
Same use	24	26	25	6
Decreased use	28	6	16	2
Did not use	40	25	41	79
	100 %	100 %	100 %	100 %

Changes in Use of Other Product Categories by Those Who Reported Increased Frozen Yogurt Use over the Previous Year				
	Premium Ice Cream	Regular Ice Cream	Lower Fat Products	Nonfat Products
Increased use	5 %	2 %	18 %	13 %
Same use	30	40	34	6
Decreased use	21	38	10	1
Did not use	44	20	38	80
	100 %	100 %	100 %	100 %

Changes in Use of Other Product Categories by Those Who Reported Decreased Use of Premium Ice Cream over the Previous Year				
	Regular Ice Cream	Frozen Yogurt	Lower Fat Products	Nonfat Products
Increased use	2 %	41 %	11 %	9 %
Same use	24	25	29	5
Decreased use	49	8	21	1
Did not use	25	26	39	85
	100 %	100 %	100 %	100 %

Changes in the Use of Other Product Categories by Those Who Reported Increased Use of Lower Fat Frozen Dessert Products over the Previous Year				
	Premium Ice Cream	Regular Ice Cream	Frozen Yogurt	Nonfat Products
Increased use	7 %	5 %	40 %	21 %
Same use	34	46	36	5
Decreased use	13	35	3	1
Did not use	46	14	21	73
	100 %	100 %	100 %	100 %

Changes in Use of Other Product Categories by Those Who Reported Increased Use of Nonfat Frozen Desserts Over the Previous Year				
	Premium Ice Cream	Regular Ice Cream	Frozen Yogurt	Lower Fat Products
Increased use	8 %	9 %	50 %	36 %
Same use	29	35	33	39
Decreased use	19	46	4	5
Did not use	44	19	13	20
	100 %	100 %	100 %	100 %