Food Companies Spread Nutrition Information Through Advertising and Labels

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The question of how best to get evolving scientific evidence linking diet and disease to consumers has been much debated. At issue are widely varying opinions about how effective food manufacturers are in reaching consumers, compared to, or in addition to, Government and other information sources, and about the best approaches for controlling misleading or deceptive claims.

The Federal Government has published information on the link between diet and health—particularly heart disease and certain cancers—and promoted dietary recommendations to reduce the risk of disease since the mid-1970's. Private health organizations, such as the American Heart Association and the American Cancer Institute, have also devoted significant resources to informing the public of these diet-disease risks beginning even earlier. Yet despite the efforts of Government and other general information sources to communicate the links, the typical American diet still deviates substantially from recommendations, although it has certainly improved since the mid-1960's. While we cannot conclude that current consumption patterns reflect a lack of information about diet and health (since many consumers may knowingly trade long-term health costs for taste and other things they value), Americans' eating habits raise the likelihood that public-education campaigns have not been fully successful.

Allowing truthful diet-disease claims by food manufacturers likely benefits consumers, since this policy increases the opportunity, and thus the competitive pressure on companies, to market the nutritional features of foods. Also, if manufacturers' claims are an important source of information for many consumers, a greater freedom to make valid claims could spread the information more effectively to a larger portion of the population.

We use the experience in the ready-to-eat cereal market and consumption trends from surveys and food supply data to evaluate whether policy changes that took place in the mid-1980's—which allowed food manufacturers to explicitly link diet to disease risks through health claims in advertising and labeling—appear to have improved consumers' food choices or, as many critics fear, to have confused consumers sufficiently to slow improvements in diet that would otherwise occur.

Previous Regulations Constrained Diet-Disease Information

Claims on food labels are primarily regulated by the U.S. Food and Drug Administration (FDA), and claims in advertising are primarily under the jurisdiction of the Federal Trade Commission (FTC). Labels on meat and poultry products are regulated by the U.S. Department of Agriculture (USDA). Food manufacturers' claims linking fiber, fat, cholesterol, or any other dietary component to disease risks were explicitly prohibited on FDA-regulated labels throughout the 1970's and into the 1980's. Thus, for instance, from 1973 to the mid-1980's a manufacturer could label the fiber, fat, saturated fat, and cholesterol content of a food product but could not on the label cite the health reasons why consumers should care about these characteristics, namely, the potential to reduce heart disease and cancer risks.

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The rules for advertising were different, in that they never formally prohibited diet-disease claims, though the labeling policy raised the risk that such a claim in advertising would be judged deceptive. The FTC allowed simple nutrient claims about fats and cholesterol throughout this period, as long as the claim was not deceptive or misleading.

The policy banning health claims on labels, with its implications for advertising, was effectively relaxed in 1985 following the introduction of Kellogg's highly publicized advertising and labeling campaign for its All-Bran cereal. This campaign explicitly used the National Cancer Institute's statements on the potential relationship between fiber and cancer prevention to promote Kellogg's high-fiber cereals. The FDA's decision not to challenge this prominent campaign presumably led firms to perceive a significantly reduced legal risk in using accurate and well-founded health claims in advertising and labeling.

Initial claims focused on the relationship between fiber and cancer, but a number of food manufacturers soon began to promote the relationship between saturated fat and cholesterol consumption and heart disease. For instance, Promise margarine, which was lower at the time in saturated fat than margarines were, was introduced in 1986 with its "Heart smart" theme and focus on the role of saturated fat in coronary disease risks. A major TV campaign by Nabisco for Fleischmann's lower saturated fat margarine, featuring a 30-year-old man talking about his recent heart attack and discussing the role of diet in prevention, also ran in 1986. By 1987, a number of firms had major advertising campaigns touting the role of a diet low in saturated fat in reducing the risk of heart disease.

Manufacturers' Health Claims Boosted Sales of High-Fiber Cereals . . .

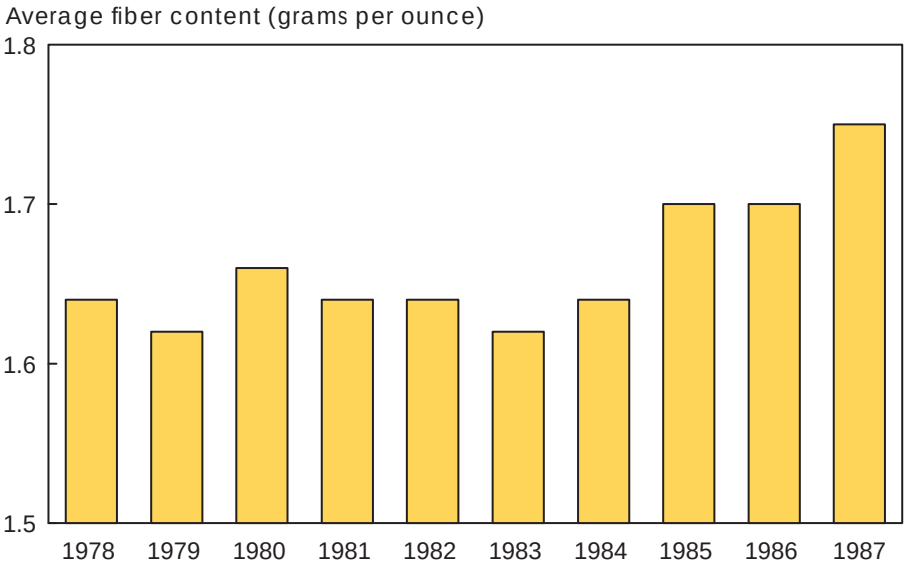
Despite growing evidence on the link between reduced cancer rates and high-fiber diets during 1978-84, a period before health claim advertising, there was no shift toward high-fiber cereals (fig. 1). However, as soon as health claims in advertising and labeling began in late 1984, there was a significant increase in the market-share-weighted fiber content of cereals (grams of fiber per ounce). During 1985-87, the market-share-weighted fiber content of cereals rose from 1.64 grams to 1.75 grams, an increase of approximately 7 percent. We estimate that health claims in advertising and labeling may have caused approximately 2 million more households to consume high-fiber cereals during these 3 years and, thus, led individuals in those 2 million households to reduce their risk of colon cancer.

Cereal manufacturers, in response to the growing demand for high-fiber cereals and knowing they could now advertise the health benefits of fiber, responded by developing new high-fiber cereals. Excluding children's cereals, cereals introduced between 1985 and 1987 averaged 3.59 grams of fiber per ounce, compared with an average of 1.99 grams of fiber per ounce for cereals introduced between 1978 and 1984.

It is important to note that prior to 1984, firms were permitted to disclose their fiber content on labels. Consequently, the dramatic effects on food manufacturer and consumer behavior appear to be linked to the use of the health claim rather than the ability to list the fiber content. In other words, it is important to permit firms to explain the reasons why consumers should care about fiber.

Researchers at FDA also found substantial effects on cereal sales following the start of the Kellogg Company's All Bran advertising campaign. They examined weekly sales data from a Washington, DC, grocery chain for a 48-week period that began 14 weeks prior to the

Figure 1
Fiber Content of Cereals Rose After Health Claims Began



Kellogg campaign. The size, distribution, and timing of cereal sales' increases supported the conclusion that the introduction of the health-claim advertising in the cereal market had a clear and substantial effect in shifting consumer purchases toward higher fiber cereals.

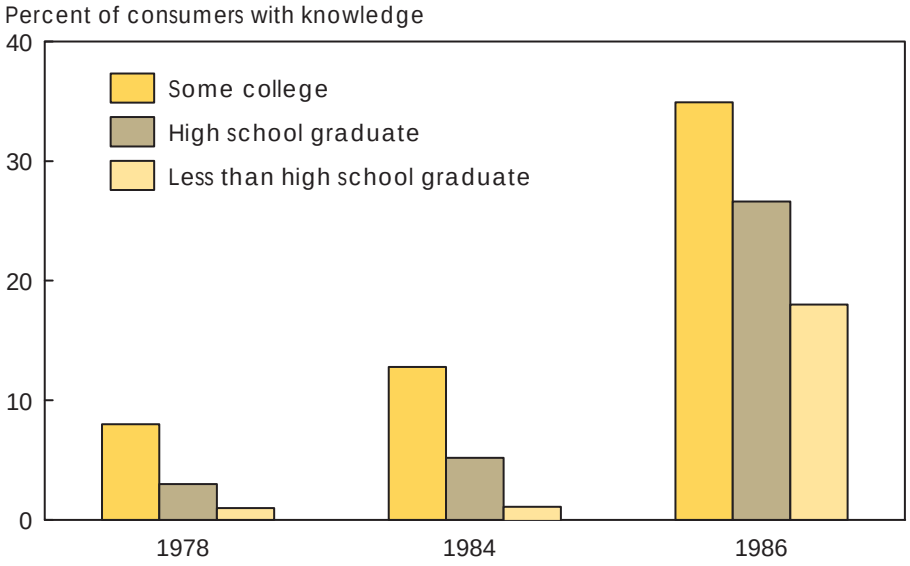
. . . And Consumers' Knowledge of the Link Between Dietary Fiber and Cancer Prevention

The use of health claims in the ready-to-eat cereal market also profoundly affected consumers' knowledge of the link between fiber consumption and cancer (fig. 2). FDA survey data show that consumer knowledge of the link was low and did not increase substantially in the 6 years before the introduction of health claims on labels and in advertising. For consumers with education levels below high school, there was no gain in knowledge, and for high school graduates and those who attended some college, there were some modest gains.

For example, in 1984 (as in 1978), only 1 percent of those with less than a high school education knew of the link between fiber and cancer. After the introduction of health claims, all groups gained knowledge of the fiber-cancer link. For example, reported knowledge rose from 1.1 percent in 1984 to 18 percent in 1986 for those with less than a high school education. Knowledge levels also increased dramatically for other education groups.

In considering potential reasons why advertising had different effects than other information sources in the period prior to the introduction of health claims, several major differences between the distribution methods used by Government and private advertisers

Figure 2
Fiber-Cancer Knowledge Grew After Health Advertising



are worthy of mention. Government and general information is usually disseminated in generic form ("increased soluble fiber consumption may reduce risks of coronary heart disease"), and this information is concentrated in news and print media reports about the latest scientific studies on diet and health. Researchers have found that more educated consumers are more likely to acquire nutrition information from print media than are their less educated counterparts. Also, generic information requires that consumers have other sources of information and a better understanding of the underlying disease issue to turn the information into behavior, creating a potential bias toward those most efficient in processing information and those with better access to health information.

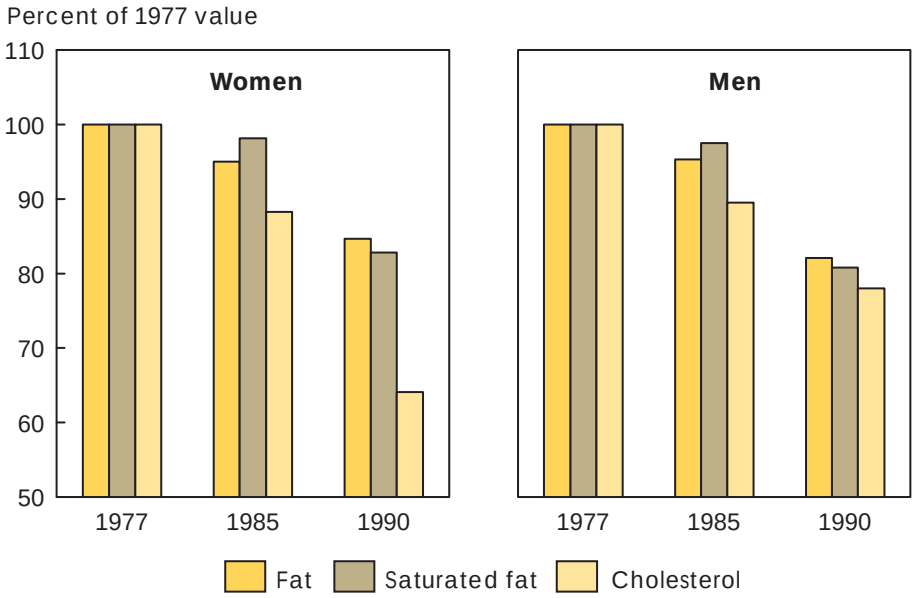
In contrast, most cereal advertising is distributed through television, with a smaller portion in print media. Moreover, health-claim advertising and labeling is product-specific, so that advertising and labeling not only indicates the relationship between food characteristics and health, but also prominently features a product that contains these characteristics.

Surveys Show Daily Intake of Fats and Cholesterol Falling

USDA periodically conducts large national surveys in which detailed information on all foods and beverages consumed over a previous 24-hour period are collected and matched to nutrition data. Samples of male and female heads of households were consistently questioned in all these surveys. For these samples, the surveys show that average intakes of fat, saturated fat, and cholesterol for both women and men declined during 1977-90, and the rate of decline was generally greater between 1985 and 1990, the period when diet-disease claims were permitted.

Average daily fat intake (measured as a percentage of the 1977

Figure 3
Intake of Fat, Saturated Fat, and Cholesterol Fell Faster After 1985



Note: Data are for women and men ages 19-50 years.

intake level) for both men and women fell during 1977-85, and the rate of decline accelerated during the health claims period of 1985-90 (fig. 3). Average daily fat intake for women declined significantly by 3.7 grams in the 8 years from 1977 to 1985 (from 73.3 to 69.6 grams), and fell an additional 7.5 grams in the nearly 5 years between 1985 and 1990. For men, daily fat intake in declined by 5.3 grams during 1977-85 (from 112.8 to 107.5), and fell an additional 14.9 grams in 1985-90.

Movements in saturated fat intake generally parallel changes in total fat intake (fig. 3). (Saturated fat and cholesterol nutrition data are not available for foods in 1977, so 1977 consumption is paired with nutrition data from 1985 to measure intake of these food components.) As with total fat, the reductions in saturated fat intake were larger in the health claims period of 1985-90 than before 1985. For women, average daily saturated fat intake dropped by 1.0 gram during 1977-85, and an additional 3.5 grams during 1985-90. For men, average daily saturated fat intake declined by 1.0 gram between 1977 and 1985, and fell an additional 6.7 grams during 1985-90.

Changes in average cholesterol intake mirror those for fat and saturated fat (fig. 3). For women, these data show the same pattern of accelerated decline during the health claims period. The magnitude of the acceleration is more pronounced, though an official change in the measured cholesterol content of eggs beginning in the 1987 data suggests the need for caution in interpreting this result, since at least part of the accelerated decline is due to the lowered cholesterol content of eggs. For women, daily intake of cholesterol declined 40.4 milligrams (from 345.3 to 304.9) during the 8 years prior to 1985, and 83.7 milligrams during 1985-90.

For men, the decline in average cholesterol intake is similar, but not as accelerated during the health claims period. Daily intake of cholesterol fell 52.3 milligrams (from 498.9 to 446.6) before 1985, and an additional 57.6 milligrams between 1985 and 1990.

These declines in average intakes of fat, saturated fat, and cholesterol are consistent with the hypothesis that the policy changes that allowed food companies to mention diet-disease issues in advertising and labeling added information to the market and led to a faster rate of improvement in consumers' diets. This type of data cannot establish that advertising and labeling claims were responsible for the increased rate of dietary improvement, since, for example, Government and other public and private organizations also continued their efforts to inform the public during this period and could have found more effective ways to accomplish their goals. Nonetheless, these data provide no support for the view that the introduction of food manufacturers' health claims adversely affected overall consumer food choices or led consumers to reverse dietary improvements that were underway. Moreover, the data are consistent with the hypothesis that these claims, and the competition they spurred among food manufacturers, helped consumers to improve their diets more rapidly during the period when companies were freer to explain why these nutritional characteristics are important.

Food Supply Trends Also Show Declines in Higher Fat, Higher Cholesterol Foods

Trends in per capita consumption derived from U.S. food supply data also support the theory that Government and general sources of diet-health information affected consumers' food choices prior to 1985, and that the change in the regulations governing health claims in

1985 provided an additional source of this information, with a corresponding incremental effect on consumption patterns.

We examined trends in per capita consumption of red meat, eggs, and animal fats (primarily butter and lard), as well as those in lower fat categories, such as flour and cereal products, fruits, and vegetables. Health claims had never been allowed on meat and poultry labels, which are regulated by USDA. Thus, any effects in these categories due to the change in health claims policy would be the result of general improvements in information from claims for other foods, rather than to the direct effect of health claims on labels for lean meats and poultry.

Changes in per capita consumption of each food group were analyzed for 1977 to 1985 (prior to health claims) and for 1985 to 1990 (the health claims period). We examine these trends from a statistical perspective, using simple regression techniques that allow us to look at underlying trends and any changes in those trends as the health claim rules changed. A trend for a particular food group does not by itself establish the role of health claims in changing consumers' food choices, because changes in prices, incomes, and other factors could also have an influence. However, a pattern of similar trends across several foods suggests a stronger link between consumption changes and the ability of food companies to make health claims, since potential confounding factors are not likely to have similar effects across multiple food categories.

Per capita consumption of red meat—a major source of fat and saturated fat in the U.S. diet—declined during both the 1977-85 period and the 1985-90 period (fig. 4). In 1977, per capita consumption of red meat was 132.2 pounds per year, and by 1985 it had fallen 7.3 pounds to 124.9 pounds per year. In the next 5 years, however, the decline accelerated. Per capita consumption of red meat fell 12.5 pounds to a total of 112.4 pounds. Regression results indicate that there was a significant negative trend in meat consumption throughout 1977-90, and that the rate of decline accelerated during the health claims period.

Figure 4
Consumption of High-Fat Foods Decreased Faster After 1985

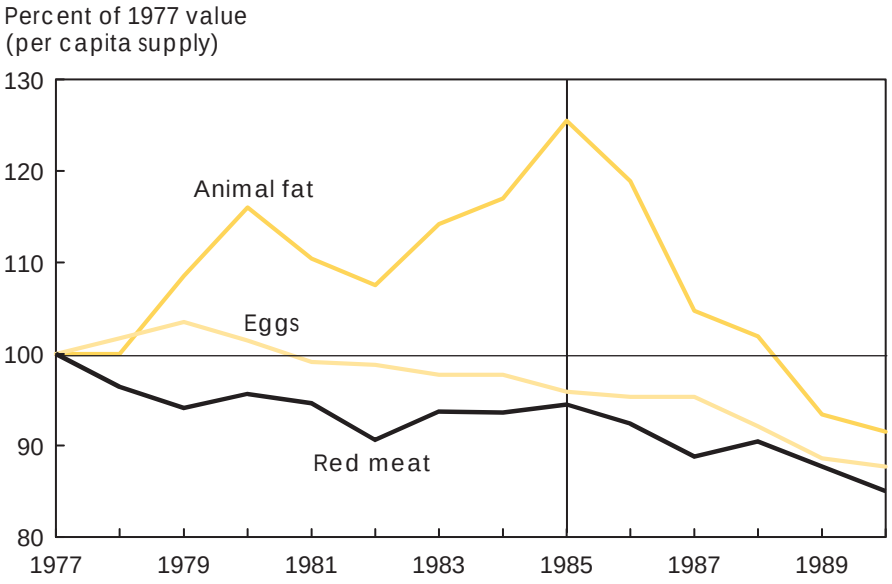
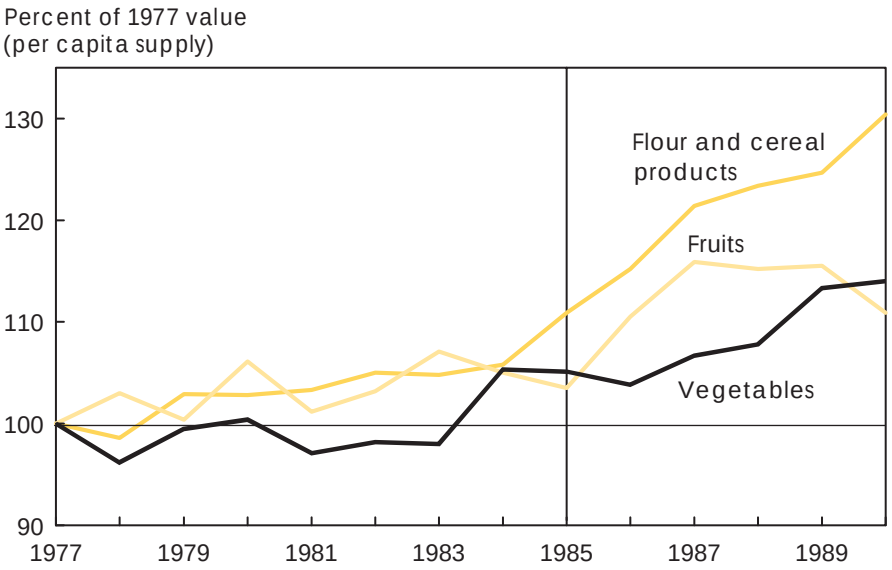


Figure 5
Consumption of Lowfat Foods Increased Faster After 1985



Per capita consumption of eggs also declined during both periods. In 1977, per capita consumption of eggs was 34.3 pounds. By 1985, this had declined by 1.4 pounds to 32.9 pounds. During the next 5 years, per capita consumption fell an additional 2.8 pounds, again showing an acceleration in the rate of decline. Regression results confirm that there was a significant negative trend during 1977-90, and that the negative trend accelerated during the health claims period.

Surprisingly, per capita consumption of animal fat rose dramatically from 1977 to 1985, and then fell as dramatically during 1985-90 (fig.4). Per capita consumption of animal fat was 10.6 pounds per year in 1977 and 13.3 pounds in 1985, a rise of 2.7 pounds. By 1990, per capita consumption had fallen to 9.7 pounds per year, a remarkable reduction of 3.6 pounds (a 27-percent reduction) in just 5 years. Regression results indicate that there was a significant upward trend in the per capita consumption of animal fat, but that this trend was reversed during the health claims period.

In each of the three cases analyzed here, per capita consumption of high-fat, high-cholesterol foods declined during the health claims period. Moreover, this decline was more accelerated compared with the earlier period when companies were prohibited from using health claims. In other work where we examined 10 high-fat foods (red meat, eggs, cream products, cheese, animal fats, vegetable fats, whole milk, butter, ice cream, and creamed cottage cheese), all showed similar accelerated declines during 1985-90. Six of the 10 high-fat foods had positive consumption trends before 1985, contrary to what would be expected if dietary information was successfully spreading to consumers.

While consumption of high-fat foods decreased in the health claims period, per capita consumption of flour and cereal products, fruits, and vegetables increased during both periods, and the rate of increase accelerated during the health claims period (fig. 5). These are major categories of foods recommended for increased consumption to replace fats in the U.S. diet.

For example, between 1977 and 1985, annual per capita consumption of flour and cereal products increased by 15.4 pounds (from 140.7 to 156.1). In the next 5 years, consumption rose another 27.4 pounds to 183.5 pounds per capita. For vegetables, consumption rose 10.3 pounds (from 200.5 to 210.8) between 1977 and 1985, and rose 17.6 pounds between 1985 and 1990. Consumption of fruits rose 3.4 pounds (from 96.1 to 99.5) between 1977 and 1985, and rose 7.1 pounds between 1985 and 1990. Regression results confirm that the upward trend was statistically significant for all three categories, and that this trend accelerated significantly during the health claims period for flour and cereal products, and for vegetables. The trend also increased for fruits, but not significantly. In other work where we examined eight low-fat food categories (poultry, fish, skim milk, flour and cereal products, vegetables, fruits, lowfat cottage cheese, and ice milk), six showed accelerated rates of increase during 1985-90.

Market-share data in the ready-to-eat cereal market, consumer knowledge data, individual nutrient intake data, and per capita consumption data all indicate that diets improved after food manufacturers were permitted to use health claims in advertising and labeling. Moreover, evidence from the ready-to-eat cereal market suggests that allowing companies to use health claims resulted in more healthful product innovations and provided companies with incentives to compete on the health features of their products.

The evidence presented here is consistent with the argument that food manufacturers' claims have significant potential to increase consumer awareness of diet-health issues and to improve consumer dietary choices, especially for groups not well reached by Government and general sources of information. For these reasons, health claims policy should be designed to ensure that food companies' incentives to make truthful health claims in advertising and labeling are preserved.

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