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food Insight™
Current Topics in Food Safety and Nutrition

Inside Insight

The Mouse that Roared:

Health Scares on the Internet

The World Wide Web is a tremendous resource for consumers and others who want an additional outlet to help them take control of their health. "The Internet is full of important, even lifesaving, medical information," stated Randolph Wykoff, M.D., M.P.H., of the U.S. Food and Drug Administration (FDA). But, not all Internet information passes the test of the Hippocratic oath. Enter: Doctor Deception who now makes house calls.

On occasion, some not-so-sound information spoils a wealth of excellent information on the Internet. With a click of the mouse, a word-of-mouth phenomenon can be multiplied exponentially via the World Wide Web or electronic mail and result in questionable nutrition, food safety and health stories being sent directly to your computer. In the age of the Internet and instantaneous global communication—in tandem with an increasing interest in nutrition's relation to health—it is not surprising that anyone with a modem can send consumers and others into a food and health panic.

Most of us have heard at least a few of the following myths that have been started and perpetuated on the Web: the great kidney harvest caper; the antibacterial sponge made with agent orange; the fluorescent lights that leach vitamins from your body; the cancer causing shampoo, and dozens, maybe hundreds more.

These would all be simply entertaining if everyone recognized them as practical jokes, the mantras of unhappy people, or simply misunderstandings given life on the Internet. But not everyone can recognize these tall tales as fiction.

The Bias Belt

Some of the most egregious myths come from legitimate sounding individuals who have fallen in love with their theories. They believe they are serving the public by warning them of dire health consequences as the result of touching, smelling, eating or drinking a perfectly safe product. Many consumers are confused and unwittingly oblige in the scam by forwarding the frightening electronic mail or referencing the site to family, friends and associates believing they are doing them a service. And, receiving one

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To buy or not to buy a certain product. That is the question. Is it nobler to prepare a meal completely from scratch, or pull together pre-washed or cut vegetables, prepared sauce and other conveniences to shorten preparation and cooking time and get on with your life?

A Shakespearean Decision in the Supermarket

This is an age-old question faced by people for decades. Our great, great grandparents had to decide whether to buy store bread or make it at home. Mothers faced the box or "made from scratch" question. Then, freeze-dried coffee hit the market, and people had to decide between percolated coffee and the newer version. These are decisions that most consumers do not even think twice about today.

Over 70 percent of married women in their childbearing years are now in the labor force. Although men are playing a more active role in food purchase and preparation, women still take the lead on over 85 percent of the cooking and 90 percent of the shopping. Whether people are employed outside the home or not, time demands are high. Now, consumer choice is even greater with fresh pasta, a variety of washed, cut and peeled vegetables, and many convenient sauces and fully or partially prepared entrees and side dishes. The broad-based food and supermarket industries have greatly reduced some of the labor involved in meal preparation because people want to increase discretionary time.

Partnering with the Supermarket

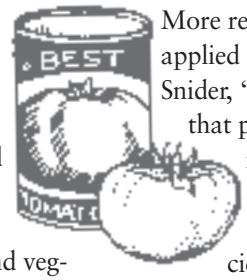
Most people are finding they have **less**, not **more**, time. These time-starved consumers are eating out or turning to their supermarkets not only for convenient and nutritious food but also for help in preparing meals. More and more consumers are turning to "meal solutions" to help them balance the demands in their lives. According to the 1998 *Shopping for Health* report prepared by the Food Marketing Institute and PREVENTION magazine, nearly three-fourths (73%) of shoppers have purchased prepared foods, such as deli salads or pre-cooked entrees, in a supermarket. This figure has increased from 68 percent in 1997 and 65 percent in 1996.

"Consumers' desire to take charge of their health extends to their need for convenient, nutritious food-to-go," said Ed Slaughter, director of research for PREVENTION magazine. "They are also looking for information and guidance to help them make decisions that will promote their health."

"Meal solutions" are supermarkets' answer to "what's for dinner" when the consumer enters the store at 5:00 p.m., as well as their response to consumer demands for variety and convenience. Examples include recipe cards displayed at appropriate locations, such as a recipe for meat loaf at the meat counter; or grouping food products together, such as tortilla shells, refried beans, salsa and cut lettuce for a quick Mexican dinner. Other ways supermarkets are trying to assist busy consumers are with ready-to-cook items (marinated poultry or pre-washed broccoli florets) and ready-to-heat items (vegetable lasagna or meat ravioli).

Although convenience foods are a definite attraction, many people have questions. Am I sacrificing anything for convenience? Do the recommended five or more servings of fruits and vegetables need to be fresh? What about additives and preservatives? Do they affect safety? Do the additional health benefits exist in processed as well as fresh foods?

How Processed and Unprepared Products Compare



For most fruits and vegetables, there is a difference in taste and texture between fresh and canned or frozen versions. However, nutritional analysis verifies that fresh, canned and frozen fruits and vegetables are practically identical in vitamin content. "Taking advantage of the variety of canned and frozen produce is a great way to reach '5 A Day,'" said Sue Snider, Ph.D., University of Delaware Cooperative Extension Service. "Many consumers have the notion that frozen and canned varieties 'don't count' when in fact they are sometimes **more** nutritious than those found in the produce aisle because they are harvested and preserved at the peak of freshness." Fresh produce often loses some of its nutrients during shipping, while at the store, and in consumers' refrigerators.

More recently, pasteurization is being applied to apple cider. According to Dr. Snider, "Some people were concerned that pasteurization would reduce nutritional value, but the change is only minimal. On the other hand, heat treatment of cider is critical because the benefits of additional protection from *E. coli* can be life saving."

One day, consumers across the country may be able to select safety-enhanced irradiated meat and poultry that have been pasteurized through irradiation. This "cold pasteurization" process leaves the product virtually unchanged regarding taste, texture and nutritional value. Yet, 99.99 percent of harmful bacteria like *salmonella* and *E. coli* O157:H7 are destroyed (see March/April *Food Insight*).

Some consumers are concerned about preservatives and additives used in processed food. Additives have been used since antiquity either to improve food preparation or to preserve food. Salt was used to cure meat in 3,000 B.C., and bread leavened by yeast or chemicals has been popular for millennia.

The U.S. Food, Drug and Cosmetic Act defines a food additive as any substance that becomes a component of food or affects the characteristics of a food. By legal definition, sugar and spices, as well as leavening agents, are food additives. More than 75 percent of food additives are used to impart flavor. Additives can serve several functions:

- *Improve or maintain nutritional quality*. Nutrients can either be lacking or lost during processing. Vitamin A, a fat-soluble nutrient, is added back to reduced-fat milk, and grains are enriched with vitamins and minerals lost during milling, or fortified to improve public health.
- *Improve quality and reduce waste*. Calcium propionate is added to bread to retard molding, and nitrite is added to cured meat to prevent botulism. Cucumbers are preserved when they are converted into pickles with the addition of salt and vinegar. Cabbage is available year round as sauerkraut by preserving it in salt and through natural fermentation.
- *Maintain food quality and consistency*. The addition of emulsifiers and stabilizers prevent oil separation in salad dressing and peanut butter. The use of phosphate additives in instant oatmeal or instant pudding facilitates fast and convenient preparation.
- *Make food more appealing*. Use of food colors enhances the appearance of certain foods and meets consumer expectations, especially for holiday or fun foods.

"Many consumers have the notion that frozen and canned varieties 'don't count' when in fact they are sometimes more nutritious than those found in the produce aisle..."

Phytonutrients—plant components with potential health benefits—are present regardless of how they are processed. The lycopene in tomatoes, for example, is in fresh tomatoes, canned tomatoes and spaghetti and pizza sauce. Evidence shows that processing actually **improves** the bioavailability of lycopene.

Processing can also add a safety advantage to some products. Traditional pasteurization, or heating to destroy harmful bacteria, has been recognized as a food safety advantage for decades, and is considered one of the major advances in public health. When milk pasteurization was discussed in the early 1900's, the concern was tuberculosis as well as other illnesses then could be transferred by raw milk. Those few states that currently permit the sale of unpasteurized milk experience periodic recalls because of contamination with *salmonella* or *E. coli* O157:H7.

Food Additives Are Regulated

The Food and Drug Administration (FDA) requires food manufacturers to prove that an additive is safe for its intended use in food. Commonly used household ingredients like salt, sugar and spices and other food ingredients like caffeine and MSG are classified as generally recognized as safe (GRAS) and are exempt from this requirement as are items used prior to 1958. The FDA monitors all prior sanctioned and GRAS ingredients in response to new scientific information and evidence on safety.

The decision to buy or not to buy certain products should be based upon personal preference and lifestyle, but not fear or safety concerns. Prepared food combines good nutrition with convenience to meet the needs of all consumers.

The Mouse that Roared...

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of these reports from a family member or friend adds to its alleged authenticity.

A recent *TIME Magazine* article (April 26, 1999) sums it up well: "The Web is praised as a wondrous educational tool, and in some respects it is. Mostly though, it appears to be a stunning advance in the shoring up of biases, both benign (one's own views) and noxious (other views)."

In most cases, there is no harm intended by those who position their opinions as facts. In other instances, the sly intent of the author may be relatively easy for health professionals, who have a strong science background, to detect. But, for some consumers with little frame of reference to tell fact from fiction, it can be misleading.

For example, an innocent Web surfer looking for information about dietary fats may stumble across one of several web sites spreading fear and confusion about a frequently used cooking oil. With a masthead featuring a skull and crossbones, or the headline: "Canola Oil: Deadly for the Human Body!," such sites may cause baseless consumer concern. If the consumer does not seek unbiased information, he or she will miss the real story: canola oil, a safe, monounsaturated oil, can help lower blood cholesterol levels when substituted for saturated fats in the diet.

Where Did You Hear That?

"At one time, doctors were the primary source of health information for consumers, but in the late 1990s the paradigm for securing this type of information changed," remarked Fergus Clydesdale, Ph.D., University of Massachusetts. Now, for both consumers and health professionals, the primary source of information is the news media. This information source replaces the traditional physician-patient relationship for consumers. For health professionals, media accounts now precede the medical journals and attendance at academic meetings. Often, a consumer first raises an issue with his or her health professional by asking about a story that ran in an on-line story, the local paper or on the evening TV news before health professionals have even received their journals.

A recent telephone survey conducted by Schwarz Pharma, Inc., and reported in the *American Journal of Public Health*, noted that approximately 29 percent of Americans have turned to the Internet for medical information—a number that, although not high compared to other media outlets, is likely to grow.

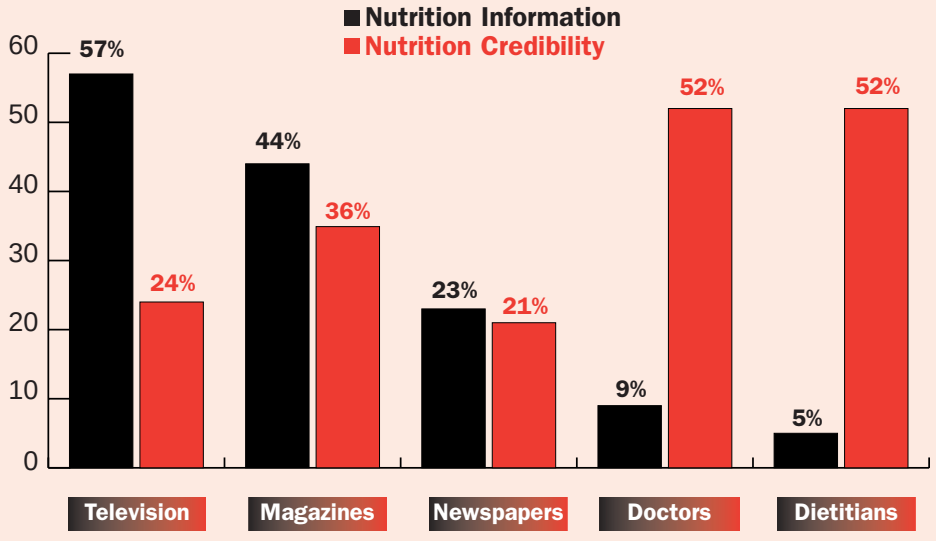
According to the *1997 Nutrition Trends Survey* conducted by The American Dietetic Association (ADA), 57 percent of consumers named television as their main source of nutrition information, followed by magazines at 44 percent and newspapers at 23 percent. Doctors and dietitians were at just 9 and 5 percent, respectively (see graph).

The same ADA survey, however, found that the tables were turned in terms of credibility. Information from doctors and dietitians/nutritionists was found to be "more valuable" (52%) than that from television news and newspaper articles (24% and 21%, respectively). The Internet may follow this same pattern of delivery versus credibility—the Internet or World Wide Web was found to be the *least* believable source of medical and health news according to respondents in the 1997 report, *Americans Talk About Science and Medical News* from the National Health Council. While the Internet can be a valuable source for scientifically accurate health information, it can also be a frontier town with no sheriff for assuring the truth of the information presented.

John Renner, M.D., of the National Council for Reliable Health Information remarked, "There is a health information shock factor on the Internet because there is so much information, both good and bad, marvelous and terrible. We've moved from a small library of information with a friendly librarian, to a huge warehouse with lots of people offering information," he continued. Consumers have not faced this situation before. The problem is the public can be deceived—believing that because they have seen something on the Web, it must be true.

A perfect example of how the public can be misled is a recent Internet article by a Nancy Markle that has taken on a "cyberlife" of its own. The article alleges that aspartame (a sweetener found in food and beverages) causes lupus, multiple sclerosis (MS) and other diseases and

Where Consumers Get Nutrition Information



Source: 1997 Nutrition Trends Survey/American Dietetic Association (ADA)

conditions, none of which has any scientific validity. Highly respected health professional organizations were fraudulently associated with the story, and numerous vulnerable people were needlessly frightened by this scientifically false allegation.

One of the marvels of the Internet is that as easily as you can receive **inaccurate** information, you can search for and find **accurate** information. If consumers were concerned about the alleged aspartame connection with MS, they could check the Multiple Sclerosis Foundation's Internet site for accurate information. David Squillacote, M.D., senior medical advisor of the MS Foundation wrote in his response to the Internet scare, "This series of allegations by Ms. Markle are almost totally without foundation. They are rabidly inaccurate and scandalously misinformative." Fortunately, numerous reliable organizations, Internet sites and publications have refuted this particular epidemic of hysteria and provided additional context for consumers.

The FDA's website is an excellent source for accurate information. Consumers wishing to counteract or confirm the aspartame story can find the following information from the FDA which could allay their fears: "After reviewing scientific studies, the FDA determined in 1981 that aspartame was safe for use in foods…To date, the FDA has not determined any consistent pattern of symptoms that can be attributed to the use of aspartame, nor is the agency aware of any recent studies that clearly show safety problems."

What's a Cyber-Citizen to Do?

How can consumers judge the validity of information received via electronic mail or popping up in a Web search? The foremost guideline for sorting the "trash" from the "treasure" is—just because something is printed on the Internet does not mean that it is true or credible.

Unfortunately for most of us, the best defense against nutrition misinformation and quackery on the Internet is in-depth scientific knowledge. Since not everyone has the level of scientific awareness or advanced degrees necessary to judge the validity of every story, the following tactics may be useful:

- Ask questions. Anecdotes and one individual's personal story are not scientific evidence.
- Look at the source of the information. A professional medical organization or government agency such as the American Academy of Family Physicians or the U.S. Department of Agriculture is more likely to have reliable information than an unknown person or group of people.
- If the story mentions a specific health condition, such as diabetes or breast cancer, search the Internet for reputable health professional organizations and foundations devoted to that disease. An example would be the American Diabetes Association or the American Cancer Society.
- Watch out for use of buzzwords like "conspiracy" and "poison."
- Don't take assertions at face value—give the other side of the issue the benefit of the doubt. Do your homework and call or e-mail appropriate health professional organizations to get a balanced picture.

- Consult with your doctor, a registered dietitian or other health professional.

The Internet has been a boon to consumers who want research and information on voluminous issues and topics at the tip of their fingers. It has also empowered many people to find health information to help them improve their well-being. Nevertheless, the ease of Web publishing has also given an unregulated forum to unreliable sources. Careful scrutiny and a healthy dose of skepticism are still necessary to determine what applies to you and what may need a second opinion.

Internet sources for sound nutrition and health information

- Tufts University Nutrition Navigator
  http://navigator.tufts.edu
- The American Dietetic Association
  http://www.eatright.org
- The International Food Information Council Foundation
  http://ificinfo.health.org
- Medline
  http://www.nlm.nih.gov/databases/freemedl.html
- National Institutes of Health
  http://www.nih.gov
- The U.S. Food and Drug Administration
  http://vm.cfsan.fda.gov.
- Mayo Health Oasis (of the Mayo Clinic)
  http://www.mayohealth.org
- Johns Hopkins Health Information
  http://www.intelihealth.com/IH/ihtIH
- World Health Organization
  http://www.who.int
- Food & Agriculture Organization
  http://www.fao.org
- Government healthfinder
  http://www.healthfinder.gov

NewsBites

Want to watch TV, kids? Start Pedaling...

In a pilot study, New York researchers demonstrated that when kids are required to pedal an exercise bike in order to watch television, physical activity increased and both television viewing time and body fat decreased.

The researchers, David B. Allison, Ph.D., Nathaniel Berman, and others at St. Luke's-Roosevelt Hospital/Columbia University of Physicians and Surgeons, tested the "TVcycle," a bicycle electrically hooked up to televisions. In the study, six children were randomly assigned to use the TVcycle. Four other children had a stationary bicycle placed in front of the TV, but viewing was not dependent upon their pedaling. The kids were not asked to diet, and the other televisions in the house for the TVcycle group were locked to prevent cheating.

By the end of the study, children using the TVcycle pedaled close to one hour per week, compared with eight minutes or less for the control subjects. Television viewing for the TVcycle users dropped to less than one hour weekly versus an average of 20 hours logged by the four other participants. Kids who used the TVcycle showed a reduction in total body fat, with a significant reduction of body fat in the legs.

The National Institutes of Health reports about 55 percent of American adults are overweight or obese. Studies suggest that more than 13 percent of children ages 6 through 17 are overweight, and getting fatter each year.

When presenting the findings at the April 1999 Experimental Biology meeting in Washington, D.C., Dr. Allison noted that the study was very small and the results are preliminary.

According to Dr. Allison, "This small study is important because it suggests that tinkering with the technology that makes life more comfortable—not to mention more sedentary—could help slim down Americans' expanding waistlines."

Food Marketing Institute Releases 1999 Trends Survey

According to the 1999 *Trends in the United States: Consumer Attitudes and the Supermarket*, recently released by the Food Marketing Institute (FMI), the number of American shoppers who say they are concerned about nutrition and food safety is declining.

FMI's *Trends*, a series of consumer attitude surveys begun in 1973, is conducted every January and tracks the changing needs and priorities of the American consumer. As in previous years, this January two thousand male and female shoppers were surveyed on their nutrition, food safety and shopping habits.

The survey found that only 49 percent of respondents reported that they are "very concerned," about the nutritional content of their food. This is down from 64 percent of survey respondents in 1992.

Those consumers who are concerned about nutritional content continue to cite fat content as their leading cause of concern, although this is down to 50 percent, a 15 percent slide since 1995. In addition, shoppers aren't as worried about salt or sugar content as in previous years.

Taste was rated as the most important aspect of food selection (92 percent), an increase from 89 percent in 1998.

The *Trends* data shows that over three-quarters of those surveyed are confident that their food is safe. Younger shoppers and men are the most likely to feel confidence in the safety of the food they buy. *Trends* also found that a growing number of consumers are becoming more accepting of the concept of food irradiation.

The bottom line seems to be, as we close out the century, consumers are feeling more confident and less concerned about nutrition and food safety than they were in the past.

For more information contact FMI's media relations department at (202) 452-8444, or visit the FMI Web site at www.fmi.org.

Parasites, Not Pesticides

A recent wave of media attention to tree frog sightings with deformities has caused alarm about potential disruptive hormonal effects of environmental chemicals and pesticides. However, a report in *Science* magazine titled, "Parasites make frogs grow extra legs" came to a different conclusion. Such occasional tree frog deformities reportedly date back centuries but were more recently noticed in 1995 by schoolchildren in Minnesota. Tree frogs from other lakes and ponds in California, Oregon and New York have linked the cause of this deformity to a parasitic flatworm called the "Riberoria" trematode. The deformity was not caused by environmental chemicals, such as pesticides, etc., as cited in earlier reports.

Instead of developmental disruption by environmental chemicals, these flatworms bore themselves into the hind leg regions of the tadpole thus causing infection resulting in the development of multiple limbs. In the study, conducted by Stanford researcher Dr. Stanley Sessions and Dr. Pieter Johnson of Harwick College, Oneonta, New York, five species of tadpoles were exposed to the flatworms in highly controlled conditions. This research debunks any link to pesticides, fertilizers or other chemicals in the ecosystem.

WHAT'S NEW at HTTP://IFICINFO.HEALTH.ORG?

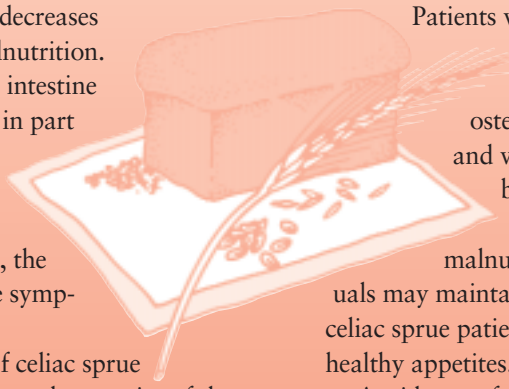
An Award Winning Site—IFIC Foundation On-Line recently received the Silver Platter Site Award from the Ask Jeeves internet search engine (ask.com) bringing the total number of awards for the site to 19.

Celiac Sprue

Individuals with certain food sensitivities can occasionally be misdiagnosed and told they have a true food allergy. This is sometimes the case with celiac sprue, which is an immune reaction to wheat gluten (an amino acid chain that provides structure in grains).

According to Roger L. Gebhard, M.D., professor of medicine at the University of Minnesota's Veterans Administration Hospital, "Celiac sprue is not a true food allergy, but a genetic disease that is characterized by damage to the mucosal lining of the small intestine." The highest incidence of the disease occurs primarily in Ireland, where approximately one-in-three hundred people (.33%) is affected.

Finger-like projectiles or villi are part of the normal lining of the small intestine, and they help to increase the amount of surface available for the absorption of nutrients (such as protein, carbohydrate, fat, vitamins and minerals). In celiac sprue, the villi in the lining of the small intestine are lost and the surface flattens. The amount of surface available for nutrient absorption decreases resulting in malnutrition. Thus, the small intestine can be affected in part or in whole, and the more small intestine that is involved, the more severe the symptoms.



Symptoms of celiac sprue vary depending on the severity of the disease and how much of the small intestine is affected. Symptoms can occur at any time during the life span—many individuals who suffer as a young child may have the disease reappear during their third or even fourth decade in life. Diarrhea may be frequent and accompanied by dehydration and loss of minerals. Patients with sprue may develop anemia (lack of iron or folate), osteoporosis (lack of calcium and vitamin D) and easy bruising. Weight loss is also common due to malnutrition, but some individuals may maintain weight since celiac sprue patients generally have healthy appetites.

Avoidance of dietary gluten is the best treatment for celiac sprue patients. Persons must strictly adhere to a gluten-free

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Celiac Sprue...

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diet and avoid gluten in wheat, rye, barley and oats. Since currently there is no cure, the most effective treatment of celiac sprue patients, along with avoidance, is good nutrition.

The disease celiac sprue can sometimes be confused with a true food allergy. According to Susan Hefle, Ph.D., University of Nebraska at Lincoln, the top eight food allergens include: soy, fish, shellfish, peanuts, treenuts (such as walnuts or pecans), milk, eggs and wheat. Proteins found in these foods are the triggers of true food allergies. Yet different classes of proteins found in grains such as wheat, rye and barley can create damage to the intestinal tract in sprue patients. This is not a true food allergic reaction, as these specific proteins do not cause allergic reactions, but instead are injurious to the cells lining the gastrointestinal tract.

NEW Nutrition Education Tool Kit

A new tool kit, *Fat Replacers: New Choices for Managing Dietary Fat*, is designed to help nutrition educators communicate with both health professionals and consumers about fat replacers. The tool kit, developed in partnership with the Food and Drug Administration (FDA), contains presentation scripts for professional and consumer audiences, overhead/slide masters, references, a glossary of fat reduction ingredients and third-party organizations' resource information.

The tool kit is available to nutrition educators for $5.00 (including shipping and handling).

To order, send a $5.00 check made payable to the IFIC Foundation to: Tool Kit/IFIC Foundation, 1100 Connecticut Ave., NW, Suite 430, Washington, DC 20036

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