

food Insight™

Current Topics in
Food Safety and Nutrition

Inside Insight

What's This Doing in My Food?
A Guide to Food Ingredients 2

NewsBites 6

Food Facts From the Experts 7

Navigating for Health: Finding Accurate Information on the Internet

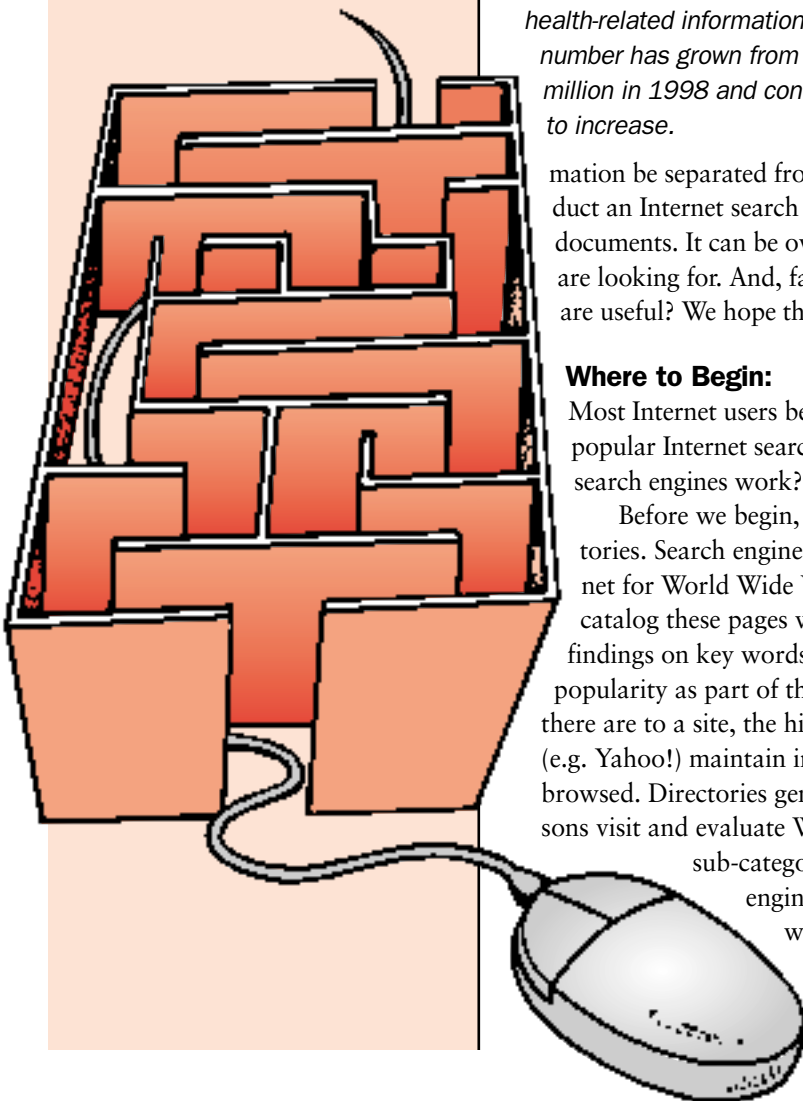
According to a recent poll conducted by Harris Interactive, about 98 million American adults use the Internet to find health-related information. That number has grown from 54 million in 1998 and continues to increase.

But what kind of information are these health information-seekers finding? Will the information help them or will it hurt them? How can the good information be separated from the bad or downright dangerous information? If you conduct an Internet search for sugars, for example, you are likely to find thousands of documents. It can be overwhelming, frustrating, and difficult to find exactly what you are looking for. And, faced with all these materials, how can you know which ones are useful? We hope this article will help you figure it out.

Where to Begin:

Most Internet users begin their search for information by accessing one of the more popular Internet search engines, like Yahoo!, Excite, or Alta Vista. How do these search engines work? How do they rank the sites found in a search?

Before we begin, let's explain the difference between search engines and directories. Search engines, (e.g. HotBot and Excite), will automatically scan the Internet for World Wide Web pages that match the search terms. They then index or catalog these pages when you conduct an Internet search. Search engines base their findings on key words placed in Web pages they scan. Some search engines use link popularity as part of their ranking method, which means that the more external links there are to a site, the higher in the search results the page will appear. Directories, (e.g. Yahoo!) maintain information in categories and sub-categories that can be browsed. Directories generally depend on people to maintain their listings. Staff persons visit and evaluate Web sites and then place these sites in subject categories or sub-categories in the directory. In addition, there are also hybrid search engines that are directories that can also be searched using keywords and meta search engines that search many different directories and search engines in one search.



Although many of us never give them a thought, we count on a variety of food ingredients to make food more appealing to the senses, provide nutritional benefits and keep food fresh longer, among other things. These ingredients can cause concern and confusion among consumers—especially if they have chemical names. Actually, many of these additives are quite familiar, they just go by more scientific names when used on food labels. For example, ascorbic acid is another name for vitamin C and alpha-tocopherol is vitamin E.



What's This Doing In My Food?

A Guide to Food Ingredients

Here, in part one of a two-part *Food Insight* series on food ingredients, you'll learn the "what and why" of common food ingredients—what they are and why they're added to our food supply. Part two will cover the "how" aspect of additives—how different food ingredients allow food manufacturers to develop the innovative food products that today's consumers seek.

What Do They All Do?

There are approximately 3,000 food additives used in this country, and many of them are common food ingredients we use at home every day, such as sugar or baking soda. Food additives are divided into categories based on function. Some of the basic categories are: acidulants, antioxidants, colors, emulsifiers, flavors and flavor enhancers, gums, preservatives, sweeteners and vitamins/minerals.

Acidulants

A lemon-lime beverage or food product wouldn't have that refreshing tartness without an acidulant ingredient. Basically, acidulants are acids that are used for flavoring, as preservatives, for gelling and coagulation, and to help prevent oxida-

tion of fats and oils. Examples of acidulants include citric acid, tartaric acid, lactic acid, adipic acid, and malic acid.

Antioxidants

Many of us are familiar with the term "antioxidants" from a health perspective. In this context, however, the antioxidants are added to delay or prevent rancidity. Over time, fats and oils that come in contact with oxygen from the air can become rancid—developing unpleasant off-flavors and odors. Two of the most commonly used antioxidants are BHA, or butylated hydroxyanisole, and BHT, or butylated hydroxytoluene. Natural antioxidants such as tocopherols (forms of vitamin E) and guaiac gum are also used. Foods to which antioxidants are added include fats and oils, cereals, and high-fat foods such as doughnuts and chips.

Colors

Almost everyone has had fun mixing up colored frosting or coloring homemade play-clay with food colors. Food colors, dyes and pigments used in food, drugs and cosmetics are regulated by the U.S. Food and Drug Administration (FDA), and require testing similar to that required

for other food additives. Colors are either classified as "certified" or "exempt from certification." All nine certified colors are artificial, and most are named with the color name and number, (e.g., Red #2, Yellow #5). Exempt colors are frequently derived from natural sources such as vegetables, and also must meet certain criteria for purity and safety. Examples of exempt colors include substances such as annatto extract (yellow), dehydrated beets (bluish-red to brown), caramel (yellow to tan), beta-carotene (yellow to orange) and grape skin extract (red, green).

Emulsifiers

In food science classes, making salad dressing or mayonnaise is the classic lesson for teaching what emulsions are. With proper mixing, fat or oil and water will combine to become an emulsion. In food products, emulsifiers are added to keep emulsified products stable, reduce stickiness, control crystallization, keep ingredients dispersed (such as spices within a salad dressing) and to help products dissolve more easily (such as powdered coffee creamer). They work because their chemical structure attracts fats on one end and water on the other, thereby letting the two

substances combine easily. Common emulsifiers include lecithin (often made from soybeans), alginates (chemical salts found in algae) and mono- and diglycerides (syrup- or fat-like substances found in alcohols).

Flavors and Flavor Enhancers

We all like our food to have pleasing flavors, and the food industry relies on various substances to provide the flavors that consumers demand. Spices and herbs, essential oils and their extracts, fruits and fruit juices and manufactured (also called “artificial”) compounds are classified as flavors. Often, both natural and artificial flavors are used together in one food item.

Somewhat less understood are flavor enhancers, the most common of which is probably monosodium glutamate, or MSG. Since 1909 when it was first manufactured, MSG has been used in a variety of foods, including meat and poultry items, soups and broths, salad dressings and sauces. MSG is the sodium salt of glutamic acid (glutamate), which is one of the most common amino acids found in nature. Although it has no true taste of its own, MSG works to enhance the flavors already present in foods. The overall taste effect contributed by glutamate is savory or meaty.

Gums

Gums provide thickness to foods and help form gels in products such as frozen desserts, candies, salad dressings, puddings and whipped toppings. They’re also used

to keep ingredients suspended in a food and to inhibit crystallization, among other functions. Gums are classified by source, such as seaweed (which includes agar, alginates, carrageenan), plant seed gums (which include guar, locust bean, psyllium), plant extracts (which include pectin), fermentation gums (which include xanthan gum), plant exudates (which include gum arabic) and cellulose derivatives.

Preservatives

Because of preservatives, bread does not grow mold overnight, but remains fresh for several days. Preservatives can be antimicrobials, antioxidants, or both. As antioxidants, they keep foods from becoming rancid and turning brown. As antimicrobials, they inhibit the growth of bacteria, yeast and mold.

Food additives are very tightly regulated. The Food Additives Amendment to the U.S. Food, Drug and Cosmetic Act, implemented in 1958, assigned proof for additive safety to the food industry. The degree of safety testing necessarily became very high because the industry had to prove additives were safe before they could be used.

Consumers can easily see which food additives are present in a food by reading the ingredient statement on the product label—the FDA requires all additives and ingredients to be listed. Food additives play many important roles in our food supply, helping to ensure that the wide array of foods we eat are safe, wholesome and tasty.

Food Additive Functions and Examples*

Provide or Maintain Consistency

Lecithin, mono- and diglycerides, methyl cellulose, carrageenan, glycerine, pectin, guar gum, sodium aluminosilicate

Improve or Maintain Nutritive Value

Vitamins A and D, thiamine, niacin, riboflavin, pyridoxine, folic acid, cyanocobalamin (vitamin B12), ascorbic acid, calcium carbonate, zinc oxide, iron

Maintain Wholesomeness and Prevent Spoilage

Propionic acid and its salts, ascorbic acid, butylated hydroxyanisole (BHA), butylated hydroxytoluene (BHT), benzoates, sodium nitrite, citric acid, erythrobates

Provide Leavening and Control Acidity

Yeast, sodium bicarbonate, citric acid, fumaric acid, phosphoric acid, lactic acid, tartrates

Enhance Flavor or Color

Cloves, ginger, fructose, aspartame, saccharin, sucralose, acesulfame potassium, FD&C colors, monosodium glutamate, caramel, annatto, limonene, turmeric

**Adapted from “Common Uses of Additives,” Food and Drug Administration and IFIC Foundation Food Additives brochure.*

What is a GRAS ingredient?

A list of GRAS (or “generally recognized as safe”) ingredients was created in 1959 by the U.S. Food and Drug Administration (FDA). The roughly 700 additives on this list are believed by experts to be safe, based on their extensive history of use in foods, or based on published scientific evidence. Salt, sugar, spices, vitamins and monosodium glutamate are examples of GRAS ingredients. The FDA and the U.S. Department of Agriculture routinely reexamine GRAS ingredients in order to evaluate their safety in light of new scientific information, and to re-approve, reclassify or remove them from the list.

Navigating for Health

Continued from page 1

Listed below are some of the most popular search engines, directories, hybrids and meta search engines and how they find the information you need:

Yahoo: (Yahoo.com)—Yahoo! is the Web's most popular directory and has a well-deserved reputation for helping people find information easily. The secret to Yahoo's! success is the human factor. It is the largest human-compiled guide to the Web, employing about 150 editors who visit and evaluate Web sites, and then organize them into subject-based categories and sub-categories. Yahoo! has over 1 million sites listed and is the oldest major Web site directory, launched in late 1994.

LookSmart: (LookSmart.com)—LookSmart is also a human-compiled directory of Web sites. In addition to being a stand-alone service, LookSmart provides directory results to Microsoft network (MSN) Search, Excite and many other partners. LookSmart launched independently in October 1996, was backed by Reader's Digest for about a year, and then LookSmart bought back complete control of the service.

Lycos: (Lycos.com)—Lycos started out as a search engine, relying on listings that came from scanning the Web. In April 1999, it shifted to a directory model similar to Yahoo!. In October 1998, Lycos acquired the competing HotBot search engine, which continues to be run separately.

AltaVista: (Altavista.com)—Founded in 1995, AltaVista is consistently one of the largest search engines on the Web, in terms of pages indexed. Its comprehen-

sive coverage and wide range of power-searching commands make it a particular favorite among researchers. It also offers a number of features designed to appeal to basic users, such as "Ask AltaVista" results, which come from Ask Jeeves (see below).

Ask Jeeves: (Ask.com)—Ask Jeeves is a human-powered search service that aims to direct you to the exact page that answers your question. If it fails to find a match within its own

database, then it will provide matching Web pages from various search engines. Some results from Ask Jeeves also appear within AltaVista. Ask Jeeves was incorporated in 1996 with a public launching in April 1997.

Excite: (Excite.com)—Excite is one of the more popular search services on the Web. It offers a fairly large index and integrates non-Web material such as company information and sports scores into its results, when appropriate. Excite was launched in late 1995 and grew quickly in prominence.

Northern Light: (Northernlight.com)—Northern Light features a large index of Web sites, along with the ability to cluster related Web documents by topic. Northern Light also has a set of "special collection" documents from thousands of sources, including newswires, magazines and databases. Searching these documents is free, but there is a charge of up to \$4 each to view them. Northern Light opened to general use in August 1997.

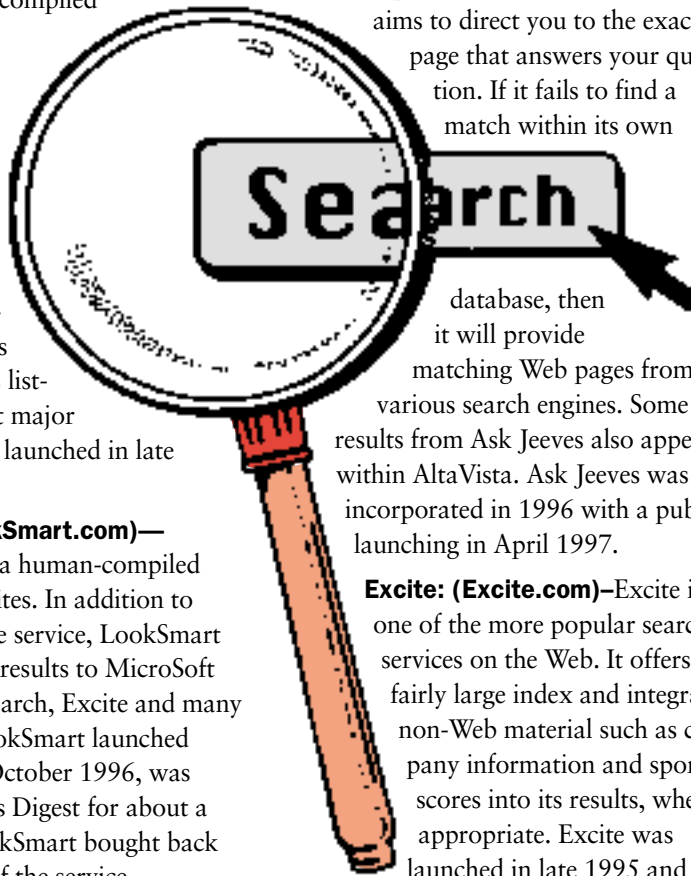
Dogpile: (dogpile.com)—Created in 1996 and acquired by InfoSpace, Inc. in 1999, dogpile is a meta search engine searching more than a dozen of the Web's directories and search engines at once, returning comprehensive search results sorted by topic and source and checked for duplicates.

Still Can't Find What You're Looking For?

You've searched and searched and you still can't find the nutrition and health information you want. Try looking on health-related Web sites like Tufts University Nutrition Navigator or the IFIC Foundation Website, ific.org. Listed below are some of the more well known health-related sites:

Tufts University Nutrition Navigator: (navigator.tufts.edu)—Tufts University Nutrition Navigator is the first online rating and review guide that solves the two major problems Web users have when seeking nutrition information: how to quickly find information best suited to their needs and whether to trust the information they find there. The Tufts University Nutrition Navigator is designed to help you sort through the large volume of nutrition information on the Internet and find accurate, useful nutrition information you can trust. Websites are reviewed by Tufts nutritionists, who apply rating and evaluation criteria developed by the Tufts University Nutrition Navigator Advisory Board, a prestigious panel of leading U.S. and Canadian nutrition experts. Site reviews are updated quarterly to ensure that ratings take into account the ever-changing Internet and nutrition environments.

WebMD: (webmd.com)—WebMD serves all aspects of the healthcare industry, from consumers to medical professionals featuring some of the best healthcare information available anywhere. In addi-



tion, WebMD is up-to-date with breaking health news, allows users to ask experts questions during live chat events, post comments on message boards and provides directories of physicians. WebMD works in cooperation with over 70 partners including News Corporation, UnitedHealth Group, Merck Medco, HEALTHSOUTH, Microsoft, Intel and CNN.

Mayo Health Oasis from

Mayo Clinic: (mayohealth.org)—The Mayo Clinic Health Oasis is a source of reliable health information from the Mayo Clinic. Directed by a team of Mayo physicians, scientists, writers and educators, the site is updated each week-day to provide the most relevant health information. The Health Oasis is a natural extension of Mayo's long-standing commitment to provide health education to patients and the general public. The breadth and depth of Mayo's expertise ensure up-to-date information on a wide variety of medical topics.

IFIC Foundation On-Line: (ific.org)—

Completely renovated and totally redesigned, the new IFIC Foundation Web site is now on-line and ready for your use. You can customize the site with news and information just for you and receive site updates via e-mail. In addition, the IFIC Foundation's bimonthly newsletter, *Food Insight*, is also available via e-mail. The IFIC Foundation Web site will continue to provide you with the credible, science-based information you have always counted on, plus a lot more. Be sure to visit IFIC.ORG, and don't forget to change your bookmarks.

In addition, several government sites provide excellent health-related information. Among them:

Center for Food Safety & Applied Nutrition (FDA): (vm.cfsan.fda.gov)—

The Center for Food Safety and Applied Nutrition is one of six centers within the

U.S. Food and Drug Administration. The center promotes and protects the public health and economic interest, by ensuring that:

- food is safe, nutritious and wholesome, and cosmetics are safe.
- food and cosmetics are honestly, accurately and informatively labeled.

To achieve these goals, the center strives to be a leader in food safety, protect consumers from economic fraud, promote sound nutrition, and encourage innovation.

Healthfinder®: (healthfinder.gov)—

Healthfinder®, developed by the U.S. Department of Health and Human Services, is a free gateway to reliable consumer health and human services information. Healthfinder® can lead you to selected online publications, clearing-houses, databases, Web sites, and support and self-help groups, as well as the government agencies and not-for-profit organizations that produce reliable information for the public. Launched in April 1997, Healthfinder® served Internet users over 1.7 million times in its first year online; in 1999, the site received 94 million hits and 4,549,810 visits!

Now What?

The above health sites can guide you to accurate information but you need to incorporate certain principles to be sure you are getting sound information. Having found thousands of documents, it's difficult to know what information is reliable and what is questionable. As you look, keep in mind the following:

- Be reasonable. Don't believe everything you read. Maintain a healthy skepticism. Watch out for buzzwords like "poison" and "conspiracy."
- Beware of "never." Science is rarely absolute. Think twice about advice to "never eat this," or "never do that."
- Be cautious of anecdotes. One individual's personal story and word-of-

mouth reporting does not qualify as scientific evidence. Is the information you found based on reports published in leading medical journals? Are there references? If there are no references, the information may be based on opinion and not fact.

- Look at the source of the information. Professional organizations such as The American Dietetic Association or the U.S. Food and Drug Administration are more likely to have credible, reliable information than an unknown person or group of people or a single issue site.
- Check the dates. As they say, "old news is no news." Make sure the information is up-to-date. Unless Web sites are continually updated with the latest facts and findings, what you find may not be current.
- Check it out. Discuss Internet nutrition and health advice with your doctor, a registered dietitian or other health professional to be sure it is accurate and appropriate for your needs.

Currently there are no quality standards for statements posted on the Internet. A mixed blessing of the Web is that anyone with a computer and a modem can have a Web page and post whatever information he or she wants. According to a recent Reuters Health article, the American Accreditation HealthCare Commission, known as URAC, announced that it has appointed an advisory committee of representatives from groups such as the Internet Healthcare Coalition, Hi-Ethics and the American Medical Association to begin developing standards for accrediting health Web sites. The goal is to help Web users make informed choices. Until URAC or some other credible group develops a mechanism for evaluating health information on the Internet, common sense and a second opinion still rule the day.

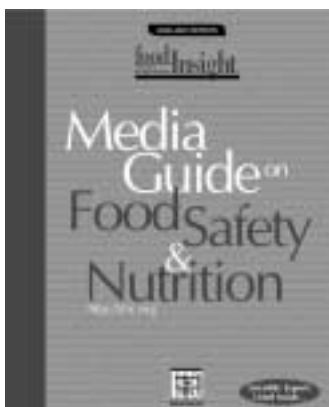
NewsBites

FDA Authorizes Two New Health Claims

In September, the Food and Drug Administration concluded that plant sterol and stanol esters may reduce the risk of coronary heart disease by lowering blood cholesterol levels, giving food manufacturers permission to label products containing these substances with this claim. A food must contain at least 0.65 grams of plant sterol esters or at least 1.7 grams of plant stanol esters per serving to qualify for the health claim. The claim also specifies that dietary intake of plant sterol esters or plant stanol esters should be consumed in two servings at different times of the day and in conjunction with other foods. In addition, foods carrying this claim must meet the requirements for "low saturated fat" and "low cholesterol," and must contain no more than 13 grams of total fat per serving and per 50 grams.

More recently, the FDA authorized the health claim concerning the inverse relationship between dietary intake of potassium and the risk of stroke. Food products carrying

the claim must contain at least 350 mg of potassium, no more than 140 mg of sodium, and must be "low in fat," "low in saturated fat" and "low in cholesterol."



Brand New! Order Your Copy Now!!

The 2000-2001 edition of the *Food Insight Media Guide on Food Safety and Nutrition* has arrived!

With this edition, you will have access to the most current information on food safety and nutrition topics intended for journalists, health professionals, and opinion leaders. This printed version of the *Media Guide* contains 14 chapters on a range of food safety and nutrition issues and offers key elements for each chapter, referring you to the IFIC Founda-

tion Web site, ifc.org, for additional information.

Each chapter of the *Media Guide* includes a backgrounder on the issue and lists of independent, scientific experts. Some chapters also include additional documents, such as IFIC Reviews or research commissioned by IFIC.

The *Media Guide* is designed as a companion piece to our Web site, ifc.org. As such, every chapter includes a "Web resources page." Each Web resource page contains other IFIC materials, such as educational booklets and brochures, articles from *Food Insight*, and third-party documents that can be found online at ifc.org.

To order a copy of the *Media Guide*, send a check for \$50.00 to the IFIC Foundation, Media Guide, 1100 Connecticut Ave, NW, Suite 430, Washington, DC 20036.

A National Action Plan On Overweight and Obesity

Rates of overweight and obesity have increased dramatically in the United States. According to government statistics, the majority of Americans—over 55 percent—are classified as overweight or obese. The trend is particularly alarming in children. One in five are now clas-

sified as either overweight or obese—more than double the rate of a generation ago.

On December 7-8, 2000, the U.S. Surgeon General convened a listening session entitled, "Toward a National Action Plan on Overweight & Obesity: A Surgeon General's Initiative." Nearly 175 representatives from a broad array of interest groups including public health, government, military, sports and recreation, obesity advocacy, education and school administration, shared information about obesity prevention and treatment efforts.

The attendees found consensus on several key points:

- Obesity is a complex issue requiring comprehensive solutions
- Effective strategies will require collaboration and partnerships

The U.S. Department of

Health and Human

Services,

Department of

Agriculture and

Department of

Education will

begin developing

a national action

plan to address

overweight and

obesity. Addition-

al opportunities for

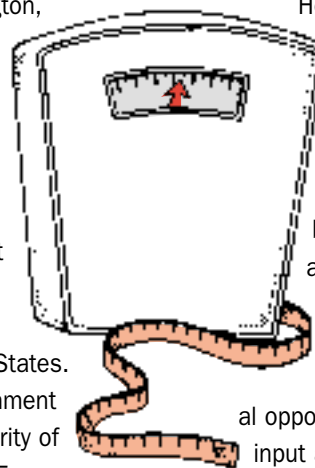
input and comment

to the national plan

will be offered in 2001. For

more information, go to [http://](http://www.sgobesity.niddk.nih.gov)

www.sgobesity.niddk.nih.gov.

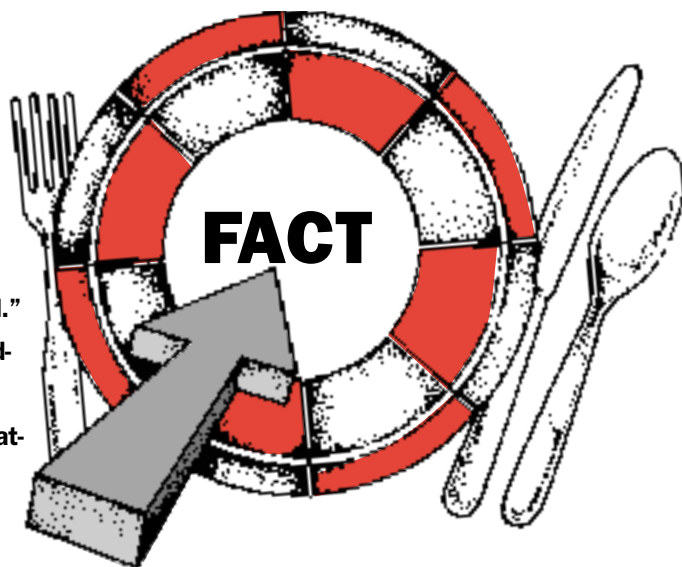


WHAT'S NEW at IFIC Foundation On-Line?

The newly enhanced IFIC Foundation On-Line is now active.

Our new address is ifc.org. Come by and register to receive customized news and information and don't forget to change your bookmarks!

Food Facts From the Experts



It comes as no surprise that we are suffering from “information overload.” Most are also aware that the current information environment is a breeding ground for the propagation of myths. This situation certainly applies to food and health information, as addressed in the cover article “Navigating For Health: Finding Accurate Information on the Internet” in this issue of *Food Insight*.

Because food is so personal and can have a great impact on our health, consumers are seeking more information on nutrition, health and food safety. According to a Rodale Press survey, 43 percent of adults said that they follow health stories in all types of media “very closely.” (Princeton Research Associates for Rodale Press, 1999). Yet, when consumers hear about food myths that contradict scientific consensus, they are not sure what to do or who to believe. Indeed, 73 percent of consumers in the 2000 Food Marketing Institute’s Shopping for Health survey “strongly agree” or “mostly agree” that too much conflicting information exists about which foods are healthful and which ones are not.

New food myths regularly appear on top of the old food myths that continue to thrive. *Food Insight* asked renowned food science and nutrition researchers and academicians to address some of the common myths about food that they are frequently called on to debunk.

MYTH: *Carbohydrates are the New Diet Disasters*

FACT: “A frequent myth that I try to dispel is that carbohydrates are now ‘bad’ for you,” remarked Kristine Clark, Ph.D., director of sports nutrition at Pennsylvania State University. Dr. Clark provides nutrition counseling to people of all athletic levels, from Olympic team members to elderhostelers. Many of the athletes whom she counsels on their diets buy into the concept that carbohydrates make you fat, and Dr. Clark uses the following

response to help put the total diet into perspective. “Rather than tell them, ‘no, that’s not true,’ I say, ‘you might be right if you overeat foods that are rich in carbohydrate. But, the same is also true if you overeat protein or fat.’” She then steers the conversation toward portion size. “My goal is to take the focus away from an individual nutrient and talk about ‘how much’ of something is appropriate for us to eat,” commented Dr. Clark. The tools and concepts used to explain portion size and balance in the diet are ones that have been around for years and are not the “latest and greatest” or a quick fix. The Food Guide Pyramid illustrates Dr. Clark’s points of balance and moderation. When speaking to competitive athletes she shows them that carbohydrates are in all five food groups, so avoiding this single nutrient will negatively impact energy levels. She uses a different approach when working with older adults. With that audience, she makes a case that carbohydrate-rich food, such as fruits and vegetables, is critical for important isoflavones, vitamins and minerals and has other benefits as well. Respected nutrition organizations, including The American Dietetic Association and the American Heart Association, recommend that at least 55 percent of a person’s diet consists of carbohydrate foods, including fruits, vegetables and grains.

MYTH: *It Looks, Smells and Tastes Okay, So I Can Eat It and Not Get Sick*

FACT: Most of us have witnessed this scenario before, or we may have even done it ourselves: a person takes food out of the

refrigerator, visually inspects it, smells and often tastes it to see if it is okay to eat. “What many people look for is tangible evidence of spoilage, like mold, haze, skimming over or a shiny appearance, or they sniff it, looking for a detectable odor,” said Robert Gravani, Ph.D., professor of food science at Cornell University. “These signs are the result of spoilage bacteria growing in the food.”

But, there are two completely different “types” of bacteria. Spoilage bacteria can grow at temperatures below 40 degrees, such as in the refrigerator, and cause food to deteriorate and spoil, producing an unpleasant smell, taste or appearance. As an example, when orange juice is in the refrigerator for too long, it develops a “metallic” taste due to yeast growth. Some bacteria, such as *Listeria monocytogenes*, thrive at cold temperatures, and if present, will grow in the refrigerator and can cause illness.

The other type is pathogenic bacteria, which can grow rapidly in temperature ranges between 40 – 140 degrees and are the kind that cause foodborne illness. “The real concern is that the pathogenic organisms that cause foodborne illness, such as *Salmonella* species or *E. coli* O157:H7, do not present the same visual indicators as spoilage bacteria, but it doesn’t mean they aren’t lurking in your food,” continued Dr. Gravani. “Your senses may as well be out to lunch, because you can’t determine these organisms’ existence without a lab test.” The

Continued, next page

food safety adage of “when in doubt, throw it out” certainly applies in these cases, especially with leftovers that do not have “sell by” or “use by” dates or other means of determining when they are past their prime.

Dr. Gravani offers common sense tips to help consumers avoid foodborne illness: buy only what you can use in a reasonable amount of time, store food properly (keep hot foods hot and cold foods cold), and use the proper time frames for consuming food.

His advice on leftovers is cover them, date them, and rotate them out of the refrigerator. The Food Keeper, a publication co-sponsored by Cornell University, the United States Department of Agriculture’s Meat and Poultry Hotline and the Food Marketing Institute, includes a helpful chart on determining storage times for home-refrigerated foods and is available at www.fmi.org.

A word on freezing food: contrary to popular belief, freezing does not kill bacte-

ria or viruses, although it will kill parasites. Keep in mind that the product that you put into the freezer is the same product when you take it out of the freezer. Freeze products for a future time, but note that proper food handling rules still apply.

MYTH: *Food Irradiation Makes Food Radioactive*

FACT: “Irradiation does not make food radioactive any more than an airport luggage X-ray scanner makes luggage radioactive,” noted Dr. Gravani. Food irradiation is a process in which food products are exposed to a controlled amount of radiant energy to kill harmful bacteria, for instance, E. coli O157:H7, Salmonella and Campylobacter. There are three approved energy sources for food irradiation: Electron beams (often used for ground beef), cobalt 60, and X-rays (not frequently used for food).

When food is irradiated, it is packed in containers and moved by conveyer belt into a protected room where it is exposed briefly to a source of ionizing energy,

usually gamma rays. The food passes by the energy source at a set speed to control the amount of energy absorbed by the food, but the food never contacts the energy source. The energy penetrates the food and its packaging, breaking molecular bonds in the DNA of bacteria, pathogens and insects. The organisms die or they are unable to reproduce so their numbers are held down. The energy source is strong enough to destroy harmful bacteria, yet is neither strong enough to heat the food nor significantly change its chemical composition.

“Trace amounts of radioactivity are all around us, in our food, water and atmosphere,” observed Dr. Gravani. “Think of irradiation in terms of light passing through a window. Light is very short wavelengths of high energy that moves at a set speed, so it can penetrate a window but the window retains hardly any heat from the light.”

Food Insight (ISSN 1065-1497) is published by the International Food Information Council (IFIC) Foundation, the educational arm of IFIC. IFIC’s mission is to communicate science-based information on food safety and nutrition to health and nutrition professionals, educators, journalists, government officials and others providing information to consumers. IFIC is supported primarily by the broad-based food, beverage and agricultural industries.

Editor: Ann Bouchoux
Associate Editor: Susan Pitman, M.A., R.D.
Contributors: Sylvia Rowe, Susan T. Borra, R.D., Dave Schmidt, Andy Benson, Geraldine Carbo, Lisa Kelly, M.P.H., R.D., Cheryl Toner, M.S., R.D., Alison Esser, Stephanie Ferguson, Anthony O. Flood, Wendy Reinhardt, Kate Thrasher, Wilfere Jenkins-Ford, John Klooz, Shameka Lloyd, Tommi Prince, Catherine Brohier, M.S., R.D., and Kara Cosby
Copy Editor: Michael Hayes
Illustration: Diane Gray
Design: Ertan & Associates
Permission is granted to reprint information contained herein with appropriate credit.
This newsletter is not intended to provide medical advice on personal health matters, which should be obtained directly from a qualified health professional.
© IFIC Foundation
1100 Connecticut Avenue, N.W., Suite 430
Washington, DC 20036
Email: foodinfo@ific.org
WWW: <http://ific.org>

Current Topics in Food Safety and Nutrition



ADDRESS SERVICE REQUESTED

Nonprofit Org.
U.S. Postage
PAID
Merrifield, VA
Permit No. 1112