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IFIC FOUNDATION

food Insight™
Current Topics in Food Safety and Nutrition

Inside Insight

PICTURE THIS!

Communicating Nutrition Around the World

What picture comes to mind when you think of a healthful diet? The U.S. Departments of Agriculture (USDA) and Health and Human Services hope you think of their Food Guide Pyramid. Since 1992, the Pyramid has served as a visual adaptation of the *U.S. Dietary Guidelines for Americans*, the seven basic dietary recommendations to promote wellness and prevent chronic disease. Today, the Pyramid can be seen not only in nutrition education materials for children and adults, but also on grocery bags, food packages and in the media.

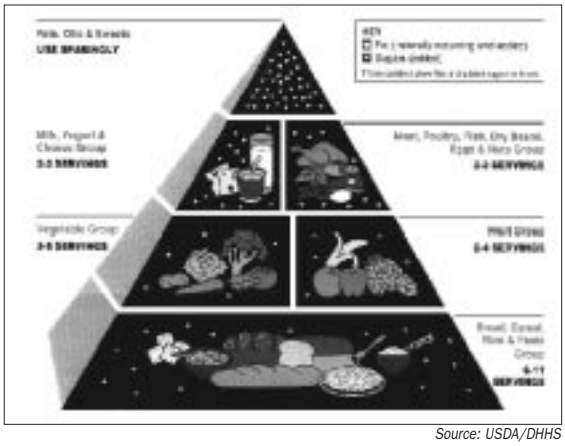
Food guides, such as the USDA's Food Guide Pyramid, are tools used to communicate complex scientific information in a consumer-friendly way. For the most part, government agencies use graphic depictions to communicate dietary guidance messages that provide population-wide recommendations for eating to promote health.

A previous issue of *Food Insight* (March/April 1998) featured various countries' dietary guidelines and noted how cultural norms influence the guidelines. This issue will highlight the evolution of the American food guide as well as visual depictions of dietary guidance used around the world.

UNITED STATES

A Photographic History

Food guides are not new educational tools. The first United States food guide was developed in 1916 by the USDA and consisted of five food groups—milk and meat; cereals; vegetables and fruits; fats and fat foods; and sugars and sugar foods. By the 1940s, the food guide listed *ten* food groups, including water and eggs. Vegetables and fruits were split into three individual groups—leafy green and yellow vegetables; citrus, tomato and cabbage; and other vegetables and fruits. Ten food groups were difficult for consumers to remember, so these groups were trimmed to *four* food groups by the late 1950s.



Source: USDA/DHHS

Previous versions of the United States food guide were tools used to promote a diet

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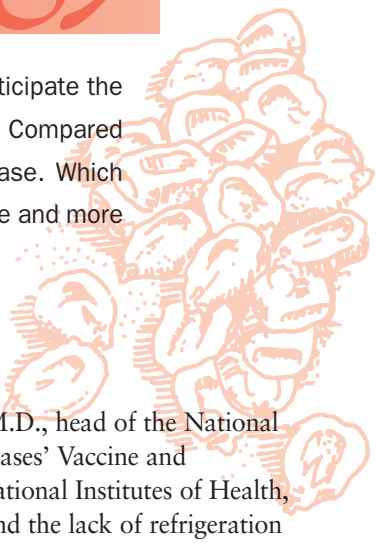
Food Biotechnology

Benefits for Developing Countries

We live in a world with an ever-expanding population. Experts at the United Nations anticipate the world population in 2050 to be 7.8 billion—at the least—and 12.5 billion at the most. Compared to the current population in 1997 estimated at 5.9 billion, that's an enormous increase. Which begs the question of supply and demand—how do we plan to feed all these people? More and more experts believe that biotechnology is an important part of the solution.



The world's population may be growing but its surface area certainly is not. Compounding the effects of population growth is the fact that most of the Earth's ideal farming land is already being utilized. Dennis Avery, director, Center for Global Food Issues, The Hudson Institute stated, "We have two choices. We can either secure more land for agricultural purposes, or we can increase the food output on land that we now use for farming."

To avoid damaging environmentally sensitive areas, such as rain forests, methods need to be utilized to increase crop yields for land currently in use. According to former President Jimmy Carter, "By increasing crop yields, genetically modified organisms reduce the constant need to clear more land for growing food."

Such yield-enhancing food biotechnology techniques are not long into the future—they are being utilized now—and they hold the key to a more secure agricultural future, particularly for developing nations. Maurice Strong, the chairman of the system review of the Consultative Group on International Agriculture Research (a coalition of 17 international agricultural research centers), part of the World Bank, encouraged further research into biotechnology. He noted, "Agricultural research is a crucial component of this effort because transformed and sustainable agriculture is the first step on the ascent from poverty for most of the world's poor countries."

Increased output of food that is consumed for human nutrition is only one benefit of food biotechnology. It may also be a means to improving the medical health of some populations.

Food As Medicine: Vaccines in Food

The modern incarnation of plants as medicine is an exciting area of study. Edible vaccines—those that are genetically implanted inside a food and which need no refrigeration—are being investigated to help alleviate the significant problem of providing sufficient, less costly and effective medicine for enteric (intestinal) diseases in developing nations. Studies from the World Health Organization estimate that diarrhea caused by bacteria is a major cause of infant mortality worldwide, with nearly three million deaths per year.

According to Regina Rabinovich, M.D., head of the National Institute of Allergy and Infectious Diseases' Vaccine and Treatment Evaluation Program, the National Institutes of Health, "High costs, transportation logistics and the lack of refrigeration for vaccines can thwart vaccination programs in these countries."

Clinical trials are currently underway to determine whether genetically engineered plants are a viable means to create novel vaccines. In May 1998, the results from the first phase of human clinical trials testing an edible vaccine were reported in the journal *Nature Medicine*. "This new technology will be especially meaningful for delivery of inexpensive, safe, and highly effective vaccines. This approach could greatly benefit the developing world," commented Charles J. Arntzen, president, Boyce Thompson Institute.

As former President Jimmy Carter stated: "Responsible biotechnology is not the enemy; starvation is. Without adequate food supplies at affordable prices, we cannot expect world health or peace."

In the first phase of human testing, the potatoes eaten by volunteers contained a vaccine against travelers' diarrhea, a common condition resulting from intestinal infection by the bacterium *E. coli*. Each volunteer consumed three servings of potatoes over a three-week period, and no significant side effects were reported. The researchers commented that while raw potatoes were used in these experiments, more palatable alternatives, such as bananas, are currently being investigated and are more likely to be used in actual situations.

Improving the World's Staple

Continents such as Asia are grappling with how to continue feeding a growing population, and Africa is trying to reap more from its existing resources. Researchers and organizations in China, Africa, the Philippines, Australia, Mexico and Europe are investigating ways for agricultural science to provide solutions to these growing problems.

The Rockefeller Foundation, a private philanthropic organization, aims to "increase crop yields of small-holder farmers in developing countries profitably and without degrading natural resources." The key to increasing the yield of staple crops in Asia is advances in genetic technology that allow farmers to reap bigger harvests from currently cultivated land while preserving the land's ability to support continued farming. With this in mind, in 1984, the Foundation began the International Rice Biotechnology Program and focused on Asia. This program is an integrated set of research, training, technology transfer and capacity-building activities that will benefit low-income rice producers and consumers in developing countries.

In terms of production and consumption, rice is by far the most important crop in the developing world, and in some of the poorest Asian countries it accounts for nearly 80 percent of calories consumed. By the year 2005, the Foundation's hope is to increase rice production in Asia by 20 percent through the use of biotechnology without degrading the environment or reducing farm incomes. Said Gary Toenniessen, Ph.D., deputy director for agriculture sciences, the Rockefeller Foundation, "If the technology is as powerful as many of us think it is, it should overcome many of the production challenges in these countries and also assure that the benefits are broadly distributed and reach those people in greatest need."

The Rockefeller Foundation began similar work in Africa in 1988. The problems of soil-nutrient depletion and yield losses caused by pests and diseases have been targeted as priorities. "The tools of biotechnology need to be developed for all major food crops, including those that are primarily grown in developing countries and on marginal lands," continued Dr. Toenniessen.

Battle of the Bug

The International Laboratory for Tropical Agricultural Biotechnology (ILTAB) is developing transformation techniques and applications for control of diseases caused by plant viruses in tropical plants such as rice, cassava and tomato.

In 1995, ILTAB reported the first transfer through biotechnology of a resistance gene from a wild species of rice to a susceptible cultivated rice variety. The transferred gene expressed resistance to the bacterium *Xanthomonas oryzae*, which can destroy the crop through disease. The resistant gene was transferred into useful rice varieties that are cultivated on more than 24 million hectares around the world. According to Roger Beachy, Ph.D., founding director, Donald Danforth Plant Science Center, "This work is expected to have a significant impact on the development of bacteria-resistant rice varieties worldwide. Our hope is to enable farmers to have rice that is resistant to very costly crop disease."

These projects all vary in scope and outcomes but they have one common goal—improve the sustainability of agriculture and health of people in developing countries. As former President Jimmy Carter stated: "Responsible biotechnology is not the enemy; starvation is. Without adequate food supplies at affordable prices, we cannot expect world health or peace."

Another group trying to make a dent in hunger through improved agricultural practices is EnterpriseWorks Worldwide. This Washington, D.C.-based nonprofit organization fights poverty through sustainable small business development in Asia, Africa and Latin America. EnterpriseWorks Worldwide includes well-established biotechnology interventions that have met rigorous testing standards for safety. In Nepal, they have achieved success by using tissue cultured varieties of potatoes that are more resistant to diseases to increase production yields and decrease production costs. Rhizobium inoculation is being used in the Philippines, Sri Lanka and India to increase legume production with the same success.

Andrew Maguire, EnterpriseWorks President, spoke of food biotechnology for the small producer: "The potential is great, but financial and distribution impediments must be addressed when equipping even the most innovative small producers with the necessary technology to increase their yields and incomes. We bring together expertise and new partners, as well as the crucial technology, business, finance, and marketing linkages to help overcome these obstacles."

New Food Biotechnology Resource Kit

New from the International Food Information Council (IFIC) Foundation is the recently released Food Biotechnology Resource Kit. This redesigned kit is a compilation of backgrounders on food biotechnology topics, product benefits, consumer attitudes, federal safeguards and labeling and the environment. The backgrounders have been updated to address the most recent government regulatory issues and the latest information on food biotechnology. The kit also includes positions of other leading health professional organizations along with an extensive resource list.

This kit is in an easy-to-read, consumer-oriented educational format. It can be ordered by sending your name, address and a check made payable to the IFIC Foundation for $10 to: Food Biotech Kit, P.O. Box 65708, Washington, DC 20035. Orders can also be placed via email at foodinfo@ificinfo.health.org. All IFIC Foundation materials are available on-line at http://ificinfo.health.org.

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Food guides, such as the USDA's Food Guide Pyramid, are tools used to communicate complex scientific information in a consumer-friendly way.

containing essential vitamins and minerals. School children were often the educational target for the simple illustrations used to depict the optimal diet. One of the most familiar food guides of the past is the "Basic Four," containing four food groups—milk, fruit and vegetable, bread and cereal and meat groups—which was used for nearly 25 years. The emphasis of the "Basic Four" food guide was to help Americans get a foundation diet, meaning, it was intended to meet only a portion of caloric and nutrient needs.

After the publication of the first *Dietary Guidelines for Americans* in 1980, work began on a new food guide graphic to reflect the latest science on diet and health. In addition to a review of existing research, government agencies conducted extensive quantitative and qualitative research with American consumers to ensure the resulting graphic communicated key dietary guideline concepts. The pyramid design proved most useful in graphically communicating the intended messages across various socioeconomic groups.

No single adaptation of the pyramid graphic can depict all of the eating practices of the diverse American populous. However, because of the simplicity and understandability of the pyramid shape, the U.S. Food Guide Pyramid can be translated to reflect the customs of numerous ethnic and cultural groups within the United States. The pyramid concept has been adapted to Asian, Mexican, vegetarian and Mediterranean diets by various organizations. For instance, to better serve their state population, the Washington State Department of Health created materials using the pyramid shape to depict diets for Russians, Southeast Asians and Native Americans. The pyramid concept has also been adapted to communicate other health-promoting activities. For example, a physical activity pyramid, developed by a private organization, promotes ways to stay active in everyday life and a "life balance" pyramid by the same group offers ideas to build and maintain emotional well being.

Pictures From Around the World

The use of the pyramid has been very successful in the United States. The pyramid shape appears to easily convey the concept of variety and the relative amounts to eat of the various food groups. However, because of cultural differences in communicating symbolism and other cultural norms, the pyramid is not necessarily the graphic of choice for food guides worldwide. No single graphic can portray the dietary guidelines of various countries around the world. Rainbows, circles, pyramids, and even a chalice are used to represent the "optimal" diet. The different graphics used reflect cultural norms and symbols as well as the emphasis of the dietary guidelines of each country. In developed countries, food guides tend to promote a diet that prevents chronic disease. In developing countries, however, the goal of the food guide is to promote a diet that provides nutrients to safeguard against malnutrition.

Yet, despite the different pictorial representations, different countries communicate similar themes. Food guide graphics from countries as diverse as Italy and South Africa convey a common message—balance, variety and moderation in food choices. While the number of food groups displayed in the graphics varies from country to country, most guides attempt to illustrate the food groups' optimal proportion of the total diet, as does the U.S. Food Guide Pyramid. For instance, based on the *Dietary Guidelines for Americans*, grains should comprise the largest proportion of the diet. Therefore, grains are depicted at the base of the Pyramid—the largest part of the pyramid shape. Breads

Many countries have dietary guidelines expressed in scientific terms, with quantitative recommendations of nutrients and food components. These references are used by policy makers and health professionals and include such goals and recommendations as Recommended Dietary Allowances (RDAs), Reference Nutrient Intakes (RNIs) and Dietary Reference Values (DVRs) (see Sept/Oct *Food Insight*). However, such recommendations are commonly misunderstood and applied inappropriately by both nutritionists and the public.

Food-based dietary guidelines (FBDG) are intended for use by the general public to provide nutrition education and dietary guidance in terms that are understandable to most consumers. FBDGs are a practical way to assist people to reach appropriate nutritional goals.

Key Concepts for Dietary Patterns:

- Total diet, rather than nutrients or individual foods should be addressed
- Dietary guidelines need to reflect food patterns rather than numeric nutrient goals
- Various dietary patterns can be consistent with good health

Source: Food and Agriculture Organization of the United Nations and the World Health Organization.

The primary role of food guides, whether in the United States or around the world, is to communicate an optimal diet for overall health of the population.

and grains, fruits, vegetables, dairy foods and meats are included in all the various guides.

The wheel or dinner plate design is a popular graphic that represents the total diet, with each section depicting a food group and its relative proportion to the total diet. This design is used in the United Kingdom, Germany and Norway, among other countries. Many of food guide graphics used are unique to their respective countries. Japan depicts its "optimal" diet through the use of the numeral six as the basis of its food guide to remind consumers of the six food categories. The Japanese government has since developed new dietary guidelines. However the same food guide is still used by many as a reference since a new food guide has not been developed.

Canada's Food Guide to Healthy Eating is a four-banded rainbow, with each color representing one of its four food groups. The rainbow shows that all food groups are important but different amounts are needed from each group. The larger outer arcs of the rainbow are the grain products and fruits and vegetables. According to Canada's dietary guidelines, these foods should make up a larger part of a healthy eating plan. Similarly, the smaller inner arcs make up the milk products and meat and meat alternatives that should make up a smaller amount of a healthy eating plan.

Many of the food guides around the world emphasize the bread, cereals and grain foods as the largest part of the diet. Israel's chalice graphic illustrates the importance of water for overall health by placing "water" at the top and largest section of the chalice. Israel has one of few food guides that characterize water as a principal part of the diet.

South Africa's food guide graphic contains the least number of food groups and organizes foods in a unique way—according to the foods' "function" in the body. Group 1 contains "Energy Food," and includes margarine, grains, porridge and maize. The second group is entitled "Body Building Food" and includes chicken, beans, milk and eggs. The third group is "Protective Food," to protect your body from illness and includes cabbage, carrots, pineapples and spinach.

A Picture Paints a Thousand Words

You've undoubtedly heard the phrase "a picture paints a thousand words" numerous times. Nutrition education has long proven this idiom to ring true through the use of food models and pictures to depict such things as portion sizes. Likewise, symbols such as a heart, checkmark or apple are often used on restaurant menus to denote choices that meet specific nutrition or health guidelines.

The primary role of food guides, whether in the United States or around the world, is to communicate an optimal diet for overall health of the population. Whether a star, a chalice, a square or a pyramid graphic is used, all are meant to improve quality of life and nutritional well being in a simplified and understandable way.

CANADA

ISRAEL

JAPAN

SWEDEN

PHILIPPINES

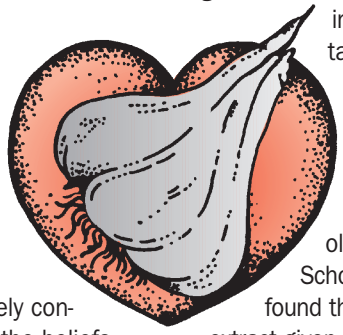
NETHERLANDS

UNITED KINGDOM

NewsBites

GARLIC: Benefits Beyond the Basic

Garlic dates back to ancient civilizations including Egypt, Greece and Rome as a treatment of disease and for maintenance of health. It was also thought of as a "performance enhancing" agent and was given to Olympic athletes in Greece before competition. In biblical times, garlic was used as currency and as a food preservative in ancient China and Japan.



Interest in the potential benefits of garlic has not diminished over thousands of years, and modern scientific research is largely confirming many of the beliefs of ancient medicine. Current research is defining garlic's potential role in disease risk reduction and treatment.

A wide variety of components in garlic work synergistically to provide many possible health benefits. The compounds in garlic attributed to some of these benefits are collectively called allyl sulfur compounds are all water-soluble and sulfur-containing.

Benjamin Lau, M.D. Ph.D., professor of immunology and microbiology, School of Medicine, Loma Linda University, presented findings from published research at a Fall 1998 conference, "Recent Advances on the Nutritional Benefits Accompanying the Use of Garlic as a Supplement." His research showed that several garlic compounds can effectively suppress the harmful effects of LDL ("bad") cholesterol oxidation. It has been known for decades that high blood cholesterol contributes to heart attacks and strokes and that lowering blood cholesterol, especially LDL cholesterol, can significantly reduce the risk for these diseases. Furthermore, it has been recognized over the years that the true culprit in heart attacks and strokes is the oxidized LDL cholesterol. Studies where human volunteers took garlic tablets demonstrated an increased resistance of LDL to oxidation. Additional research by Manfred Steiner, M.D., Ph.D., professor of medicine, East Carolina University School of Medicine, found that aged garlic extract given over extended periods of time to normal men with high blood cholesterol levels reduced their LDL cholesterol by five to seven percent. A reduction in blood pressure of comparable measure was also noted in these individuals.

Garlic's allyl sulfur compounds have been indicated through epidemiological and laboratory research to effectively block a number of chemically-induced tumors. Researchers at Pennsylvania State University have shown that microwave heating or roasting garlic can decrease or destroy this anti-cancer activity. If the herb is chopped or crushed and allowed to stand for at least 10 minutes before cooking, the beneficial effects are undisturbed.

Although garlic has been extensively studied for decades, not all of its active components are known. Additional research is needed to further identify garlic's health benefits and determine how specific compounds in garlic interact with each other, as well as with other foods.

While the overall benefits of any food depend on a person's entire diet, the concept of foods providing specific health benefits or reducing the risk of disease is substantial and will not likely disappear anytime soon.

New Website for Health Journalists & Communicators

Journalists and other health communicators should check out the most recent Tufts University website, *Nutrition Commentator* **(commentator.tufts.edu)**. This free, on-line service is a great resource for nutrition and health information, but it has a more focused audience—journalists who write on tight deadlines, as well as nutrition communicators who are looking for recent research.

The single goal of *Nutrition Commentator* is to help journalists assess newly released scientific studies—often during the embargo period—by addressing the following key messages:

- How important is this new study within the context of all other research on this topic?
- How relevant is this?
- Does it apply to all population groups?
- Should the general public make any behavior or dietary changes based this new study?

Nutrition Commentator offers expert insight and commentary about emerging science on a range of topics including diet and lifestyle, food safety, functional foods and weight management. Each new study is reviewed and evaluated by one of a team of faculty and scientists from the Tufts University School of Nutrition Science and Policy.

Commentaries are posted directly to the "About to Break" section of the website. They are accessible only to journalists who have applied for and received a password and who have agreed to respect all embargo dates. Commentaries consist of five sections and provide a brief summary of the study's findings, a brief backgrounder, a summary and assessment of the methodology, additional resources and the relevance to the general population.

If you're looking for background information on new developments in nutrition and food safety, look to the section titled "In the News." The "Archives" contains studies that are at least 48 hours post-embargo and older news items. These two sections do not require a password. The site also has an extensive search engine which makes searching for information faster and easier.

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

The IFIC Foundation On-Line has entered the world of PDF—"Portable Document Format"—with the launch of the Understanding Food Allergy brochure in PDF format. PDF enables you to electronically distribute documents and still keep the look and feel of the original printed documents. You can view the IFIC Foundation's PDF document at http://ificinfo.health.org/brochure/allergy.htm.

Calcium for All Ages and Genders

Many people, especially women, know that adequate calcium intake is important to health. However, national nutrition surveys show that less than 50 percent of adults ages 20 and older are consuming the calcium they need to maintain bone health and minimize bone loss that occurs with aging. Unfortunately, many consumers do not know how much calcium they need and many mistakenly believe that they are consuming enough. Data from the United States Department of Agriculture (1994 Continuing Survey of Food Intakes by Individuals (CSFII)) indicate that approximately 52 percent of women ages 30 and older perceive their calcium intake to be "about right."

Calcium is an essential nutrient your body needs every day. And, it's not just important for women. Optimal intake is crucial for children, adolescents, men and older Americans too. The majority of calcium in the body makes up your bones and teeth and keeps them strong. However, beyond bone health, calcium is also needed to regulate certain body functions. Without calcium, muscles would not contract normally, blood would not clot and nerves would be unable to carry messages.

No Bones About It

Calcium and bone health go hand-in-hand. Increasing scientific evidence indicates that adequate calcium intake reduces the risk of several major chronic diseases, most notably osteoporosis, a potentially crippling disease of thin and fragile bones. According to the National Institutes of Health, osteoporosis affects over 28 million Americans.

If you do not get enough calcium from your daily diet to regulate body functions, your body will leech or "rob" the calcium from your bones to make up the difference. Over time this can reduce bone strength and lead to osteoporosis. Optimal intake of calcium throughout life, from early childhood and adolescence through the postmenopausal and late adult years, reduces the risk of osteoporosis.

And, you don't have to think of weight-bearing activity as only "pumping iron," although it certainly is beneficial. Activities such as walking, dancing, yard work and tennis also benefit bone health from childhood through later years. However, according to Kristine Clark, Ph.D., R.D.,

New IFIC Foundation Publications

Below are the newest releases from the IFIC Foundation. Single copies of most publications are available free-of-charge. For a comprehensive listing of publications or for bulk prices, please request the IFIC Foundation Publications List below.

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☐ **Publications List (MI-4010)** A complete list of publications and Food Insight reprints available from the IFIC Foundation.

☐ **Improving Public Understanding: Guidelines for Communicating Emerging Science on Nutrition, Food Safety, and Health (MI-4175)** Based on an advisory group convened by the Harvard School of Public Health and the International Food Information Council Foundation, this publication provides "guiding principles" for general communicators as well as specific guidelines for scientists, journal editors, journalists and interest groups.

☐ **Food For Thought II — Reporting of Diet, Nutrition and Food Safety (MI-4135)** What's changed in food and nutrition reporting since Food For Thought I? This new analysis compares major topics, sources, themes and opinions as reported in print and broadcast media markets nationally 1997 to 1995. Please send ____ copies at $24.95 plus $2.50 for postage and handling. Enclosed is a check for $ ____ D.C. residents add 6% sales tax.

☐ **Executive Summary: Food for Thought II (MI-4130)**

☐ **Food Biotechnology Resource Kit (MI-4060)** This redesigned and updated kit is a compilation of backgrounders on food biotechnology topics, including product benefits, consumer attitudes, federal safeguards and labeling, and the environment. The most recent government regulatory issues and the latest information on food biotechnology are addressed. The kit also includes positions of other leading health professional organizations, along with an extensive resource list. Please send ___ copies at $10.00 each. Enclosed is a check for $___. DC residents add 5.75% sales tax.

☐ **Understanding Food Allergy (EB-2035)** A patient education brochure that provides general consumers, patients and parents with the basics of food allergy, food intolerance and food idiosyncrasy Endorsed by the American Academy of Allergy, Asthma and Immunology and The Food Allergy Network.

☐ **Benefits of Balance: Managing Fat in Your Diet (EB-2080)** A new consumer brochure details how lower-fat foods and foods with fat replacers can be included in the overall diet to balance food choices. It was developed in partnership with the Food and Drug Administration.

☐ **Caffeine and Health: Clarifying the Controversies (IR-3020)** This updated IFIC Review highlights new research, provides background information on caffeine and seeks to dispel misconceptions that exist about the ingredient.

☐ **Everything You Need to Know About Sucralose (EB-2190)**

☐ **Everything You Need to Know About Acesulfame Potassium (EB-2195)** Just in time to answer consumers questions about new low-calorie sweeteners! These two new easy-to-read brochures will help consumers and others learn about these two sweeteners which provide more low-calorie options for Americans.

Which of the following categories best describes you or your organization (Please select only one):

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Calcium...*Continued from page 7*

director of sports nutrition at the Center for Sports Medicine at the Pennsylvania State University, "The effect of weight-bearing exercise on bones affects only those bones that are being used." Therefore, Dr. Clark suggested that "participating in a variety of physical activities is important to be sure that the entire skeleton benefits from activity." She stated that this is equally as important as eating a variety of foods to obtain optimal health.

Research suggests that calcium also helps protect against colon cancer, high blood pressure and recurring premenstrual syndrome, and possibly cardiovascular disease and kidney stones.

Calcium Needs Throughout the Ages

Your calcium needs extend throughout your lifetime. It is essential during childhood to young adulthood, the years that bones are forming and growing. However, bones continue to accumulate calcium and become stronger even after we have stopped growing. The calcium that you provide to your bones when you are young is one factor in determining how well they will hold up later in life.

Gender plays a significant role in the need for calcium. Pregnancy increases calcium requirements because of the needs of the developing baby and because alterations in calcium absorption and metabolism occur throughout pregnancy. Lactating women need calcium to meet their own needs and the requirements for milk production. During menopause and post menopause, the body produces much less estrogen, increasing the risk of osteoporosis, which in turn increases calcium needs.

Older adults—both women and men—over the age of 65 need more calcium to combat calcium deficiencies. "A certain amount of bone loss is a normal consequence of aging," stated Nancy Wellman, Ph.D., R.D., professor and director, National Policy & Resource Center on Nutrition and Aging at the Florida International University. For instance, the age-related decline in the body's ability to absorb calcium can interfere with calcium levels. Also, lactose intolerance can lead to avoidance of calcium-rich foods. "A decrease in physical activity among the elderly exacerbates the problem of combating declining bone strength," stated Dr. Wellman.

Remember that calcium is essential to good health. You also need exercise and a balanced and varied diet to help reduce the risk of disease and promote health.

Most adults need between 1,000 and 1,500 milligrams (mg) of calcium every day. Requirements for young children and adolescents range from 800 mg to 1500 mg daily. Calcium can be found in foods from each of the five food groups. Some good sources: 8 ounces of plain yogurt (450 mg); 8 ounces of milk (300 mg); an ounce of cheese (200); 3 ounces of sardines with bones (370 mg); one cup of broccoli (90 mg); and one cup of cooked soybeans, (130 mg). There are also many new calcium-fortified foods, such as orange juice, rice and pasta that provide a good source of calcium.

Remember that calcium is essential to good health. You also need exercise and a balanced and varied diet to help reduce the risk of disease and promote health.

Food Insight®
Current Topics in Food Safety and Nutrition

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