



GOOD SCIENCE: ITS ROLE IN SETTING THE RECORD STRAIGHT

SUMMARY

As a result of increased media coverage of findings from new scientific studies, the public is more aware of the relationship between diet and health than ever before. Because of contradictory stories in the media, however, the public is confused about their diets. Consumers often misinterpret contradictory findings as scientific indecision and do not appreciate that nutrition science is evolving. Recent campaigns by various special interest groups distort scientific facts about diet and health and add to the public's anxiety about what to eat for good health.

The public gets most of its information about diet and health from television and magazines. Other sources include newspapers, books, family/friends, the Internet, and health professionals such as physicians and dietitians. Although the public looks less frequently to physicians and dietitians than to the media for diet and health information, these health professionals are regarded as the most credible source.

The media, along with other groups, can contribute to the public's confusion about diet and health by dramatizing, overstating, and oversimplifying the results of new nutrition studies. In particular, lack of

context or insufficient background information in media stories can lead to the public's confusion.

In recent years, various special interest groups with political and ideological agendas have embarked on an anti-milk campaign to discourage the public from consuming milk and other dairy foods. Their claims are contrary to the preponderance of scientific evidence and dietary recommendations that strongly support dairy foods' beneficial role in health.

Conflicting messages in the media and claims made by special interest groups that differ from dietary recommendations issued by government agencies and reputable scientific organizations can lead the public to completely disregard dietary recommendations and consume less healthful diets. Subsequent nutrition backlash may make it more difficult for health professionals to move the public toward more healthful diets. Anti-milk campaigns can further aggravate this country's calcium crisis and increase the risk for chronic diseases such as osteoporosis and hypertension, among other disorders.

The public needs to be aware of signs of "junk" science such as claims that sound too good to be true or recommendations based on a single study. Well-communicated, science-based information about diet and health can positively influence public health. Nutrition scientists, journal editors, journalists, health professionals, industry, consumers, and others can play a positive role in improving the public's understanding of nutrition and health.



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INTRODUCTION

Consumers' appetite for and access to nutrition and health information through the media (e.g., television, magazines, newspapers, Internet) is at an all-time high (1). Yet, many are confused by what they perceive as conflicting reports and mixed messages in the media.

Consumer surveys indicate that the public is interested in diet and health (2,3). According to the 2000 Food Marketing Institute/PREVENTION magazine's *Shopping for Health* survey, more than one in three (36%) shoppers seek information about nutrition and health (2). A recent survey commissioned by The American Dietetic Association (3) found that nearly half (43%) of survey respondents wanted to know breaking research news on diet and health. Consistent with this public interest, media coverage of diet, nutrition, and food safety has escalated in recent years (1). According to a 1999 survey of stories from 39 broadcast, print, and online media over a 3-month period, coverage of diet, nutrition, and food safety increased 55% compared to a similar survey in 1997 (1).

Although the public today has more access to information about diet and health than ever before, many people are confused and anxious about their diets and report being unable to distinguish reliable from unreliable information. Nearly three-quarters (73%) of consumers participating in the *Shopping for Health* survey (2) strongly or mostly agreed that there is too much conflicting information regarding which foods are and are not healthful. Recently, for example, there have been contradictory diet and health stories in the media about fiber, beta-carotene, vitamin E, soy, butter, and margarine (4).

A 1997 survey by the National Health Council found that 68% of survey respondents agreed with the following statement: "When reporting medical and health news, the media often contradict themselves, so I don't know what to believe" (5). Another survey during the same year reported that 79% of shoppers thought that it was very or somewhat likely that in the next five years experts would have a completely different idea about

Although consumers' interest in diet and health is high, mixed messages in the media and claims by special interest groups are eroding their confidence in dietary recommendations.

which foods are healthful and which are not (6). Likewise, the *Trends 2000* survey by The American Dietetic Association (3) found that 22% of those surveyed reported being confused by all the reports giving dietary advice. Also, 37% held the misperception that some foods should be avoided altogether. This belief contradicts nutrition professionals' philosophy that all foods can fit into a healthful diet.

Various special interest groups that conduct misinformation campaigns distorting scientific facts about diet and health also contribute to the public's confusion about their diets. Using sensationalism, not scientific evidence, to support their claims, these groups issue dietary advice to the public based on their political, social, and ideological agendas (7). For example, several perpetuate common myths and misinformation about dairy foods in the media to further their particular agendas (7). Their claims are not supported by the mainstream nutrition and science community, which supports consumption of milk and other dairy foods as part of a nutritious diet (8-12).

A variety of factors contribute to the public's skepticism about diet and health, including their unfamiliarity with the scientific process. The media, health professionals, scientists, the food industry, and consumers all can take steps to improve understanding and help ensure that diet and health information is based on sound science (13,14).

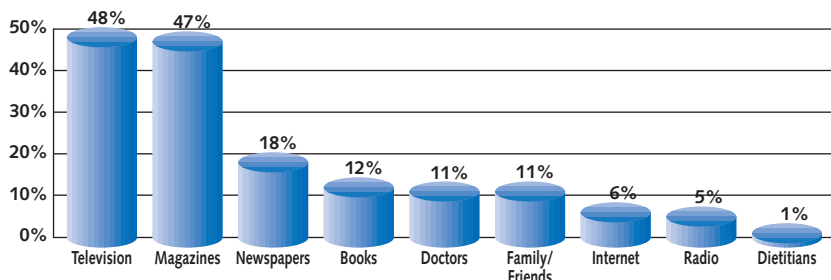
This *Digest* reviews where the public obtains nutrition information; how media contribute to the public's confusion about their diets; the role of some special interest groups in increasing the public's skepticism about dietary recommendations; the potential health impact of misinterpretation of the science; and guidelines for communicating sound science to help set the record straight about specific foods, diet, and health.

WHERE THE PUBLIC OBTAINS NUTRITION AND HEALTH INFORMATION

Television and magazines are the public's leading sources of nutrition information, according to The American Dietetic

Association's *Trends 2000* survey (3, Figure). Other sources include newspapers, books, doctors, family and friends, the Internet, radio, and dietitians (3). More consumers are turning to the Internet (2,3). One survey found that use of the Internet as a source of diet and health information increased 13% compared to the previous year (2).

Where Consumers Get Nutrition Information*



*American Dietetic Association, *Nutrition and You: Trends 2000* (3).

Unfortunately, the quality of information found on the Internet varies from highly credible to poor (15). To help consumers sort through the massive amount of nutrition information in cyberspace and find accurate, useful information, Tufts University has developed an online rating guide to nutrition sites (16, <http://navigator.tufts.edu>). This guide is based on criteria established by an expert advisory panel of food and nutrition experts. Sites are reviewed by Registered Dietitians with advanced degrees and expertise in communications (16).

Although only 1% of respondents in The American Dietetic Association survey cited dietitians or nutritionists as the top source of nutrition information, doctors and dietitians were regarded as the most valuable source of information by 90% or more of survey respondents (3).

HOW MEDIA CONTRIBUTE TO CONSUMER CONFUSION

Popular media — television, magazines, newspapers — are a valuable resource for educating the public, and media reports on nutrition developments can increase the public's awareness of diet and health (14). Yet, short, catchy headlines and snappy sound bites, with words such as "breakthroughs" or "cures" that dramatize and oversimplify preliminary

results of single nutrition studies, can lead to consumer confusion and misinformation (14,17-19). To be competitive and attract the public's attention, the media may use headlines that overstate a study's findings or make the findings from single studies sound conclusive (14).

The public, lacking the training necessary to understand the limitations of single studies, can be misled by the findings (19). Although there has been some improvement, media reports of single studies often do not discuss how the findings relate to previous research (14). For example, are the new findings supportive of or in conflict with the current state of knowledge? Also, the public may not appreciate that the findings from single studies can be misleading if the sample size is too small to address the question being asked, if numerous confounding factors are not controlled, or if substantial bias exists (14,19). In addition, the media seldom report different views or include perspectives and opinions of other researchers regarding a single study's findings. To put media reports of diet and health in perspective, the public must understand that nutrition science is an evolving science, subject to change (14). The results of a single study are not the final word on any subject. Sound scientific conclusions are based on consistent findings from several studies taken together.

Lack of sufficient context in media stories about diet and health is perhaps the single most important factor contributing to public confusion about what to eat for health (1). According to a 1999 survey, only one in eight statements in the media associating a food with a potential harm or benefit included specifics about how much of a food to consume or the population to which the findings apply (1).

Media reports (particularly television and radio) of new scientific findings too often do not indicate the type of study conducted, size of the study population, statistical significance, and how long the study lasted (1,17). Each of these variables can influence the strength of the study's findings. The media and public often do not understand differences among basic research designs and statistics about risk (20,21). For example, epidemiological or

Many news stories about diet and health lack context or sufficient information for the public to make informed decisions about their diets.

observational studies suggest a simple correlation or association between two factors, not a cause and effect relationship (20). The latter can only be demonstrated using controlled studies, preferably double-blinded, placebo-controlled clinical trials in humans (20).

The media develops its stories from information obtained from researchers, major scientific journals, and press releases from professional organizations, universities, and the food industry (14,19). The research results and information provided by these sources should include sufficient information to enable the media, and ultimately the public, to put the findings into proper perspective. The media is increasingly turning to scientific experts for input (1). As a result, nutrition scientists have more opportunities to work with the media to help put complex nutrition findings into an appropriate context of dietary recommendations (18).

HOW CERTAIN SPECIAL INTEREST GROUPS CAN INCREASE THE PUBLIC'S SKEPTICISM

Various special interest groups with a certain political and ideological agenda are conducting misinformation campaigns distorting scientific information about foods, diet, and health. These groups eschew scientific evidence and instead base their claims on pseudo-science in order to scare the public away from following dietary advice supported by the federal government (9) and leading health organizations (12). Commonly, these groups oversimplify complex issues and exaggerate risks in order to support their position. They resort to sensationalism to attract media and public attention. The Internet provides a platform for these groups and purveyors of nutrition misinformation (15).

Over the past decade, some special interest groups have embarked on an aggressive misinformation campaign to discredit the nutritional and health benefits of dairy foods, especially for young children and adolescents. This opposition to dairy products has an

No individual should make any dietary changes based on a news report about a single scientific finding or claims by special interest groups.

ideological, not a scientific, basis (22). A recent critique of anti-milk claims concluded that "cow's milk and its products are safe, healthful, and exceptionally nutritious foods that play an important role in the American diet" (8).

To support anti-milk claims, results are often cited from a single observational study. One example is findings from an observational study that did not show that increasing calcium or dairy food intake promotes bone health (23). But observational studies show only associations, not cause-and-effect relationships (20). Implying that an association or correlation is causal is a common ploy of "junk" science (24). Anti-milk groups choose to ignore the preponderance of scientific evidence supporting dairy foods' beneficial role in bone health, such as the 64 observational studies and 50 investigator controlled trials referenced in a recent review (25).

Milk and other dairy foods are the major dietary source of calcium, providing 72% of the calcium available in the nation's food supply (26). Also, vitamin D fortified milk is one of the few dietary sources of vitamin D, which is essential for the body's absorption of calcium from foods. Without consuming dairy foods, it is difficult to meet calcium needs (27). Some groups promote non-dairy foods as substitute sources of calcium. But non-dairy calcium-containing foods such as green leafy vegetables, legumes, and cereals generally provide lower amounts of calcium per serving than dairy foods (27). Also, some components in these foods (e.g., oxalate in spinach) may interfere with the body's ability to absorb calcium (27).

Another example of misinformation campaigns that ignore the science and oversimplify issues involves lactose intolerance. Special interest groups promote the myth that all lactose maldigesters need to avoid dairy products. Yet, scientific research demonstrates that many individuals diagnosed with lactose maldigestion can consume one or two servings of milk/day, especially in divided doses with meals,

without developing symptoms (28-30). In fact, consuming lactose-containing foods such as milk improves tolerance to lactose (30). Other calcium-rich dairy foods such as aged cheeses, yogurt with active cultures, and lactose-reduced or lactose-free milk are well tolerated by lactose maldigesters and readily available in stores (31).

By providing nutrition advice that is contrary to government guidelines (9) and recommendations of leading medical and health professional organizations (10,12), anti-milk groups increase the public's confusion about what to eat for good health. Health professionals and reputable nutrition organizations, however, can help consumers distinguish between claims about food that are grounded in science and those that are not. In 1995, the Food and Nutrition Science Alliance (FANSA) (32), a partnership of four professional organizations — The American Dietetic Association, the American Society for Clinical Nutrition, Inc., American Society for Nutritional Sciences, and the Institute of Food Technologists — issued the following list of ten signs of junk science:

- Recommendations that promise a quick fix.
- Dire warnings of danger from a single product or regimen.
- Claims that sound too good to be true.
- Simplistic conclusions drawn from a complex study.
- Recommendations based on a single study.
- Statements refuted by reputable scientific organizations.
- Lists of “good” and “bad” foods.
- Recommendations made to help sell a product.
- Recommendations based on studies not peer reviewed.
- Recommendations from studies that ignore differences among individuals or groups.

The public should be skeptical about the accuracy of information presented when any of these signs are noted. Consumers should read beyond the headlines and be cautious of overzealous claims that are contrary to current government guidelines or recommendations of reputable health and nutrition

Nutrition professionals, by effectively communicating the science, can positively influence the public's dietary behavior and overall health.

organizations (4). It is important to remember that there are no simple answers or “magic bullets.”

THE POTENTIAL HEALTH IMPACT OF MISINTERPRETATION OF THE SCIENCE

Conflicting messages about diet and health in the media may be perceived by consumers as scientific indecision or an intrusion on enjoyable eating and lead them to completely disregard dietary recommendations and consume less healthful diets (33). A recent study of 1,700 adults found that individuals who were confused by nutrition messages in the media consumed diets that were less likely to meet current dietary guidelines (33). This nutrition backlash could make it more difficult for health professionals to positively influence eating behavior and nutritional health (33).

Misinformation about diet and health by special interest groups also can lead to consumer confusion and be detrimental to health. For example, anti-milk campaigns targeting children and adolescents, populations at high risk for calcium deficiency, can compromise bone health. According to government data, nine out of ten (88%) girls and 7 out of 10 (68%) boys ages 12 to 19 fail to meet the recommended 1,300mg calcium/day (34). Recognizing that children's diets are alarmingly low in calcium, the American Academy of Pediatrics (10) released a policy statement urging pediatricians to recommend a daily diet for children that includes milk, yogurt, cheese, and other calcium-rich foods. Similarly, inaccurate and misleading statements about milk issued by anti-milk groups can confuse adults and make the current calcium crisis even more challenging to overcome.

GUIDELINES FOR COMMUNICATING SOUND SCIENCE ABOUT DIET AND HEALTH

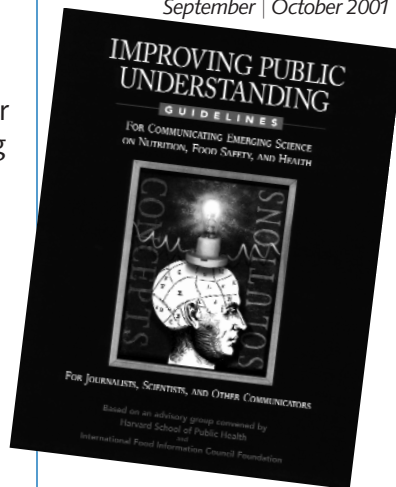
The responsibility for ensuring that the public obtains accurate and meaningful

nutrition messages based on sound science lies with nutrition scientists, journal editors, and journalists, as well as industry, consumer, and other groups (13,15,19,20,35). Recognizing the role of each of these groups in determining what the public hears, reads, and believes about diet and health, the Harvard School of Public Health and the International Food Information Council Foundation developed general guidelines for all communicators, and specific ones for each of the above groups (13).

Communicators in general should consider whether their messages will enhance the public's understanding of diet and health, whether a study's findings are put into context, and whether the study cited has been peer-reviewed (13). For example, if a study's findings are preliminary, this information should be clearly communicated. Separate guidelines for scientists ask if they have provided sufficient details about the study in an easily understood way, if limitations of the study are properly explained, and if dietary risks and benefits are clarified.

Among questions for journal editors are whether they have considered the effects of a study's findings on the public and whether news releases on an article in the journal accurately reflect the research findings. Journalists should ask themselves if their reporting of a study is accurate and balanced, and if they have provided practical advice. Among questions for industry, consumer, and other groups are whether they have provided accurate information and feedback to the media (13).

Clearly, to help move the public toward more healthful dietary patterns, health professionals, scientists, the media, and others have a responsibility to provide accurate, easily understood messages about diet and health. Resources to help meet this challenge are available (13,36). D



REFERENCES

- International Food Information Council. *Food For Thought III. Reporting of Diet, Nutrition and Food Safety. Executive Summary. 1999 vs. 1997 vs. 1995*. 2000. <http://ificinfo.health.org>
- Food Marketing Institute and PREVENTION Magazine. *Shopping for Health. Self-Care Needs and Whole Health Solutions*. Washington, DC: Food Marketing Institute and Emmaus, PA: PREVENTION Magazine, 2000.
- American Dietetic Association. *Nutrition and You: Trends 2000*. Chicago, IL: American Dietetic Association, 1999.
- Forman, A. *Environ. Nutr.* 24: 1, 2001.
- National Health Council. *Americans Talk About Science and Medical News*. Washington, DC: National Health Council, 1997.
- Food Marketing Institute and PREVENTION Magazine. *Shopping for Health 1997: Balancing Convenience, Nutrition and Taste*. Washington, DC: Food Marketing Institute and PREVENTION Magazine, 1997.
- Hively, W. *Discover August*: 44, 2000.
- Fontenot, B. *Much Ado About Milk*. 2nd ed. New York: The American Council on Science and Health. February 2000. www.acsh.org
- U.S. Department of Agriculture and U.S. Department of Health and Human Services. *Nutrition and Your Health: Dietary Guidelines for Americans*. 5th edition. Home and Garden Bulletin No. 232. Washington, DC: U.S. Government Printing Office, 2000. www.ars.usda.gov/dgac/
- American Academy of Pediatrics, Committee on Nutrition. *Pediatrics* 104: 1152, 1999.
- NIH Consensus Development Panel on Osteoporosis Prevention, Diagnosis, and Therapy. *JAMA* 285: 785, 2001. <http://consensus.nih.gov>
- American Heart Association, Nutrition Committee. *Circulation* 102: 2284, 2000.
- Fineberg, H.V., and S. Rowe. *J. Natl. Cancer Inst.* 90: 194, 1998. <http://ificinfo.health.org/resource/guidelines/htm>
- Wellman, N.S., F.E. Scarbrough, R.G. Ziegler, et. al. *Am. J. Clin. Nutr.* 70: 802, 1999.
- Goldberg, J.P. *Nutrition* 16: 644, 2000.
- Tufts University. The Tufts University Nutrition Navigator. www.navigator.tufts.edu
- International Food Information Council. Making sense of health and nutrition news. *Food Insight Jan/Feb*: 4, 2001.
- McMahon, K.E., and M.A. Cameron. *Nutr. Today* 33: 19, 1998.
- Shuchman, M., and M.S. Wilkes. *Ann. Intern. Med.* 126: 976, 1997.
- International Food Information Council Foundation. *How to Understand and Interpret Food and Health-Related Scientific Studies*. Washington, DC: International Food Information Council Foundation, 1997.
- Bennett, P. Communicating About Risks to Public Health: Pointers to Good Practice. www.doh.gov.uk/pub/docs/doh/pointers.pdf
- Heaney, R.P. *J. Clin. Endocrinol. Metab.* 85: 3009, 2000.
- Feskanich, D., W.C. Willett, M.J. Stampfer, et. al. *Am. J. Public Health* 87: 992, 1997.
- Raso, J., S. Shindell, D.W. Cragin, et. al. *Priorities for Health* 12(4) & 13(1): 7, 2000 & 2001.
- Heaney, R.P. *J. Am. Coll. Nutr.* 19: 83s, 2000.
- Gerrior, S., and L. Bente. *Nutrient Content of the U.S. Food Supply, 1909-97*. Home Economics Research Report No. 54. Washington, DC: U.S. Department of Agriculture, Center for Nutrition Policy and Promotion. March 2001.
- Miller, G.D., J.K. Jarvis, and L.D. McBean. *J. Am. Coll. Nutr.* 20(2): 168s, 2001.
- Suarez, F.L., D. Savaiano, P. Arbis, et. al. *Am. J. Clin. Nutr.* 65: 1502, 1997.
- Suarez, F.L., J. Adshear, J.K. Fume, et. al. *Am. J. Clin. Nutr.* 68: 1118, 1998.
- Pribilia, B.A., S.R. Hertzler, B.R. Martin, et. al. *J. Am. Diet. Assoc.* 100: 524, 2000.
- McBean, L.D., and G.D. Miller. *J. Am. Diet. Assoc.* 98: 671, 1998.
- Food and Nutrition Science Alliance (FANSA). *FANSA's 10 Red Flags of Junk Science*. 1995.
- Patterson, R.E., J.A. Satia, A.R. Kristal, et. al. *J. Am. Diet. Assoc.* 101: 37, 2001.
- U.S. Department of Agriculture, Agricultural Research Service. 1997. *Data tables: Results from USDA's 1994-96 Continuing Survey of Food Intakes by Individuals and 1994-96 Diet and Health Knowledge Survey*. February 1999.
- Voelker, R. *JAMA* 279: 417, 1998.
- Duffy, V.B., and H.J. Holler. *J. Am. Diet. Assoc.* 99: 231, 1999. D

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