Reply to E Roehm

Dear Sir:

Roehm brings up 2 important issues: the health benefits of the Mediterranean diet and the statistical “manipulation” (his term) used to pray out effects of diet on health.

With regard to “manipulation”, statistical modeling of observational data has its limitations, and it can lead to erroneous conclusions. But those limitations hold even stronger for the examples advanced by Roehm. Comparisons of countries are riddled with such confounding that no amount of statistics can set it right. Crete, Italy, and Spain in the 1960s had a higher intake of olive oil and a lower mortality from coronary heart disease than the United States or northern Europe, but to suggest that this association is causal ignores the myriad other differences between these countries. No firm conclusions in regard to diet and health can be drawn from country comparisons, however appealing they may be.

As for the Mediterranean diet, it is great for eating, but less great as a scientific tool. The randomized trial quoted by Roehm is a case in point. The so-called Cretan Mediterranean (1) diet studied in this trial lacked the very food that defines the Mediterranean diet, namely olive oil. Instead of olive oil, the study used lightly hydrogenated rapeseed (canola) oil. The rapeseed margarine used in the study had twice as much linoleic acid and 8 times as much of the plant omega-3 (n−3) fatty acid ω-linolenic acid as olive oil (2). The authors ascribed much of the remarkable outcome of their study to this high intake of ω-linolenic acid (2). Olive oil is deficient in omega-3 fatty acids. Therefore, the results of this trial say little about the Mediterranean diet and coronary heart disease.

“Mediterranean” is not a precisely defined concept. The importance of precise definitions is illustrated by the way an ancient Italian staple food, pizza, has been converted into a fast food. Where does pizza stop being Mediterranean? Such concerns are more than only theoretical. In the 1990s people were told that foods low in fat and high in carbohydrate prevented chronic diseases. That led to the “great carbohydrate fiasco” during which Americans stuffed themselves with low-fat chips and sugary drinks, to the detriment of their waistlines and their blood lipids. The origin of this fiasco was the fuzzy definition of what constitutes a healthy diet. The scientists who introduced the term low fat intended beans, vegetables, and whole-wheat bread. However, low fat also applies to low-fat cookies and soda drinks.

Currently, much of the diet in developed countries consists of processed foods. The food industry wants to appeal to its customers’ health consciousness, but it also has to deal with their appetite for tasty and convenient foods, which are usually less healthy. Industry will therefore stretch definitions of “healthy” to the limit. This also applies to plant breeders, who breed bitter-tasting components out of vegetables to make them more appealing. These vegetables seem no less Mediterranean than their predecessors, but what if those bitter molecules were the very bioactive compounds responsible for a beneficial effect?

Our definition of “healthy” must not be based on anything as fuzzy as “Mediterranean” but on identification and quantification of the compounds responsible for benefit. There are lessons to be learned from the past here. When scurvy raged, naval doctors treated it with vinegar or lemon juice, 2 clear fluids that taste the same. But similarity does not guarantee similar action: vinegar did not work because it lacks ascorbic acid. Rational treatment of deficiency diseases became possible only after the vitamins had been identified and their concentrations in food could be measured. Similarly, population-based prevention of heart disease owes much to the chemical identification of polyunsaturated fatty acids and their actions (3).

The 19th-century British physicist Lord Kelvin said, “When you can measure what you are speaking about, and express it in numbers, you know something about it; but when you cannot measure it, when you cannot express it in numbers, your knowledge is of a meagre and unsatisfactory kind” (4). Our understanding of the Mediterranean diet is of a meager and unsatisfactory kind, and recommendations to eat Mediterranean-type foods could lead to another dietary failure. We need to identify the responsible compounds first, however long it takes.

The author had no conflict of interest.

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REFERENCES


Reducing potential bias in industry-funded nutrition research

Dear Sir:

The article by Rowe et al (1) in the May 2009 issue of the Journal brings to light an important issue related to the integrity of nutrition research. In acknowledgment of the potential for significant bias in industry-funded nutrition research, the authors propose several guidelines for industry interactions.

I agree that financial conflicts of interest and bias in nutrition research must be dealt with by comprehensive policies. We have shown that beverage research supported by industry was 7.6 times more likely to have favorable results than research that was not funded by industry (2). We suggested several hypotheses of why this difference may have occurred, which relate to the selection of research topics and research design.

However, Rowe et al disagree with this premise, instead suggesting that industry only supports research that is based on previous research that has shown proof-of-concept. However, all funders (industry and nonindustry) sponsor research on the basis of preliminary findings; yet, according to our study, non-industry-funded studies have a lower likelihood of positive results.

Why might this difference exist? There are various sources of conflicts of interest in research, including long-standing scientific...
beliefs, career considerations, and political opinion. However, financial conflicts of interest are qualitatively different and produce a selective bias that acts consistently in one direction over time. (See reference 2 for a more detailed explanation of this hypothesis.)

The best way to reduce potential bias may be to have the journal editors formulate the policies for conflicts of interest. Editors have the ability to enforce policies by publishing only research that adheres to strict ethical standards.

Editors of nutrition journals could take significant steps to reduce the publication of potentially biased nutrition research. Some of these steps have already been taken by the general medical journals. They include the following:

1) Require that all trials (including nutrition trials) be registered at time of initiation of the study [American Journal of Clinical Nutrition policy (3)].
2) Prohibit the publication of review articles sponsored by industry [New England Journal of Medicine policy (4)].
3) In addition to any statistical analyses performed by the sponsoring industry, require that statistical analyses be independently conducted by researchers who are not employed by the sponsor [JAMA: the Journal of the American Medical Association policy (5)].
4) Require authors to disclose all financial, personal, and professional conflicts of interests that occurred within 5 y of the commencement of the research [PLoS Medicine policy (6)].
5) Advocate for a public database of conflicts of interests in nutrition research, such as the Institute of Medicine recommends for pharmaceutical research (7).

Policies enforced by journal editors can help decrease the publication of financially biased research. Future studies are needed to determine whether these policies eliminate the financial bias of industry-funded studies. In the meantime, readers should continue to view industry-sponsored research more skeptically than non-industry-sponsored research.

In 2006 the author worked for 1 mo at the Center for Science in the Public Interest, which advocates for integrity in research and supports a database on financial conflicts of interest.

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REFERENCES

Reply to LI Lesser

Dear Sir:

The primary goal of the International Life Sciences Institute (ILSI) North America Working Group on Guiding Principles, in our article that appeared recently in the Journal, was to provide guidance to researchers who receive funding from industry to minimize the potential for bias due to funding source. A secondary goal was to stimulate ongoing discussion of the conflict-of-interest issue in a common desire to protect the integrity of the scientific food and nutrition literature. We are pleased that Lesser confirms our secondary goal; we hope this further exchange stimulates a vigorous ongoing discussion of conflict-of-interest and bias issues.

We believe that science has never been the dominion of only one segment of society, nor should it be. As noted in the article, there are many legitimate reasons for research to be sponsored or conducted by various groups with varied interests. There is broad agreement that scientific integrity needs to be maintained regardless of who sponsors, conducts, or analyzes research, but the body of literature would be poorer in both breadth and scope if some segments were to be excluded from the research arena.

We are well aware of the conflict-of-interest policies of the scientific journals, particularly the medical journals; however, a major purpose of the guidelines laid out in our article was to augment, complement, and reinforce journal policies. The working group’s intention was, and is, to suggest ground rules for all participants in the increasingly complex landscape of funders and providers of research so that all potential researchers, those funded by industry as well as those who receive public or other funding, are cognizant of their responsibilities.

As to Lesser’s urging of complete disclosure, that is certainly one of the key points of the ILSI North America Guiding Principles; we fully agree that disclosure of any personal bias/conflict would augment disclosure of financial conflicts. Regarding the letter’s suggestion that “readers should continue to view industry-sponsored research more skeptically than non-industry-sponsored research,” it remains the working group’s contention that, if guiding principles such as those enumerated in ILSI North America’s article, are adhered to, along with the conflict-of-interest policies established by the journals, and journal editors conduct rigorous peer review, there is no reason to view funding sources more skeptically than any other bias that may influence research.

ILSI North America is a public nonprofit scientific foundation with branches around the world, which provides a forum to advance the understanding of scientific issues related to the nutritional quality and safety of the food supply. ILSI North America carries out its mission by sponsoring relevant research programs, professional education programs and workshops, seminars, and publications as well as by providing a neutral forum for government, academic, and industry scientists to discuss and resolve scientific issues of common concern for the well-being of the general public. The programs of ILSI North America are supported primarily by the ILSI North...