Do Fruit and Vegetables Prevent Cancer?

The Journal of the National Cancer Institute (JNCI) has published a paper that denies a major role to fruit and vegetable consumption in the prevention of cancer. Since this study contradicts many other studies, as well as a long-term US government recommendation ("5 per day"), it has gotten a lot of press. At this writing, there have been 520 news articles, almost all of them negative. "Simply eating your five a day will not protect you against cancer," is how the Independent (UK) phrased it.

However, there are several questions about this study that need to be addressed. First, according to this European Prospective Investigation Into Cancer and Nutrition (EPIC) study, if the subjects had increased their fruit and vegetable intake by just 150 g per day, they would have reduced their risk of getting cancer by 2.6% (men) and 2.3% (women). Now, 150 g is the weight of one small apple.

In the US (according to the American Cancer Society) in 2009, there were 766,130 cases of cancer in men and 713,220 cases in women, for a total of 1,479,350. Thus, by the study's own figures, an apple or a handful of grapes could prevent 19,919 US cases of cancer in men plus 16,404 cases in women, for a total of 36,323 people saved from the ravages of cancer. That's almost exactly the capacity of Fenway Park in Boston, where the Red Sox hold forth. So instead of minimizing the results (as virtually every media outlet chose to do), commentators could have put a positive spin on the EPIC findings. After all, is it a small thing to keep more than 36,000 Americans from getting cancer at such minimal cost and trouble?

Looked at in another way, the patients in the study were divided into five groups or "quintiles."

Quintile 1 consumed 0–226 g per day (i.e., less than 8 oz. maximum).
Quintile 2 consumed 227–338 g per day.
Quintile 3 consumed 339–462 g per day.
Quintile 4 consumed 463–646 g per day.
Quintile 5 consumed more than 647 g per day (i.e., a minimum of 23 oz.).

The difference in the Hazard Ratio (roughly speaking, the risk) of getting cancer between Quintile 1 and Quintile 5 was 11%. Thus, if everyone in the US adopted a diet in which they ate less than a pound and a half (23 oz.) of fruits and vegetables per day, the cancer incidence would drop considerably, for a savings of many thousands of cases per year.

The World Health Organization (WHO) has estimated that there are at least 12 million new cancers diagnosed worldwide (Science Digest 2008). According to the EPIC study, conversion to a moderately high-fruit and -vegetable diet could ideally save hundreds of thousands of people from getting cancer each year worldwide. This astonishing fact was also not conveyed by the negative press reports on the EPIC study.

Advocates of a strict vegetarian diet point out that changes of a few ounces are not likely to make much of a difference in preventing cancer occurrence. One needs to make drastic changes, they say, in order to combat as intractable a disease as cancer.

Dr. Pam Popper, director of the Wellness Forum of Columbus, Ohio, suggests that these changes should consist of (a) the elimination of dairy products, (b) the reduction or elimination of all other animal foods (the upper limit being 10% of calories), (c) reduction of fat and elimination of oils, and (d) consumption of a diet composed of high-fiber, nutrient-dense, whole plant foods. She points to studies indicating that such a diet can not only prevent cancer but actually stop the progression of various disease states (Popper 2010).

Popper cites Cornell Professor T. Colin Campbell's fascinating book, The China Study, to show that animal protein can be a powerful cancer promoter. She also claims that dietary fats, including monounsaturated and polyunsaturated fats, are a significant factor in cancer risk. Indeed, in 1991, the late Canadian biochemist Kenneth K. Carroll concluded: "Total dietary fat correlates with cancer incidence and mortality at least as well as does any particular type of fat" (Carroll 1991). The consumption of...
Dairy products have been linked to several forms of cancer, particularly tumors of the prostate (Chan 2001), although there is hardly unanimity on this idea, even in vegetarian circles.

The greatest weakness of the study appears to have been its inclusion of strict vegetarians into a broader category of those eating a pound-and-a-half of fruits and veggies per day. This may have obscured a greater effect on people who feast abundantly on plant foods. What would have been the effect if strict vegans (who eat no eggs, dairy, fish, or meat) had been considered as a separate category? That might have provided very positive results, which probably would have proven more meaningful than the data that emerged from the EPIC study.

**Mistletoe Extract Found Effective**

Mistletoe extract is widely used in German clinics that specialize in the complementary approach to cancer. But there is far less enthusiasm for this treatment in the English-speaking world, especially among skeptical oncologists. Now mistletoe has been found to be reasonably effective in extending survival, according to a German meta-analysis published last December. While not definitive, it strongly suggests that mistletoe is a beneficial adjunct in cancer therapy.

The paper’s three authors are at the Center for Integrative Medicine, University of Witten/Herdecke (Ostermann 2009). They identified a total of 49 studies on the effects of the mistletoe drug Iscador on survival. Among these, 41 had enough data to extract meaningful information on survival. The majority of studies showed positive effects, although it is possible that negative studies failed to get published (the so-called publication bias). “One cannot ignore the fact that studies with positive effects of [mistletoe] on survival of cancer patients are accumulating,” the authors wrote.

Iscador is an extract of the white berries of the mistletoe plant (*Viscum album*), an unusual evergreen that grows as a kind of parasite in trees across Europe. Globular mistletoe is a familiar sight in Germany, especially in the winter, when it stands out in the bare branches of various deciduous trees. Mistletoe has a fascinating history. According to Roman authors, it was used as a medicine by Celtic priests, who gathered it using golden scythes (to avoid contaminating the specimens). Much later, it was introduced as a cancer treatment by Rudolf Steiner (1861–1925), the founder of anthroposophical medicine (Steiner 1985).

Steiner recommended making a drug extract from mistletoe plants harvested in both the winter and the summer (Steiner 1989). Based on his recommendations, Ita Wegman and other anthroposophical doctors treated their patients with mistletoe extracts, but there have been few rigorous studies on the effects. This study from Witten/Herdecke is a major contribution in assessing the actual benefit of this unusual treatment.

**POM Wonderful in Trouble**

It has now been seven years since the *Journal of the National Cancer Institute* asked, rhetorically, if pomegranate were “nature’s power fruit.” There have now been dozens of scientific articles on the anticancer potential of pomegranate. One company, POM Wonderful, has been spending much of its hard-earned money furthering research in this field. Its “reward” came February 23, 2010, when the US Food and Drug Administration (FDA) issued a scathing 10-page warning letter, declaring POM Wonderful juice to be an unproven “drug” and demanding that the company stop providing health information relating to pomegranate on its website.

According to the warning letter, “FDA’s review found serious violations of the Federal Food, Drug, and Cosmetic Act.” To understand this odd statement, you have to follow FDA’s reasoning process. Each bottle of POM Wonderful juice understandably gives the company’s Web address, www.pomwonderful.com. This website cites various scientific studies that support the idea that pomegranate juice is a healthful beverage. According to FDA logic, this constitutes advertising. For instance, in regard to prostate cancer, the company states the following:

In a clinical study involving 46 men with rising PSA after prostate cancer treatment (surgery or radiation) who consumed 8 ounces of POM Wonderful juice, the PSA levels dropped almost 30% over a period of six months.

**Natural Help for Lyme Disease**

Modern Chinese Medicine is the integration of Traditional Chinese Medicine and modern medical research. The goal is to provide complementary treatment options for chronic medical conditions.

Dr. Qingcai Zhang in New York City who specializes in chronic medical conditions. For more information about Zhang Clinic please visit www.zhangclinicnyc.com.

Dr. Zhang’s book “Lyme Disease and Modern Chinese Medicine” and Herbal products are available at HepaPro Corp. www.hepahealth.com or call toll free 1-888-788-4372.
100% Pomegranate Juice daily over two years, PSA doubling time increased from 15 to 54 months. ... PSA doubling time is an indicator of prostate cancer progression.

FDA did not claim that these were not truthful statements. They are derived from a 2006 phase II clinical trial conducted at the University of California, Los Angeles (UCLA). There were 14 coauthors on this study, which was published in Clinical Cancer Research (Pantuck 2006).

But according to FDA, the mere act of citing a scientific study automatically constitutes a form of advertising and turns an innocuous and healthful drink into a drug. Why? "When scientific publications are used commercially by the seller of a product to promote the product to consumers," it says, "such publications may become evidence of the product's intended use. ... The citation implies treatment or prevention of a disease."

In fact, POM Wonderful is not just a drug, but a "misbranded drug." Why? Because, according to FDA, "POM Wonderful 100% Pomegranate Juice and POMx products [a line of supplements] are offered for conditions that are not amenable to self-diagnosis and treatment by individuals who are not medical practitioners; therefore, adequate directions for use cannot be written so that a layperson can use these drugs safely for their intended purposes. Thus, your products are misbranded ... in that the labeling for these drugs fails to bear adequate directions for use."

In other words, a person with prostate cancer cannot possibly 'treat' his own cancer because, presumably, he is not a medical practitioner. But pomegranate juice is intended for use by the general public. Therefore no adequate label could be written for it, since de facto no layperson could possibly understand or interpret such instructions.

Truly, this whole situation with FDA has gotten out of hand. It would require the writings of a great satirist, such as a Jonathan Swift or a Kurt Vonnegut, to capture the absurdity of the situation. A harmless juice, which has already demonstrated some health benefits, is arbitrarily reclassified as a drug, and then declared "misbranded" because no patient (other than a medical doctor) is by definition allowed to treat cancer, even his own.

Meanwhile, FDA avoids a few larger problems that in a saner world might capture its attention. I could mention a couple of dozen of them, but will simply point out that E. coli bacteria are running rampant through the entire food supply. In November 2009, there was a recall of 546,000 pounds of contaminated ground beef in Connecticut, Maine, and Massachusetts. This was only the tip of a huge iceberg of truly dangerous food products. The FDA shares some responsibility for food safety. Meanwhile, people who are trying to improve the health of the public are maligned and hampered by governmental agents.

What I find particularly galling is that at the same time as these FDA attacks on POM Wonderful, the National Cancer Institute (NCI) is striving to get Americans to prevent cancer by consuming more fruits and vegetables. "People whose diets are rich in plant foods such as fruits and vegetables have a lower risk of getting cancers of the mouth, pharynx, larynx, esophagus, stomach, lung, and there is some suggested evidence for colon, pancreas, and prostate," the NCI states on its website. "They are also less likely to get diabetes, heart disease, and hypertension. A diet high in fruits and vegetables helps to reduce calorie intake and may help to control weight." Indeed.

"To help prevent these cancers and other chronic diseases, experts recommend 4 to 13 servings of fruits and vegetables daily, depending on energy needs," the NCI adds. "This includes 2 to 5 servings of fruits," including presumably pomegranates. In actual fact, however, only "32.6% of adults consumed fruit two or more times per day and 27.2% ate vegetables three or more times per day" (CDC 2005 figures).

But when a private company is able to motivate tens of thousands of people to increase their intake of a perfectly healthful beverage, and to accurately report scientific findings about that juice, it is viciously attacked by another branch of government. The government, and legislators in both parties, profess concern over the rising burden of health care, including its cost. Yet they allow rampant attacks on companies whose actions at worst are harmless, and at best could lead to a major improvement in public health. We live in a topsy-turvy world.

References
Popee P. Personal communication. April 7, 2010.

Ralph W. Moss, PhD, is the author of 12 books on cancer-related topics. The former science writer at Memorial Sloan-Kettering Cancer Center, for 35 years Moss has investigated the validity of many cancer treatments. He currently directs the Moss Reports, a library of reports for patients on over 200 different cancer diagnoses.