

Something fishy this way comes . . .

Yet another viral news story has recently spooked many of my listeners and patients. This time it's about an alleged association between fish oil and prostate cancer. It spread like wildfire this week after being headlined on the Drudge Report.

There is a reason that a recent survey showed that journalists are among the least respected professionals in the country.

Here's an example of some of the headlines:

"Fish oil may raise prostate cancer risk, study confirms"—NBC News

"Taking Omega 3 supplements may increase the risk of prostate cancer"—*Daily Mail*

"Men might want to shun fish oils, study shows"—*Seattle Times*

You get the idea. In a stunning illustration of journalistic bias, a comparable study released this week showing that statin use doubled women's breast cancer risk got almost no play. Cue cricket sounds.

Dr. Alan Kristal, part of the team at Fred Hutchinson Cancer Research Center in Seattle that performed the fish oil study, had this little zinger to share with the press:

"As we do more and more of these studies—and I have been involved in them most of my career [DUDE, you're so awesome!]-we find high doses of supplements have no effect or increase the risk of the disease you're trying to prevent. There is not really a single example of where taking a supplement lowers disease risk."

Wow. That's quite a statement for a self-styled scientist. Talk about BIAS!

This would be the equivalent of a researcher doing a trial showing an unforeseen harmful effect of a medication (using the statin example again, it was recently demonstrated that statins raise the risk of diabetes by up to 40 percent) and concluding:

"I've done a lot of studies of medications, and believe me, there's not one medication I've ever researched that didn't turn out to have a lot of side effects and was worthless for the condition it was advertised for."

Clearly, since you never hear a scientist talking that way, there's a double standard when it comes to supplements, because if one vitamin study turns out negative, by some illogical leap, it casts aspersions on ALL supplements.

But what of the fish oil study itself? Let's drill down and find out what it really was about, something the lazy journalists, who really these days are not more than shorthand stenographers, never bothered to do.

First of all, would it surprise you to learn that the "study" was really not a study of omega-3 supplementation, or even fish consumption? What the researchers did was measure the levels of omega-3 fatty acids in the red blood cell membranes of patients with prostate cancer versus healthy controls. While this might be a reflection of intake of omega-3s, it might also reflect something peculiar about the quirky metabolism of men vulnerable to prostate cancer. NO dietary history or history of supplement use was elicited.

The study was not new but merely an elaboration of a 2011 study (SELECT) that showed, implausibly, that higher levels of omega-3 in the blood cells were associated with higher risk of prostate cancer and that *more trans fats in the cells conferred protection against prostate cancer!* It follows that

the dietary recommendation that would logically ensue from this finding would be: stop eating fish and start eating hydrogenated margarine and Crisco to prevent prostate cancer.

Of course we know that's not true. Harvard's Walter Willett, one of the world's pre-eminent nutrition researchers, once estimated that consumption of trans fats was responsible for at least 60,000 additional cancer deaths per year in the U.S. alone!

Biologically, there's no plausible reason to suspect that too much omega-3 could be cancer-*causing*. Mere observational studies that present no credible *mechanism of action* are considered low on the totem pole of academic credibility. But they don't teach that in journalism school.

In fact, every scientific principle to date points to the efficacy of omega-3 fatty acids in *preventing* prostate cancer. They are anti-inflammatory, and chronic inflammation is thought to be at the root of many common cancers, including prostate cancer. They help to regulate insulin, a powerful driver of many cancers by virtue of its potentiation of insulin-like growth factor (IGF-1). They may even help regulate cell replication, preventing runaway proliferation and metastases that occur in cancer. They help to prevent cancer cachexia, a wasting condition in patients with advanced cancer.

Research is not yet conclusive but has supported a protective role for omega-3 in other cancers including colon, breast and lung cancer.

The Hutchinson study purports to show that men with high levels of Omega-3 had a 70 percent increase in the risk of advanced prostate cancer and a 40 percent overall increased risk of prostate cancer.

Do we have reason to doubt their conclusion that excess consumption of fish oil is driving the prostate cancer

epidemic?

Epidemiologically, it doesn't make sense. Eskimos have among the world's highest intakes of Omega-3. Are they dropping like flies from prostate cancer? In fact, no. Before the advent of modern diets, rich in sugar and processed foods, cancer and heart disease were virtually unknown among the Eskimos.

Other real world studies support the prostate-protective effects of fish oil. In 2009, *Clinical Cancer Research* published a study showing men who consumed the highest amount of long-chain omega-3 fatty acids had a 63 percent *reduced* risk of aggressive prostate cancer compared to men with the lowest amount of long-chain omega-3 fatty acids.

The Hutchinson study also is at odds with Japanese research that shows a dramatic reduction in prostate cancer risk among Japanese consuming a traditional diet rich in fish. In fact, the Japanese diet has the highest omega-3:6 ratio (9) among industrialized countries. The average 3:6 ratio in Europe and the U.S. is less than five even among fish eaters who take supplements.

Well, you have to read the study, not just parrot its conclusions. Concealed amid the mind-numbing charts and tables of the study is the tiny difference in plasma phospholipids that the researchers base their conclusions upon. A mere 0.2 percent difference in these blood levels prompted their hasty premise that fish oils were cancer-causing.

Additionally—and sorry, this gets a little technical—the study purports to be “case-controlled”—which means that the non-cancer group was identically matched to the cancer group with respect to all variables except omega-3 levels. This is said by trialists to provide a study with more statistical “power.” But several research experts—and they are far more sophisticated study analysts than I am—have pointed out that, curiously, the subjects in this study were not matched as to

smoking status, race, weight and diabetes as well as several other important variables that affect prostate cancer risk.

The absence of proper case controls diminishes the statistical robustness of the findings. Does this mean—and I'm just thinking out loud—that the Hutchinson group ran the numbers with the proper case controls, found the results not supportive of their preconceived view of fish oils and so “massaged” the data to make the numbers turn out “right”? Just sayin' . . .

Then there's the “Ergo post hoc, propter hoc” fallacy. Never took Latin in high school? It means “after this, therefore because of this.” It's a famous logical mistake that has plagued scientific thought since the days of Aristotle. Examples of the post hoc fallacy, from Wikipedia, include:

From the introductory philosophy textbook *With Good Reason* by S. Morris Engel,

“More and more young people are attending high schools and colleges today than ever before. Yet there is more juvenile delinquency and more alienation among the young. This makes it clear that these young people are being corrupted by their education.”

How does post hoc fallacy apply to the fish oil/prostate cancer study?

Well, let's assume—and by no means is this conclusively “proven” by the questionable data in this study—that there IS a correlation between high levels of omega-3 and prostate cancer.

The average man goes along oblivious to nutrition until a health calamity—such as a diagnosis of prostate cancer—rocks his world. Then, in an act of contrition, the man is likely to give up red meat and virtuously begin to eat fish. Since fish oil is reputed to have anticancer effects, the man is likely

to add that to his supplement regimen. Is it possible that many of the cancer-stricken men in the Hutchinson study were “born again” into the omega-3 lifestyle, skewing the researchers analysis? Sure it is.

OK, let’s assume again, for the sake of argument, that there IS a correlation between blood levels of omega-3s and prostate cancer, and that it IS a real reflection of cancer victims consumption of oily fish and fish oil capsules. Is it the fault of the EPA and DHA, or is it a reflection of something else?

Scientists call this an “epiphenomenon.” The dictionary definition of an epiphenomenon is “A secondary phenomenon that results from and accompanies another.”

What I’m getting at is that EPA and DHA may be OK for the prostate but that what ACCOMPANIES them is harmful to the prostate.

I’m thinking environmental pollutants. Have you checked the price of fresh wild Alaskan sockeye salmon these days? The vast majority of fish eaters consume cheaper sources of omega-3, especially canned tuna or farmed salmon. Fishermen dip their lines in polluted lakes and coastal waters and haul in bass and bluefish. All these fish are repositories of unacceptable amounts of xenoestrogens and PCBs.

PCBs are part of a group of man-made organic chemicals that were widely used in industry until they were banned in 1979 after they were linked to cancer.

Although no longer in use, the chemicals accumulate in the environment and are sometimes found in fish and plants that have been exposed to contaminated water or soil.

Integrative oncologist Brian D. Lawenda, M.D., told dailyRx News,

“Could these results simply be confounded by higher consumption of toxin-loaded fish leading to an increased risk of prostate cancer rather than an effect of the omega-3s on cancer development? [That’s] food for thought,” he said.

Additionally, a new study in *PLoS One* shows that “Icelandic men who ate the highest amount of salted and smoked fish were twice as likely to develop advanced prostate cancer, compared with those eating the lowest amount.” (By contrast, the study also found men consuming fish oil in later life were 57 percent less likely to develop advanced prostate cancer.)

Lox and bagels with cream cheese deliver lots of omega-3 fatty acids into the bloodstream, but are they ideal elements of a prostate cancer preventive program? Harmful chemical by-products generated by high-temperature smoking as well as nitrate preservatives might render them toxic.

Then there’s the problem of variable quality of fish oil supplements. I have long argued for careful selection of purified or molecularly distilled fish oil to avoid the problem of contamination.

An Aug. 22, 2012 press release by Consumerlab.com entitled “Contamination and Other Problems Found in Fish Oil Supplements” claimed four of 35 omega-3 supplements tested exceeded contaminations limits for PCBs. (Mercury was not detected in any of the products.)

The pollutant connection argues not for avoidance of fish and omega-3 supplements but rather for more careful product selection.

There are many other criticisms of the Hutchinson study that I haven’t even marshaled here, but I think you get the idea. There is so much wrong with this study that it doesn’t warrant a change in our supplement recommendations, even for men at high risk for prostate cancer. I will continue to take my (high-quality) fish oil capsules and eat my (non-farmed) fish.

But the journalistic irresponsibility of uncritically disseminating such a dubious study will unfortunately have long-term repercussions for the health of the millions of Americans who need fish and fish oil supplements to protect their hearts, their brains and, yes, to protect them against cancer.

How about teaching a little basic science and nutrition in journalism school?