[IMAGE]

Diet, Nutrition and the Context of Risk

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Food and supplement safety is a topic that often comes up when I speak to chiropractors for continuing-education relicensing, even when it is not the advertised subject. In fact, it was an off-topic discussion that prompted me to research and write about genetically modified foods (the umbrella term is GMO, with the "O" standing for organism) after a doctor said she would never eat corn because of how unhealthy GMOs are. My reply caught her off guard because instead of arguing about corn on the cob, I pointed to the can of soda and little bag of cookies on her desk, and asked why she was worried about corn.

This news-out-of-context theme usually works like this:

1. The headline overstates the findings.
2. Most people don't take (or have) the time to carefully read the entire article.
3. They unknowingly get the wrong impression, which is then repeated to family, friends and co-workers.

Obviously, details count when it comes to getting any story right. In the case of nutrition, details count even more because the facts are so often nuanced and one size does not fit all. Nutrition information is rife with secondary gain and it is not one-sided, because any party that has to defend a market share (or try to expand it) will put its survival over yours.

My approach is to trust no one and question everyone because, as I have said before, I do not care what the truth is as long as I know it. Furthermore, if the truth is unknown or not understood, the chances of making a good decision are slim at best.

monitored the same way except there is never a day when, for example, every single apple, carrot or berry we eat is thoroughly tested. ght has unwanted chemicals because the apple you bought (like most of the food we buy) was never tested.

This is especially important when the subject is food safety and the risk posed by chemicals, contaminants and toxins which may or may not be in our food. I say "may or may not" because we test our food like we test political opinions, with one exception: When it comes to food, there is no election day. Confused? See

sidebar #1. Otherwise, if the analogy worked, here are two examples to consider.

Concern About Salmon Because Fatty Fish Are High in Chemicals

A few years ago, researchers did a complex analysis on the risks and benefits of farmed and wild salmon.[1] Their study weighed the benefits of the essential fatty acids against the presence of polychlorinated biphenyls (PCBs), dioxins and other chemicals that are now found in seafood. The details of their calculations are beyond the scope of this article, but if you suffer from dry eyes, a careful read will activate your tear ducts.

Conflict of interest was denied and I failed to find any secondary gain when I Googled a couple of the authors. (My search was far from exhaustive, but it was enough to catch anything blatant.) Their findings were as follows:

- Neither farmed nor wild salmon can be consumed at rates that provide 1 gram a day of EPA and DHA while maintaining an acceptable level of carcinogenic risk due to the presence of PCBs and other chemicals.
- When salmon are consumed at levels that provide 1 g/d EPA+DHA, cumulative cancer risk for farmed salmon is 24 times* the acceptable cancer risk level. (*If 100,000 consumed this amount daily for 70 years, there would be 24 deaths from cancer.)
- When wild salmon are consumed at levels that provide 1 g/d EPA+DHA, cumulative cancer is eight times** the acceptable cancer risk level. (**If 100,000 consumed this amount daily for 70 years, there would be eight deaths from cancer.)
- When farmed or wild salmon are consumed at levels that provide 1 g/d EPA+DHA, 7,100 lives saved would be saved from heart disease over the 70-year period.

If these calculations were off by a factor of 100, the average person is still much better off to eat farmed salmon than to avoid it. Does that mean we shouldn't worry about PCBs and other chemicals in salmon? Of course not. Individuals with a family history of cancer who eat heart-healthy diets may have individual risk factors that make it wise for them to avoid salmon. But for most people, the odds are much greater for a life saved from heart disease than a life lost from cancer.

Many people incorrectly believe too much salmon can cause mercury toxicity. Both farmed and wild salmon have low levels of mercu

(If you're wondering why mercury was not mentioned, see **sidebar #2**.)

Concern About Pesticides in Produce

A second study calculated the risk-benefit of increasing produce consumption.3 Again, I will skip the tedious details (available by looking up the reference). The researchers calculated what would happen if 50 percent of Americans (approximately 150 million people) increased fruit and vegetable intake by one serving of each per day. The researchers explained what qualified as a serving (French fries did not count as a vegetable), calculated the effects of the additional nutrients the two servings provided and then figured out what effects the additional pesticides in the two servings would cause.

Their estimates were based on a published meta-analysis of nutritional epidemiology studies, along with data from the U.S. Environmental Protection Agency (EPA), the U.S. Department of Agriculture (USDA) and selected animal studies. Results were as follows:

- Approximately 20,000 cancer cases per year could be prevented by consuming one more serving of fruit and one more serving of vegetables daily.
- Approximately 10 cases of cancer per year would be caused by the increased pesticide intake.

Like the first example, if these calculations were off by a factor of 100, the average American would still be much better off having an extra serving of commercially grown fruit and vegetables daily. In other words, not eating enough vegetables and fruit is much more dangerous than the pesticides they may contain.

References

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3. Johnston J, Tucker K, DeSesso JM, Keen CL. Estimation of cancer risks and benefits associated with a potential increased consumption of fruits and vegetables. *Food Chem Toxicol*, 2012 Dec;50(12):4421-7.

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