

## Does Fish Oil Really Increase Prostate Cancer Risk?

An article published in the July 2013 issue of the *Journal of the National Cancer Institute* suggests there is an association between elevated plasma omega-3 fatty acid levels and a heightened risk of prostate cancer. This study must be interpreted with a significant degree of caution for a variety of reasons:

- The data came from what is referred to as a retrospective, nested, case-control study. The data was extracted from another, much larger, previously conducted trial that was not originally intended to examine the relationship between omega-3 fatty acid levels and prostate cancer. In other words, the original study was not designed to determine any of the conclusions reached in the analysis contained in the article.
- The study's results conflict with the results from other studies that do suggest that omega-3 fatty acids offer a protective benefit against prostate cancer; and these other studies were, in fact, designed to analyze that very outcome. (See link) [www.ncbi.nlm.nih.gov/pmc/articles/PMC3629172/](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3629172/)
- Identifying one particular physiologic marker in a group of individuals with a given condition – in this case, an elevated omega-3 level in men with prostate cancer – does not prove causation, especially when that marker can be influenced by diet or behavior and is only measured at a single point in time.
- It is also hugely important to realize that the authors of this study did not assess any of the participants' dietary intake of fatty fish or omega-3 nutritional supplements – the study's conclusions are based wholly on the results of a single blood test.
- The omega-3 index, which measures both EPA and DHA within red blood cells, is a much more accurate indicator of long-term omega-3 intake and tissue status than is the plasma omega-3 level, which is subject to significant day-to-day variability.
- A number of confounding risk factors might have influenced the purported outcomes in the study, despite attempts by the investigators to account for them:
  - 1) 53 percent of the subjects with prostate cancer were smokers.
  - 2) 64 percent of the cancer subjects regularly consumed alcohol.
  - 3) 30 percent of the cancer subjects had at least one first-degree relative with prostate cancer.
  - 4) 80 percent of the cancer subjects were overweight or obese.
- Considering the extensive body of literature that supports the anti-inflammatory effects of omega-3 fatty acids, there is no credible biological mechanism, nor is one suggested in the article, that would explain why these essential fatty acids might increase tumorigenesis.

Summary: Given the inconsistent data attributable to omega-3 fatty acids and prostate cancer, and acknowledging the broad range of health benefits that are almost universally accorded to omega-3 fatty acid consumption, it would be premature to stop eating fish or to discontinue taking omega-3 nutritional supplements on the basis of this study.