

## **Technical Alert**

## Study on Omega-3 and Prostate Cancer Risk - Inconclusive

The Complementary Healthcare Council of Australia (CHC) contests recent research from the US reported in the *Journal of the National Cancer Institute* linking Omega-3 and prostate cancer as inconclusive and contradictory of a large pool of pre-existing, robust evidence that demonstrates the health benefits of fish oil.

The large prospective study found an increased risk of prostate cancer among men with high blood concentrations of long chain Omega 3 polyunsaturated fatty acids. The study examined associations between plasma phospholipid fatty acids and prostate cancer risk among participants in the Selenium and Vitamin E Cancer Prevention Trial. This study was *not* specifically designed to look at the exact relationship between omega-3 fatty acid intake and prostate cancer.

## FLAWS IN THE STUDY

- No documentation was provided in the paper regarding intake of fish or fish oil in the study group.
- The difference in mean blood plasma phospholipid fatty acid blood level for omega-3s was 4.66% in the combined cancer group versus 4.48% in the control. Results are based on just 0.2% difference in omega-3 levels.
- Plasma phospholipid fatty acids as measured in this study are not considered a good index of long term intake and are influenced dramatically by a single meal, or timing of a fish oil dose. Therefore, looking at plasma levels in healthy/ sick people may only provide insight into the recent intake habits of these individuals.
- Absolute serum levels of Eicosapentaenoic acid (EPA), Docosahexaenoic acid (DHA), and Docosapentaenoic Acid (DPA) were not reported.
- The association between individual omega-3 fatty acids, EPA, DHA and DPA and prostate cancer was <u>NOT</u> statistically significant within the CPH (Cox proportional hazards) model.
- The CPH model is considered more suitable to a pharmaceutical medicine that is taken at the same time every day, at the same level. It is not considered suited for something like fish or fish oil intake where the levels in blood serum will vary considerably depending on food and complementary medicine consumption patterns.
- The study was not designed to look at omega-3 and confounded with selenium and Vitamin E used in the treatment arms.
- The so called 'meta-analysis' of earlier studies (carried out at the end of the paper) only included three previous studies. One of which was the lead authors own (Brasky, 2011). Another by Park et al. (2009) used the same nested case control design, while the remaining study by Chavarro et al (2007) showed a strong benefit for marine omega 3 fatty acids *reducing the risk* of prostate cancer.

Review of: "Plasma Phospholipid Fatty Acids and Prostate Cancer Risk in the SELECT Trial" Theodore M. Brasky, Amy K. Darke, Xiaoling Song, Catherine M. Tangen, Phyllis J. Goodman, Ian M. Thompson, Frank L. Meyskens Jr, Gary E. Goodman, Lori M. Minasian, Howard L. Parnes, Eric A. Klein, Alan R. Kristal.

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