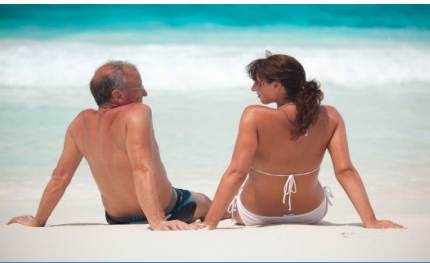


Sub-optimal serum levels of omega 3 and vitamin D appear to be common among cancer survivors – a pilot study



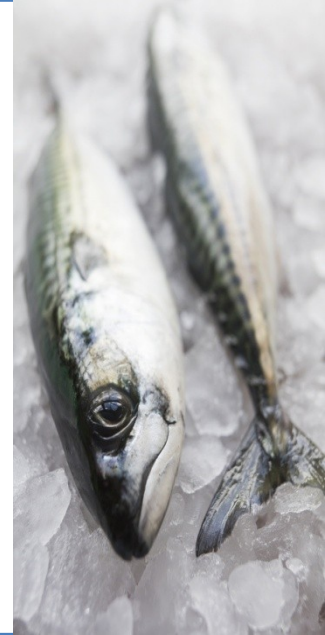
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Vitamin D exposed to cancer cell lines reduces proliferation, promotes differentiation, inhibits invasion, loss of adhesion, inhibits angiogenesis and promotes apoptosis (Campell et al., 1997; Peehl et al., 1994; Schwartz et al., 1994), (Blutt et al., 2000, Hsieh and Wu, 1997; Zhao et al., 1999).

Vitamin D levels were found to be deficient (< 50 nmol/L) in 37.5% of a cohort of 512 women with early breast cancer of patients. Women with deficient vitamin D levels had a significantly increased risk of distant recurrence compared with those who had sufficient levels (Goodwin et al., 2009). Likewise in the Nurses' Health Study Health Professionals Follow-Up Study, in the cohort who with colorectal cancer, adequate plasma vitamin D levels were associated with a significant reduction in overall mortality (Ng et al., 2008)

Omega-3 fatty acids can modulate the cyclooxygenase-2 pathway, a potential route for cancer development (Chaudry et al., 1994). Evidence from two large prospective studies (Augustsson et al., 2003; Terry et al., 2001) and a smaller case-control study (Norris et al., 1999) suggests a protective effect of oily fish intake on cancer incidence and mortality (Terry, Rohan, and Wolk, 2003). A cohort study from San Francisco compared 466 men with aggressive prostate cancer with 478 healthy men. Men who had the highest intake of omega-3 fatty acids had a 63% lower risk of aggressive prostate cancer compared with men with lowest intake. (Witte J.S 2009).



Methods. An online micro-nutrient testing service has been established via our lifestyle and cancer information website (Cancernet.co.uk in association with Biolab Medical Unit. Know as the cancer risk nutritional profile, via whole blood, it measures:

- **Essential minerals** Ca, Mn, Zn, Cr, Cu, Se and red blood cell Mg
- **Vitamins** retinol, alpha-carotene, beta-carotene, alpha & beta-tocopherol, vitamin C and D;
- **Antioxidants** lycopene and lutein;
- **Antioxidant enzymes** glutathione, and superoxide dismutase antioxidant
- **Essential fatty acids.** Omega 3, 6 and 9

Results of the first consecutive 40 patients revealed:

95% (38 of the 40) had sub-optimal levels in one or both of the long chain omega-3 fatty acids eicosapentaenoic acid (EPA) or docosahexaenoic acid (DHA).

92% (37 of the 40) had levels of 25 hydroxyl vitamin D lower than 75 nmol/l

73% (29) 29 (73%) had levels Vitamin D levels lower than 50 nmol/l.

There were various deficiencies or excesses in other minerals and vitamins which will be reported separately

Conclusion Although this is a small self selected cohort of patients, the high percentage with sub-optimal vitamin D and Omega-3 is striking. The majority of participants of this micro-nutrient service (73%) have levels of Vitamin D which have been shown, albeit in retrospective cohort analysis, to correlate with an increased risk of breast and bowel cancer recurrence. This pilot study has prompted our editorial board to emphasise advice regarding increasing safe sun exposure and intake of omega-3 rich foods such as fish, walnuts and linseeds. At the Primrose Research Unit we are now planning an evaluation of vitamin D and essential fatty acids serum levels in a larger cohort of breast, colorectal and prostate cancer survivors.

For references see cancernet.co.uk/lifestyle-published-evidence.htm

For more information on micro-nutrient testing see Cancernet.co.uk/nutritional-tests.htm