Reference:

Dietary Intake of PUFAs and Colorectal Polyp Risk


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Summary:

In order to reduce the prevalence of colorectal cancer and death therefrom, colonoscopy screening and the removal of colorectal polyps (both adenomatous and hyperplastic types) has become increasingly common in public health care. Increasing the intake of EPA/DHA from marine sources is known to suppress the accumulation of the omega-6 fatty acid in the form of AA (arachidonic acid) in the body and conversion to AA-derived products (incl. ‘eicosanoids’) which have been implicated in tumor proliferation. In the present study, 5307 men and women between the ages of 40-75 years were subjected to colonoscopy assessments along with estimations of their intakes of the long-chain marine-derived omega-3 fatty acids (EPA/DPA/DHA) via food-frequency questionnaires and food composition tables.

Increasing intakes of the marine-derived omega-3 fatty acids (omega-3 PUFA, polyunsaturated fatty acids) were found to exhibit a significant inverse relationship with the presence of adenomatous polyps (adenomas) in women with no significant relationship in men. For women with the highest (top 20%) intakes of marine omega-3 (median of 232 mg/day), the risk of having adenomas was 33% lower when compared to women consuming median levels of only 12-67 mg/person/day. Urinary measures of ‘eicosanoids’ as AA-derived prostaglandin suggested that the lowered production in the body of the latter with the higher intakes of the marine omega-3 fatty acids may be mediating the reduced formation of adenomas. The authors concluded that women who consume more marine-derived omega-3 fatty acids had a lower risk of colorectal adenomas.
In the present study, 72% of the polyps found in the women were adenomas with the rest being designated as hyperplastic. This is noteworthy since adenomas have a well-established relationship to colorectal cancer and the adenoma to cancer progression is a considerable public health problem. Thus, any dietary strategy which can potentially reduce the development and/or progression of adenomas is of utmost interest. It should be pointed out that the highest intakes of marine omega-3 in this population (median of 232 mg/person/day) is almost double that of typical US intakes and very much below such intakes in Japan. It remains to be seen if much higher intakes of marine omega-3 than studied herein may offer an even greater benefit. The sex difference in apparent efficacy of the marine omega-3 fatty acids is intriguing and may relate to the involvement of estrogen or other hormonal factors.