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Fish oil fights weight loss due to chemotherapy

A new analysis has found that supplementing the diet with fish oil may prevent muscle and weight loss that commonly occurs in cancer patients who undergo chemotherapy. Published early online in *Cancer*, a peer-reviewed journal of the American Cancer Society, the study indicates that fish oil may help combat cancer-related malnutrition.

Chemotherapy can cause cancer patients to lose muscle mass and become malnourished, leading to fatigue, a decreased quality of life, an inability to receive necessary treatments, and shorter survival.

Researchers suspect that supplementing the diet with fish oil—which contains omega-3 fatty acids such as eicosapentaenoic acid—may help patients maintain or gain muscle. To test the hypothesis, Vera Mazurak, PhD, of the University of Alberta in Edmonton, Canada, led a team that compared the effects of fish oil with that of standard care (no intervention) on weight, muscle, and fat tissue in newly referred non-small cell lung cancer patients.

The trial involved 16 patients who took fish oil (2.2 grams of eicosapentaenoic acid/day) and 24 patients who did not. The study ran until patients completed their first-line (initial) chemotherapy treatments, which lasted about 10 weeks. Muscle and fat were periodically measured using computed tomography images. Blood was collected and weight was recorded at the start of the study and throughout chemotherapy.

Patients who did not take fish oil lost an average of 2.3 kilograms whereas patients receiving fish oil maintained their weight. Patients with the greatest increase in eicosapentaenoic acid concentration in the blood following fish oil supplementation had the greatest gains in muscle. Sixty-nine percent of patients in the fish oil group gained or maintained muscle mass. Comparatively, only 29 percent of patients in the standard care group maintained muscle mass, and overall, patients in this group lost 1 kilogram of muscle. No difference in total fat tissue was observed between the two groups.

The authors concluded that nutritional intervention with two grams of fish oil per day provides a benefit over standard care, allowing patients to maintain their weight and muscle mass during chemotherapy.

"Fish oil may prevent loss of weight and muscle by interfering with some of the pathways that are altered in advanced cancer," said Dr. Mazurak. "This holds great promise because currently there is no effective treatment for cancer-related malnutrition," she added. Dr. Mazurak noted that fish oil is safe and non-toxic with virtually no side effects. It may be beneficial to patients with other forms of cancer and other chronic diseases that are associated with malnutrition, as well as to elderly individuals who are at risk for muscle loss.

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