

Food Synergy
Anti-Inflammatory Effects of Omega 3's and Turmeric

Title: Synergistic anti-inflammatory effects of low doses of curcumin in combination with polyunsaturated fatty acids: Docosahexaenoic acid or eicosapentaenoic acid.

Authors: Constance Lay, Lay Saw, Ying Huang, Ah-Ng Kong. (2009). Journal: Biochemical

Volume pages: 79 (2010) 421–430

Date of Publication: 2010. *Biochemical Pharmacology*.

Summary: This study examines three known natural anti-inflammatory agents. It is hypothesized that when combined, their synergistic qualities suppress chronic inflammation better than high potency drugs. The nutrients curcumin, (CUR) and the polyunsaturated fatty acids docosahexaenoic acid, (DHA) and eicosapentaenoic acid (EPA) were tested separately and in different combinations of strengths for inflammatory suppression. Then they were examined as a mixture to measure the synergistic effect on treated cell cultures. The targeted immune stimulating lipopolysaccharide, (LPS) and inflammatory agent nitric oxide (NO) were added to bio-produced cells and modified for better detection of cell changes. Various doses of curcumin's anti-oxidative stress compound, EPA, and DHA were tested. Analyses were also conducted with and without the bio-induced LPS component mimicking outer cell protection from certain kinds of attack. Other inflammatory proteins were used to check the viability CUR, DHA, and EPA.

It was found that low concentrations of EPA and DHA, (25um) in combination with an even lower dose of CUR (5um) have a better effect on suppressing inflammation than higher doses and the best effects occurred within a 24 hour period. The mixture of the three compounds shows inflammatory suppression at amounts typically found in dietary consumption. These findings impact a greater synergistic proposition of dietary nutrition in relation to health promotion and disease prevention. Dietary supplementation of CUR, DHA, and EPA showed superior efficiency concerning inflammatory suppression than non-steroidal anti-inflammatory drugs (NSAIDs) such as aspirin and ibuprofen. These drugs are known to reduce pain and

inflammation, but long-term treatment has caused other inflammatory problems in the stomach and intestines. The study also indicated that “subjects consuming fish 1-2 times a month” had enough EPA and DHA to provide significant inflammatory suppression combined with CUR. Further research is underway to study the synergism of EPA, DHA, and CUR on prenatal diets as well as its effects on “smooth muscle relaxation.”

The relevance of this study highlights the fact that food is not only essential for survival, but functional in ways that can prevent and/or correct today’s problematic health issues concerning inflammation. The experiment is an example of how foods can have a positive synergistic effect that rival pharmaceutical drugs in treatments for inflammation. The implication that food synergy can be used as a medicinal alternative or preventative maintenance has the potential to increase consumer confidence in relying more on a balanced diet instead of drugs, encourage better food choices and support harmless nutritional self-help.