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Reviews

Omega-3 Fatty Acids in Inflammation and Autoimmune Diseases

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Among t which possess ega-3 PUFA, those fr (DHA)—are more bi omega-3 PUFA a ids made, and ding actions upon int expression. Animal e fatty acids have an anagement of inflam depression, aging ar -1), a proinflar litis and lupus er of IL-1 and

the proinflammatory leukotriene LTB_4 produced by omega-6 fatty acids. There have been a number of clinical trials assessing the benefits of dietary supplementation with fish oils in several inflammatory and autoimmune diseases in humans, including rheumatoid arthritis, Crohn's disease, ulcerative colitis, psoriasis, lupus erythematosus, multiple sclerosis and migraine headaches. Many of the placebo-controlled trials of fish oil in chronic inflammatory diseases reveal significant benefit, including decreased disease activity and a lowered use of anti-inflammatory drugs.

inflammation | cardiovascular disease and major depression autoimmune diseases | IL-1 | IL-6 | TNF | background diet | omega-6/omega-3 ratio

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Key teaching points:

• In Western diets, omega-6 fatty acids are the predominant polyunsaturated fats. The omega-6 and omega-3 fatty acids are metabolically distinct and have opposing physiologic functions.

• Eicosapentaenoic acid (EPA) is released to compete with arachidonic acid (AA) for enzymat emotactic derivativ

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Key teaching points:

• In Western diets, omega-6 fatty acids are the predominant polyunsaturated fats. The omega-6 and omega-3 fatty acids are metabolically distinct and have opposing physiologic functions.

• Eicosapentaenoic acid (EPA) is released to compete with arachidonic acid (AA) for enzymatic metabolism inducing the production of less inflammatory and chemotactic derivatives.

• Animal and human studies support the hypothesis that omega-3 PUFA suppress cell mediated immune responses.

• In experimental animals and humans, serum PUFA levels predict the response of proinflammatory cytokines to psychologic stress. Imbalance in the omega-6/omega-3 PUFA ratio in major depression may be related to the increased production of proinflammatory cytokines and eicosanoids in that illness.

• The increased omega-6/omega-3 ratio in Western diets most likely contributes to an increased incidence of cardiovascular disease and inflammatory disorders.

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Source: Wiley

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