

# Abstract

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## **Omega-3 polyunsaturated fatty acids and immune-mediated diseases: inflammatory bowel disease and rheumatoid arthritis.**

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**BACKGROUND:** Inflammation is part of the normal host response to infection and injury. However, inappropriate inflammation contributes to several diseases, including inflammatory bowel disease (IBD) and rheumatoid arthritis (RA). Both conditions are characterized by the excessive production of inflammatory cytokines, arachidonic acid (AA)-derived eicosanoids, and other inflammatory agents (e.g., reactive oxygen species, adhesion molecules). By virtue of their anti-inflammatory action, omega-3 polyunsaturated fatty acids (PUFA) may be beneficial in inflammatory diseases.

**FINDINGS:** A large body of evidence supports a protective effect of omega-3 PUFA in experimental animal and ex-vivo models of Crohn's disease (CD), Ulcerative colitis (UC) and Rheumatoid arthritis (RA). Although fish oil supplementation in patients with IBD results in omega-3 PUFA incorporation into gut mucosal tissue and modification of inflammatory mediator profiles, the evidence of clinical benefits of omega-3 PUFA is weak. On the other hand, more convincing data support the efficacy of omega-3 PUFA in reducing pain, number of tender joints, duration of morning stiffness, use of non-steroidal anti-inflammatory drugs and improving physical performance in RA patients.

**CONCLUSIONS:** In both IBD and RA further clinical trials with large sample size are needed to clarify the efficacy of omega-3 PUFA as a treatment.

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