A meta-analysis of the analgesic effects of omega-3 polyunsaturated fatty acid supplementation for inflammatory joint pain

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Abstract

Between 40% and 60% of Americans use complementary and alternative medicine to manage medical conditions, prevent disease, and promote health and well-being. Omega-3 polyunsaturated fatty acids (ω-3 PUFAs) have been used to treat joint pain associated with several inflammatory conditions. We conducted a meta-analysis of 17 randomized, controlled trials assessing the pain relieving effects of ω-3 PUFAs in patients with rheumatoid arthritis or joint pain secondary to inflammatory bowel disease and dysmenorrhea. Meta-analysis was conducted with Cochrane Review Manager 4.2.8. for six separate outcomes using standardized mean differences (SMDs) as a measure of effect size: (1) patient assessed pain, (2) physician assessed pain, (3) duration of morning stiffness, (4) number of painful and/or tender joints, (5) Ritchie articular index, and (6) nonselective nonsteroidal anti-inflammatory drug consumption. Supplementation with ω-3 PUFAs for 3–4 months reduces patient reported joint pain intensity (SMD: −0.26; 95% CI: −0.49 to −0.03, p = 0.03), minutes of morning stiffness (SMD: −0.43; 95% CI: −0.72 to −0.15, p = 0.003), number of painful and/or tender joints (SMD: −0.29; 95% CI: −0.48 to −0.10, p = 0.003), and NSAID consumption (SMD: −0.40; 95% CI: −0.72 to −0.08, p = 0.01). Significant effects were not detected for physician assessed pain (SMD: −0.14; 95% CI: −0.49 to 0.22, p = 0.45) or Ritchie articular index (SMD: 0.15; 95% CI: −0.19 to 0.49, p = 0.40) at 3–4 months. The results suggest that ω-3 PUFAs are an attractive adjunctive treatment for joint pain associated with rheumatoid arthritis, inflammatory bowel disease, and dysmenorrhea.

Keywords

Omega-3 polyunsaturated fatty acids; EPA; DHA; Fish oil; Inflammation; Joint pain; Rheumatoid arthritis; Inflammatory bowel disease; Dysmenorrhea; Meta-analysis; RCT

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