

Omega-3 Supplementation to Improve Musculoskeletal Pain

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Question

Do omega-3 supplements improve symptoms in patients with musculoskeletal pain?

Evidence-based Answer

- ✓ Omega-3 polyunsaturated fatty acids (PUFA) 2 grams or more daily probably improves joint pain from rheumatoid arthritis (SOR: B, systematic review of RCTs with limitations)
- ✓ PUFA of at least 2.7g daily has a small effect on pain, joint stiffness and NSAID consumption associated with inflammatory processes (SOR: B, meta-analysis of small RCTs with heterogeneity)
- ✓ Omega-3 PUFAs at 1.8 grams per day taken for a month prior to exercise may decrease leg soreness 48 hours post-exercise (SOR: B, very small double-blind RCT).

Data Review

Omega-3 and Rheumatoid Arthritis

A 2017 systematic review of 18 RCTs examined the effect of 2g daily or higher doses of omega-3 polyunsaturated fatty acids (PUFAs) supplementation compared to placebo for rheumatoid arthritis pain (N=1143).¹ Study durations varied between 12 to 52 weeks. Outcomes studied were patient and physician assessment of arthritis pain using a visual analog scale (VAS) or a 5-point scale. Ten out of 18 RCTs (N=735) found that supplementation of at least 3 grams per day of omega-3 PUFAs improved patient-reported arthritic pain compared to placebo ($P < .05$).



Data Review

Omega-3 and Inflammatory Pain

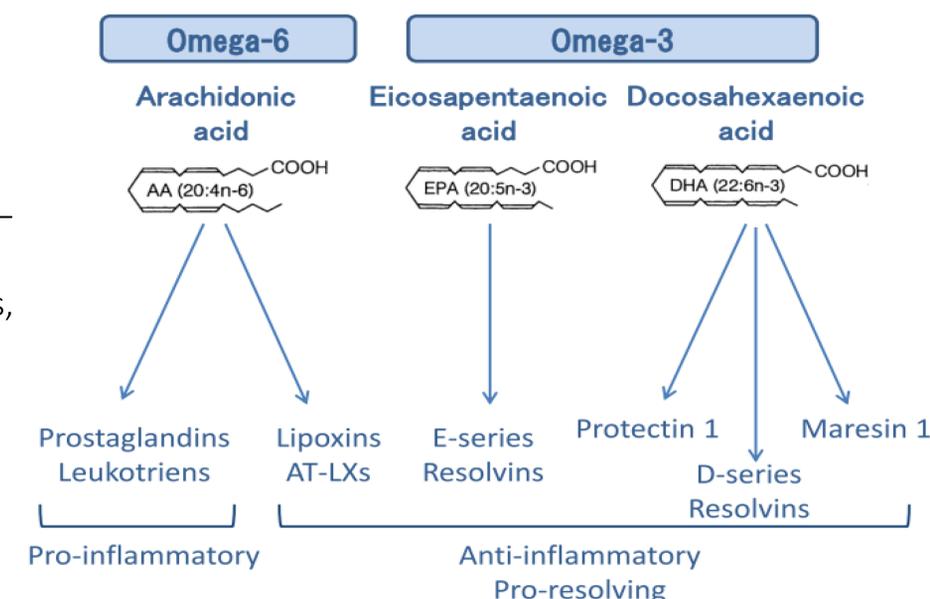
A 2007 meta-analysis of 17 RCTs (N=823) examined whether PUFA supplementation of at least 2.7 grams daily reduces joint pain associated with diagnoses of rheumatoid arthritis, inflammatory bowel disease, or dysmenorrhea compared to placebo.² Trials lasted 3 to 4 months. Outcomes included patient-assessed pain, morning stiffness, number of painful joints and NSAID use. At study end, PUFA improved patient-assessed pain on a VAS or categorical scale (13 trials; n=254; standardized mean difference [SMD] -0.26; 95% CI, -0.49 to -0.03), duration of morning stiffness in minutes or hours (8 trials, n=156; SMD -0.43; 95% CI, -0.72 to -0.15) number of painful/tender joints (10 trials, n=215; SMD: -0.29; 95% CI, -0.48 to -0.10), and NSAID consumption (3 trials, n=77; SMD -0.40; 95% CI, -0.72 to -0.08).

Omega-3 and Post-Exercise Soreness

A 2009 double-blind RCT examined the effect of 1.8 gram daily PUFA supplementation compared to placebo or no treatment on perceived muscle soreness after exercise in exercise-naïve men (N=27).³ Patients in the active treatment or control group took 1.8g PUFA or a matched placebo capsule every day for 30 days, then completed a 40 minute bench stepping exercise session. Patients continued supplementation for 48 hours after the session. Outcomes included self-reported leg pain on a scale from 0 to 6 before, immediately following, 24 hours, and 48 hours after the exercise. At 48 hours post-exercise, leg pain decreased significantly in the omega-3 group compared to placebo but not immediately or 24 hours post exercise.

Summary

Supplementing with omega-3 fatty acids at doses of 1.8 grams per day or higher has a beneficial effect on multiple musculoskeletal pain symptoms, with little to no side effects. Further research is necessary to examine omega-3's anti-inflammatory properties using larger sample sizes.



References

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2. Goldberg RJ, Katz J. A meta-analysis of the analgesic effects of omega-3 polyunsaturated fatty acid supplementation for inflammatory joint pain. *Pain*. 2007; 129(1):210-23.
3. Tartibian B, Maleki BH, Abbasi A. The Effects of Ingestion of Omega-3 Fatty Acids on Perceived Pain and External Symptoms of Delayed Onset Muscle Soreness in Untrained Men. *Clinical Journal of Sport Medicine*. 2009;19(2):115.