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## **Fish oil supplementation increases the cyclooxygenase inhibitory activity of paracetamol in rheumatoid arthritis patients.**

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### **Source**

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### **Abstract**

#### **OBJECTIVE:**

To examine interactions between fish oil and paracetamol for inhibition of prostaglandin synthesis in patients with rheumatoid arthritis (RA).

#### **METHODS:**

Patients from an early RA clinic who were treated with a standardized combination DMARD regimen were enrolled. They were advised to consume an anti-inflammatory dose of fish oil containing the n-3 fatty acid, eicosapentaenoic acid (EPA), or a comparator oil. High EPA and Low EPA groups were defined by blood EPA levels >3.5% or <2%, respectively, of plasma phospholipid fatty acids. Participants provided a blood sample before, and 1h after ingestion of 1g paracetamol. The blood was incubated in different ways to allow measurement of COX-2 generated prostaglandin E(2) (PGE(2)) and COX-1 generated thromboxane A(2) (TXA(2)).

#### **RESULTS:**

Paracetamol suppressed the eicosanoid measures of COX-1 and COX-2 activities and the suppression was greater in the High EPA group. The results indicate that the combination of fish oil and paracetamol suppresses PGE(2) synthesis by an amount equivalent to that from maximum therapeutic doses of NSAIDs.

#### **CONCLUSION:**

Paracetamol is recommended for first-line use ahead of NSAIDs for symptom relief in RA or OA. Combining paracetamol with fish oil will enhance suppression of nociceptive PGE(2) synthesis and thereby may provide additive symptomatic benefits.