

## Validation of a meta-analysis: the effects of fish oil in rheumatoid arthritis Fortin PR et al 01 November 1995

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The purpose of this study was to validate the results of a meta-analysis showing the efficacy of fish oil in rheumatoid arthritis with the results of a re-analysis of the complete primary data set. A Medline search yielded seven published papers. Three additional trials were found by contacting authorities in the field. Inclusion criteria included (1) a double-blind, placebo-controlled study, (2) use of at least one of seven predetermined outcome measures, (3) results reported for both placebo and treatment groups at baseline and follow-up, (4) randomization, and (5) parallel or cross-over design. Papers were scored for quality. Demographic and outcomes variables were collected. For the re-analysis of the primary data, the same variables were abstracted for the 395 individual patients randomized. The meta-analysis demonstrated that dietary fish oil supplementation for 3 months significantly reduced tender joint count (rate difference [RD] [95% CI] = -2.9 [-3.8 to -2.1] [p = 0.001]) and morning stiffness (RD [95% CI] = -25.9 [-44.3 to -7.5] [p < 0.01]) as compared with heterogeneous dietary control oils. The re-analysis of the primary data confirmed a significant reduction in tender joint count (p = 0.001) and in morning stiffness (p < 0.02) in the parallel analysis that ignored interaction terms. The analyses that included an interaction term between site and treatment again confirmed a significant reduction in tender joint count. The results for morning stiffness were similar to the meta-analysis, but did not quite reach statistical significance (p = 0.052-0.083). The relative improvements in the other outcome variables did not reach statistical significance. Use of fish oil improved the number of tender joints and duration of morning stiffness at 3 months as analyzed by both meta- and mega-analysis. The fuller mega-analysis confirmed the results of the meta-analysis. The advantages of mega-analysis were as follows: (1) the ability to analyze the homogeneity of the patient populations, (2) the ability to make clinically sensible adjustments in the form of the comparison, and (3) the ability to examine subsets of the data.