

# Oral essential fatty acid supplementation in atopic dermatitis-a meta-analysis of placebo-controlled trials

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### Summary

**Background:** Essential fatty acids are components of cell membranes and precursors of immunomodulating factors that may play a role in the inflammatory and immunological pathogenesis of atopic dermatitis. Trials of supplementation with essential fatty acids (EFA) to alleviate atopic dermatitis (AD) have given inconsistent results.

**Objectives:** To summarize and quantify the results of placebo-controlled trials with EFA for AD.

**Design:** Publications of clinical trials were searched in a systematic way and the study characteristics assessed independently by three assessors. Trials were selected for inclusion in the meta-analysis when they had included a placebo group and when the outcome measure included the severity of AD. The pooled effect sizes of improvement of the overall severity of AD were calculated by random effects meta-analysis. The dependence of the results on study characteristics was studied using meta-regression analysis.

**Results:** We identified 34 publications of controlled trials in AD up to April 2002. Nineteen trials of  $\gamma$ -linolenic acid (GLA) and five trials of fish oil matched our inclusion criterion of placebo-controlled trial. The effect size of GLA supplementation on the improvement of the overall severity of AD could be calculated from 11 of these trials. The pooled effect size was 0.15 [95% confidence limits (CL) - 0.02, 0.32]. The effect size of fish oil supplementation, calculated from three trials was - 0.01 (95% CL - 0.37, 0.30). For component subscales such as itch, scaling and lichenification, EFA supplementation showed no benefit. The study characteristics showed no detectable influence on the overall result.

**Conclusions:** Supplementation with EFA has no clinically relevant effect on the severity of AD.