



# Therapeutic Effect of Curcumin on Non-Alcoholic Fatty Liver Disease: A Systematic Review

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## ABSTRACT

**Introduction:** Non-alcoholic fatty liver disease (NAFLD) is the most common liver disease worldwide. Considering that curcumin is an anti-inflammatory, antioxidant, anti-diabetic, and anti-lipid agent used as a herbal medicine to treat liver diseases, this study was conducted to investigate the therapeutic effect of curcumin on NAFLD.

**Search Strategy:** This review study searched WOs, SID, SCOPUS, and PubMed databases, as well as Google Scholar's search engine with keywords such as "non-alcoholic fatty liver", "curcumin", and "treatment" from 2015 to 2023.

**Results:** The results showed that NAFLD is a global health problem with increasing prevalence among overweight and obese patients. Low-dose phospholipid curcumin supplementation showed significant reductions in hepatic steatosis and enzymes in patients with NAFLD compared to placebo. Additionally, liver fibrosis, serum cholesterol, glucose, and alanine aminotransferase decreased significantly in the curcumin group ( $p = 0.05$ ). A significant reduction was also observed in anthropometric indices, blood lipid profile, insulin resistance, and hepatic steatosis in both groups ( $p = 0.05$ ).

**Conclusion and Discussion:** Our findings reveal that curcumin effectively reduces LDL-C, triglyceride, FBS, HOMA-IR, weight, and AST levels in NAFLD patients and is well tolerated. Furthermore, short-term supplementation with curcumin improves liver lipid and transaminase levels in patients with NAFLD. Combining curcumin with ursodeoxycholic acid is also more effective in treating NAFLD than its administration alone. However, due to the limited number of included studies, more high-quality studies are needed to prove the clinical efficacy of curcumin's clinical benefits on NAFLD.

**Keywords:** Curcumin, Non-alcoholic fatty liver disease, Therapeutics