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Pharmacol Res. 2017 Feb 10;119:208-218. doi: 10.1016/j.phrs.2017.02.008. [Epub ahead of print]

Effects of curcumin on HDL functionality.

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Abstract

Curcumin, a bioactive polyphenol, is a yellow pigment of the *Curcuma longa* (turmeric) plant. Curcumin has many pharmacologic effects including antioxidant, anti-carcinogenic, anti-obesity, anti-angiogenic and anti-inflammatory properties. Recently, it has been found that curcumin affects lipid metabolism, and subsequently, may alleviate hyperlipidemia and atherosclerosis. Plasma HDL cholesterol (HDL-C) is an independent negative risk predictor of cardiovascular disease (CVD). However, numerous clinical and genetic studies have yielded disappointing results about the therapeutic benefit of raising plasma HDL-C levels. Therefore, research efforts are now focused on improving HDL functionality, independent of HDL-C levels. The quality of HDL particles can vary considerably due to heterogeneity in composition. Consistent with its complexity in composition and metabolism, a wide range of biological activities is reported for HDL, including antioxidant, anti-glycation, anti-inflammatory, anti-thrombotic, anti-apoptotic and immune modulatory activities. Protective properties of curcumin may influence HDL functionality; therefore, we reviewed the literature to determine whether curcumin can augment HDL function. In this review, we concluded that curcumin may modulate markers of HDL function, such as apo-AI, CETP, LCAT, PON1, MPO activities and levels. Curcumin may subsequently improve conditions in which HDL is dysfunctional and may have potential as a therapeutic drug in future. Further clinical trials with bioavailability-improved formulations of curcumin are warranted to examine its effects on lipid metabolism and HDL function.

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KEYWORDS: Atherosclerosis; Cholesterol efflux; Curcumin; Dyslipidemia; High-density lipoprotein

PMID: 28192240 DOI: [10.1016/j.phrs.2017.02.008](https://doi.org/10.1016/j.phrs.2017.02.008)

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