





# Anti-inflammatory effects of resveratrol in patients with cardiovascular disease: A systematic review and meta-analysis of randomized controlled trials

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## Highlights

- RCTs covering the impact of resveratrol on CRP, TNF- $\alpha$ , and IL-6 levels in CVDs were collected
- Meta-analysis was performed with combined data of included studies using a random-effect model.
- The CRP and TNF- $\alpha$  levels in CVDs patients were reduced following resveratrol supplementation.
- Subgroup analyses showed that the pooled effects of resveratrol were affected by dose and duration of resveratrol consumption.

## Abstract

### Background

Chronic inflammation is one of the most important factors involved in the development and progression of cardiovascular disease (CVDs). Accumulating evidence has described the effect of resveratrol, a natural polyphenolic compound, on biomarkers of inflammation among patients with CVDs; however, findings are controversial. Here we performed a systematic review and meta-analysis of randomized controlled trials to evaluate the effect of resveratrol supplements on TNF- $\alpha$ , IL-6, and CRP levels in CVDs patients.

## Methods

Online research was conducted in the following database: MEDLINE, EMBASE, Cochrane Library, Web of Science databases, and Scopus. This systematic review and meta-analysis were conducted to investigate the effects of resveratrol supplements on inflammatory biomarkers among patients with CVDs. The meta-analysis was performed using Comprehensive Meta-Analysis (CMA) V3 software.

## Results

Six RCTs met the inclusion criteria and were selected for the current meta-analysis. Our results demonstrated that resveratrol significantly decreases serum levels of CRP (MD =  $-0.63$ , 95 % CI:  $-0.113$ ,  $-0.12$ ;  $p = 0.01$ ), and TNF- $\alpha$  (MD =  $-0.55$ , 95 % CI:  $-1.04$ ,  $-0.06$ ;  $p = 0.02$ ), however, resveratrol had not significant effect on serum concentration of IL-6 (MD =  $-0.12$ , 95 % CI:  $-0.52$ ,  $0.27$ ;  $p = 0.53$ ), in patients with CVDs.

## Conclusion

Our results suggest that resveratrol can be used as a potential treatment in patients with CVD by reducing inflammatory conditions.