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Effect of Lycopene Supplementation on Oxidative Stress: An Exploratory Systematic Review and Meta-Analysis of Randomized Controlled Trials.

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Abstract

Abstract **Lycopene** is a potentially useful compound for preventing and treating cardiovascular diseases and cancers. Studies on the effects of **lycopene** on oxidative stress offer insights into its mechanism of action and provide evidence-based rationale for its supplementation. In this analysis, randomized controlled trials of the effects of oral **lycopene** supplementation on any valid outcomes of oxidative stress were identified and pooled through a search of international journal databases and reference lists of relevant publications. Two reviewers extracted data from each of the identified studies. Only studies of sufficient quality were included. Twelve parallel trials and one crossover trial were included in the systematic review, and six trials provided data for quantitative meta-analysis. Our results indicate that **lycopene** supplementation significantly decreases the DNA tail length, as determined using comet assays, with a mean difference (MD) of -6.27 [95% confidence interval (CI) -10.74, -1.90] (P=.006) between the **lycopene** intervention groups and the control groups. **Lycopene** supplementation does not significantly prolong the lag time of low-density lipoprotein (MD 3.76 [95% CI -2.48, 10.01]; P=.24). **Lycopene** possibly alleviates oxidative stress; however, biomarker research for oxidative stress needs be more consistent with the outcomes in **lycopene** intervention trials for disease prevention.

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