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The effect of weight loss on C-reactive protein: a systematic review.

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BACKGROUND: Several studies suggest that weight loss reduces C-reactive protein (CRP) level; however, the consistency and magnitude of this effect has not been well characterized. Our objective was to test the hypothesis that weight loss is directly related to a decline in CRP level. DATA SOURCES: We searched the Cochrane Controlled Trials Register and MEDLINE databases and conducted hand searches and reviews of bibliographies to identify relevant weight loss intervention studies. STUDY SELECTION: We included all weight loss intervention studies that had at least 1 arm that was a surgical, lifestyle, dietary, and/or exercise intervention. Abstracts were independently selected by 2 reviewers. DATA EXTRACTION: Two reviewers independently abstracted data on the characteristics of each study population, weight loss intervention, and change in weight and CRP level from each arm of all included studies. DATA SYNTHESIS: We analyzed the mean change in CRP level (milligrams per liter) and the mean weight change (kilograms), comparing the preintervention and postintervention values from each arm of 33 included studies using graphical displays of these data and weighted regression analyses to quantify the association. RESULTS: Weight loss was associated with a decline in CRP level. Across all studies (lifestyle and surgical interventions), we found that for each 1 kg of weight loss, the mean change in CRP level was -0.13 mg/L (weighted Pearson correlation, r = 0.85). The weighted correlation for weight and change in CRP level in the lifestyle interventions alone was 0.30 (slope, 0.06). The association appeared roughly linear. CONCLUSION: Our results suggest that weight loss may be an effective nonpharmacologic strategy for lowering CRP level