

Is adherence to Mediterranean and vegetarian dietary patterns associated with traditional and novel markers of inflammation?

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Numerous inflammatory biomarkers have been identified in processes leading to cardiac events, including C-reactive protein (hs-CRP), but more novel markers of inflammation including platelet activating factor (PAF) and lipoprotein phospholipase A2 (Lp-PLA₂) may be more specific indicators of chronic cardiovascular inflammatory processes.⁽¹⁾ Healthy diet influences cardiovascular disease (CVD) risk and modulating inflammation is a proposed mechanism for risk reduction. Plant-based dietary patterns have been associated with reduced CVD risk.⁽¹⁾ This study aimed to investigate whether adherence to Mediterranean or vegetarian dietary pattern is associated with traditional and novel markers of inflammation in healthy adults. In a cross-sectional study, 100 healthy adults (49 ± 13 years, 69% female) were recruited and categorised as either high ($n = 68$) or low risk for CVD ($n = 32$). Fasted plasma was analysed for hs-CRP, PAF and Lp-PLA₂. Dietary intake was assessed using a validated food frequency questionnaire. Validated tools^(2,3) were used to calculate Mediterranean and vegetarian dietary pattern adherence scores. Pearson's and Spearman's rank correlation were used to assess associations between each marker of inflammation and dietary pattern scores. T-tests assessed differences in markers between high and low adherers (based on median cut-off) to each dietary pattern. In the total sample, hs-CRP had a medium, negative correlation with vegetarian dietary pattern score ($r = -0.445$, $p < .001$), which remained significant for those at high ($r = -0.424$, $p < .001$) but not low ($r = -0.233$, $p = .199$) risk of CVD. Those with high vegetarian dietary pattern adherence had significantly lower mean hs-CRP (1.62 ± 3.75 mg/L) compared to those with low adherence (3.23 ± 4.03 mg/L, $p < 0.001$). There was a small, negative correlation between Mediterranean dietary pattern score and hs-CRP ($r = -0.276$, $p = .006$). Again, the correlation was only significant for those at high ($r = -.296$, $p = .015$) but not low ($r = -.088$, $p = .633$) CVD risk. Those with high Mediterranean dietary pattern adherence had significantly lower mean hs-CRP (1.35 ± 1.36) than those with low adherence (3.41 ± 5.13 , $p = .006$). Results for PAF showed a small, positive but nonsignificant correlation with both dietary pattern scores. Lp-PLA₂ had small, negative, nonsignificant correlations with both dietary pattern scores. There was no difference in PAF or Lp-PLA₂ levels between those with high versus low adherence for either dietary pattern. We can conclude that hs-CRP, a traditional marker of inflammation, is correlated with Mediterranean and Vegetarian dietary pattern adherence. Whilst there was no correlation with novel markers of inflammation, this could be due to the timing of COVID-19 vaccinations which coincided with outcome measures. Larger studies are needed to determine whether a true relationship exists between diet scores and markers of inflammation.

References

1. English CJ, Mayr HL, Lohning AE, *et al.* (2022) *Nutr Rev* **80** (6), 1371–1391.
2. Le LT, Sabaté J, Singh PN, *et al.* (2018) *Nutrients* **10** (5), 542.
3. Martínez-González MA, García-Arellano A, Toledo E, *et al.* (2012) *PLoS One* **7** (8), e43134.