

## ABSTRACT

**Title:** Association between dietary fibre intake and body composition and inflammatory markers in healthy adults without obesity: A cross-sectional analysis

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**Introduction:** Obesity and inflammation are associated with age-related diseases. A dietary strategy to reduce risk of obesity is increased fibre intake. However, it is unclear if fibre intake is associated with inflammatory markers and body composition in individuals without obesity. This analysis explores the correlation of total dietary fibre intake with body composition and systemic inflammation in healthy adults without obesity.

**Methods:** 220 participants without obesity (69.5% female) with an average age of 37 (SD=7) years and average BMI of 25.1 (SD=1.8) kg/m<sup>2</sup> were recruited as part of the 2-year Comprehensive Assessment of Long-term Effects of Reducing Intake of Energy 2 (CALERIE 2™) study. An exploratory analysis of dietary fibre intake (grams), body mass and composition (weight, fat mass, fat-free mass) and inflammatory markers (CRP, ICAM-1, IL-6, IL-8, leptin, MCP-1, TNF- $\alpha$ , insulin, adiponectin) was conducted at baseline. Spearman's rank correlation coefficient analyses were performed to examine correlations between total fibre intake and body composition and inflammatory markers. A p-value <0.05 was considered significant.

**Results:** A mean total dietary fibre intake of 20.1g (SD=7.6) was recorded. Total dietary fibre intake was negatively correlated with CRP ( $\rho=-0.16$ ,  $p=0.018$ ), leptin ( $\rho=-0.34$ ,  $p<0.001$ ) and insulin ( $\rho=-0.34$ ,  $p<0.001$ ) concentrations. Total dietary fibre intake correlations with TNF- $\alpha$ , ICAM-1, IL-6, IL-8, MCP-1, and adiponectin concentrations were non-significant ( $p\geq 0.059$ ). Fat mass was negatively correlated with total dietary fibre intake ( $\rho=-0.19$ ,  $p=0.004$ ) and fat-free mass was positively correlated with total dietary fibre intake ( $\rho=0.26$ ,  $p<0.001$ ). Weight was also associated with total dietary fibre intake ( $\rho=0.13$ ,  $p=0.048$ ).

**Conclusion:** This analysis suggests a potential beneficial effect of dietary fibre on body composition and some markers of systemic inflammation in individuals without obesity. Further research should explore: (1) the mechanistic interplay between fibre intake, body composition, and inflammation; and (2) the longitudinal relationship between fibre intake and body composition and inflammatory markers during caloric restriction.

**Conflicts of interest:** None.

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