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The impact of anti-inflammatory dietary interventions on health-related quality of life in adults with chronic diseases

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The number of people affected by at least one chronic disease is increasing worldwide, with poorer health-related quality of life (HRQOL) being a major consequence[(1)]. HRQOL is an important measure for quantifying and evaluating the impacts of a disease or intervention on self-perceived wellbeing. Anti-inflammatory diets are consistently associated with improvements in disease-specific outcomes[(2,3)], but their effect on HRQOL is unclear. This systematic review and meta-analysis aimed to estimate the effectiveness of anti-inflammatory dietary interventions on HRQOL in adults with one or more chronic diseases. Five databases were searched from inception to May 2024 for randomised controlled trials evaluating the impact of an anti-inflammatory diet (e.g., Mediterranean, low-carbohydrate) on HRQOL. Screening, data extraction, and risk of bias assessment using the Cochrane Risk of Bias v2.0 tool were performed independently by two authors. Certainty of evidence was determined using the GRADE approach. Pooled effect sizes for HRQOL, separated into mental (MCS) physical (PCS) and general component scores (GCS) were calculated using random-effects meta-analyses and reported as standardised mean difference (SMD). Subgroup analyses and meta-regressions were performed to assess the influence of study-level characteristics on HRQOL outcomes. Twenty-three studies reporting HRQOL data for 2753 participants were included. The most common chronic diseases evaluated were type 2 diabetes (8 studies, 35%), musculoskeletal conditions (5 studies, 22%), and cardiovascular conditions (3 studies, 13%). Anti-inflammatory dietary interventions evaluated included the Mediterranean diet (14 studies, 61%), low-carbohydrate diets (8 studies, 35%), Dietary Approaches to Stop Hypertension (1 study, 4%) and low-sugar, low-yeast diet (1 study, 4%). Anti-inflammatory diets were associated with small improvements in PCS compared to usual care/non-anti-inflammatory dietary interventions such as national dietary guidelines and low-fat diets (SMD 0.22, 95% CI 0.06 to 0.38) but not MCS (SMD 0.10, 95% CI −0.02 to 0.23) or GCS (SMD 0.40, 95% CI −0.32 to 1.13). Assessment by study-level characteristics revealed that studies with a higher risk of bias reported a larger effect on PCS, and diet-only interventions (compared to multi-component interventions) had a greater effect on MCS. No study met the Cochrane criteria for low risk of bias, and certainty of evidence was low (PCS and MCS) to very low (GCS). This systematic review suggests that anti-inflammatory diets may lead to a small improvement in physical HRQOL, but not mental or general HRQOL. The low certainty of evidence calls for further high-quality RCTs with detailed descriptions of dietary interventions in individuals with one or more chronic diseases.

References

1. Skou ST, Mair FS, Fortin M *et al.* (2022) *Nat Rev Dis Primers* **8**(1), 48.
2. Sleiman D, Al-Badri MR, Azar ST (2015) *Front Public Health* **3**, 69.
3. Wheatley SD, Deakin TA, Arjomandkhah NC *et al.* (2021) *Front Nutr* **8**, 687658.