

### The Effects of Vinegar/Acetic Acid Intake on Appetite Measures and Energy Consumption: A Systematic Literature Review

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**Objectives:** Research suggests the active ingredient in vinegar, acetic acid, may reduce appetite, thereby reducing energy consumption. This systematic review aimed to assess the effect of vinegar or acetic acid on appetite and subsequent food intake in humans in the published literature.

**Methods:** All human subject studies, regardless of age or health status. A search using MedLine (Ovid), PubMed, CINAHL Plus, Web of Science, and Cochrane Library between January to April 2021 resulted in 12 papers. One of the publications by Darzi et al. combined the findings of two independent studies and was therefore treated as two separate studies in this review (*study 1*” and “*Darzi study 2*). Outcomes included appetite, measured using an appetite rating scale or visual analog scale, satiation, measured as food intake of intervention meal, and satiety, measured as the amount of food intake following vinegar or acetic acid consumption.

**Results:** Seven short-term studies were crossover randomized controlled trials (RCT) investigating the effect of a single vinegar exposure with satiety or appetite as the primary outcome. Six long-term studies were parallel-group RCTs with repeated vinegar exposure, ranging from 4 to 12 weeks. These studies compared energy intake before and after the vinegar/acetic acid intervention. The short-term interventions indicated that vinegar containing at least 24.6 mmol acetic acid when consumed alongside a meal containing solid foods, acutely suppressed appetite up to 120 minutes postprandially, and ad libitum food intake three- and 24-hours after vinegar consumption. However, results from the long-term studies found no effect on appetite suppression.

**Conclusions:** Overall, four of the six short-term studies reported that vinegar suppressed appetite, while none of the long-term studies were able to reproduce these results. Further research is needed to determine whether oral vinegar consumption may result in long-term appetite reduction, decrease energy intake, and potentially aid in weight loss.

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