Whole grain and body weight changes in apparently healthy adults: a systematic review and meta-analysis of randomized controlled studies

Background: Whole grains have received increased attention for their potential role in weight regulation. A high intake has been associated with smaller weight gain in prospective cohort studies, whereas the evidence from randomized controlled studies has been less consistent. Objective: We assessed the effects of whole-grain compared with non–whole-grain foods on changes in body weight, percentage of body fat, and waist circumference by using a meta-analytic approach. Design: We conducted a systematic literature search in selected databases. Studies were included in the review if they were randomized controlled studies of whole-grain compared with a non–whole-grain control in adults. A total of 2516 articles were screened for eligibility, and relevant data were extracted from 26 studies. Weighted mean differences were calculated, and a metaregression analysis was performed by using the whole-grain dose (g/d). Results: Data from 2060 participants were included. Whole-grain intake did not show any effect on body weight (weighted difference: 0.06 kg; 95% CI: −0.09, 0.20 kg; P = 0.45), but a small effect on the percentage of body fat was seen (weighted difference: −0.48%; 95% CI: −0.95%, −0.01%; P = 0.04) compared with that for a control. An examination of the impact of daily whole-grain intake could predict differences between groups, but there was no significant association (β = −0.0013 kg × g/d; 95% CI: −0.011, 0.009 kg × g/d). Conclusions: Whole-grain consumption does not decrease body weight compared with control consumption, but a small beneficial effect on body fat may be present. The relatively short duration of intervention studies (≤16 wk) may explain the lack of difference in body weight and fat. Discrepancies between studies may be caused by differences in study design.