



Extended Research Article

Increase in colonic propionate as a method of preventing weight gain in adults aged 20–40 years: iPREVENT, a multicentre, double-blind, randomised, parallel-group trial

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Plain language summary

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Plain language summary

Obesity is the storage of fat within the body to the degree that causes poor health outcomes. The percentage of people with overweight or obesity continues to increase in all global populations. The prevention of obesity is a major public health goal. Evidence suggests that high-fibre diets prevent weight gain. Fibre leads to increased production of short-chain fatty acids by bacteria in the colon. Short-chain fatty acids appear to have a beneficial effect on metabolic health. However, most people do not consume enough fibre and forfeit these effects. We have combined inulin (a type of dietary fibre) and propionate (a short-chain fatty acid) to form inulin-propionate ester. This novel food ingredient can deliver propionate to the colon. Inulin was chosen as the control to explore propionate independent of any effect that inulin may have on body weight. In previous studies, inulin-propionate ester has prevented further weight gain in middle-aged adults who are overweight. Here, we now investigate whether inulin-propionate ester prevents weight gain in younger adults compared with inulin. We undertook this study because evidence suggests that rapid weight gain in young adults is related to obesity and other chronic diseases in later life. We recruited 270 participants aged 20–40 years with an overweight body mass index (25–30 kg/m²) and behaviours associated with weight gain. Participants were randomly allocated to 2 groups of 135 participants each to take 10 g inulin-propionate ester or 10 g inulin daily for 12 months. Our main interest was the change in body weight after 1 year. Other measurements of interest were changes in body fat, fasting blood biomarkers, which can indicate chronic disease risk (e.g. blood sugar and cholesterol), and blood pressure. There were no differences in body weight gain, most measures of body composition and fasting blood biomarkers, between the two groups at 12 months. In conclusion, neither inulin-propionate ester nor inulin prevented weight gain in young adults.

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