

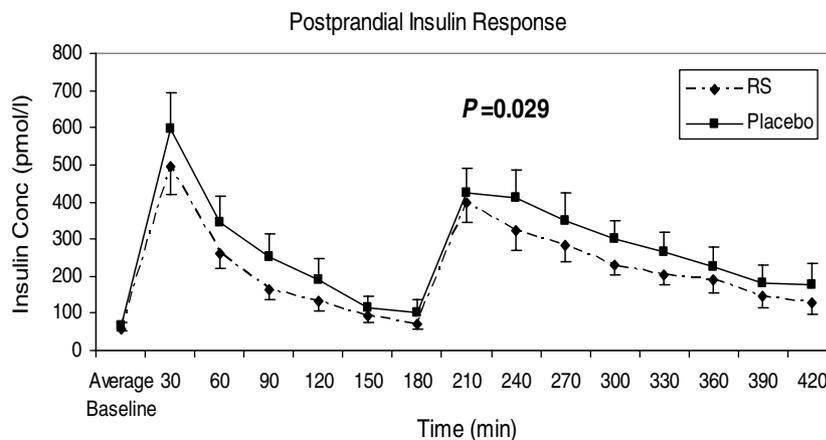
The acute effects of resistant starch on appetite and satiety

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The aim of the present study was to investigate the acute effects (24 h) of supplementation with a non-viscous dietary fibre (resistant starch type 2; RS2) on appetite and satiety compared with placebo (rapidly-digestible starch) supplementation.

On two separate occasions, at least 1 week apart, twenty healthy young adult males (age range 19–31 years, BMI range 19–27 kg/m²) consumed either 48 g RS2 or the placebo over two meals in a randomised single-blind balanced cross-over study. The supplements were consumed as part of standardised breakfast and lunch. Appetite was assessed every 30 min by subjective ratings using visual analogue scales and blood samples were taken to measure changes in gut peptide levels and metabolites. Following the 7 h postprandial period subjects were provided with a large pre-weighed *ad libitum* test meal to quantify intake. Food and drink consumption were then recorded for the remainder of the day to obtain overall 24 h dietary intake. Subjects were also requested to complete bowel diaries on the day of the study and the following day to monitor gastrointestinal effects.

Following RS2 supplementation there was a lower intake at the *ad libitum* test meal compared with the placebo supplementation (5250 kJ (1255 kcal) v. 5568 kJ (1331 kcal); $P=0.06$). There was also a significantly lower overall 24 h energy intake with the RS2 supplement compared with the placebo (12 598 kJ (3011 kcal) v. 13 895 kJ (3321 kcal); $P=0.05$), which was mostly explained by a reduced fat intake (97 g v. 110 g; $P=0.02$). However, these reductions in intake were not accompanied by differences between the supplements for any of the subjective appetite ratings. The supplements were well tolerated by all subjects. There was a significantly lower insulin response following the RS2 supplementation compared with the placebo ($P=0.029$), although plasma glucose levels were not significantly different. However, in the 2 h immediately following breakfast there was a significantly lower glucose area under the curve with the RS2 supplementation compared with the placebo ($P=0.025$), although this effect was not seen immediately following lunch.



The lower 24 h energy intakes seen with the RS2 supplementation could have beneficial implications in the management of obesity. Following RS2 supplementation there was a significantly lower insulin response, with a relatively similar plasma glucose response and no associated changes to subjective appetite ratings, which suggests a potential beneficial role of RS2 in postprandial insulin responses. Further studies are required to determine whether the effect on food intake could be maintained long term, to identify mechanisms for the effect on appetite and the insulin response and to confirm whether this effect would be seen in other populations.