

Abstract

# Timing of Fruit Ingestion and Blood Glucose Response <sup>†</sup>

Suman Mishra <sup>1,\*</sup> and John Monro <sup>1,2</sup>

<sup>1</sup> New Zealand Institute for Plant & Food Research, Private Bag 11600, Palmerston North 4442, New Zealand; john.monro@plantandfood.co

<sup>2</sup> Riddet Institute, Massey University, Private Bag 11 222, Palmerston North 4442, New Zealand

\* Correspondence: suman.mishra@plantandfood.co.nz; Tel.: +64-6-355-6146

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**Objective:** Our earlier research on the interaction between kiwifruit (KF) and breakfast cereal showed that equi-carbohydrate partial substitution of breakfast cereal by KF reduced the size and time distribution of the glycaemic response to the meal. Therefore, the objective of this research was to determine the best time to consume KF relative to ingestion of a starchy food, to obtain the maximum reduction in total blood glucose response.

**Method:** Twenty healthy subjects, male and female, between the ages of 26 and 66 with a mean age of 36, were recruited. Each subject consumed eight meals, all containing 50 g available carbohydrate, after fasting overnight, in a randomised cross over design trial. The meals were split so that either KF or wheaten breakfast cereal (WB) was used as the preload component of the meal. The KF component was consumed 90 min or 30 min before, at the same time, or 30 min after the WB. Blood glucose response and satiety was measured.

**Results:** Partial substitution of WB by KF caused a 20–30% ( $p < 0.001$ ) reduction in total glycaemic response irrespective of the separation of KF and WB ingestion. However, ingesting KF 30 min before WB decapitated the blood glucose “spike” by 47% ( $p < 0.001$ ), whereas the reverse, WB 30 min before KF did not. Satiety was not adversely affected by preloading.

**Conclusion:** The timing of KF consumption relative to ingestion of a starchy staple food, at a constant total carbohydrate intake, may make a difference to the glycaemic benefits obtained. Consuming the kiwifruit about 30 min before a meal may be the optimum time. The results suggest that both the temporal distribution of available carbohydrate and differences in composition of foods consumed at different stages in a meal may be used to manage glycaemic response.



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