

## Influence of glycaemic index on subjective appetite responses in healthy adults

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The glycaemic index (GI) of carbohydrate foods is a useful tool for predicting postprandial glucose and insulin responses<sup>(1)</sup>. Results from human studies suggest an inverse relationship between GI of ingested food and postprandial appetite responses<sup>(2)</sup>. However, evidence on the effects of GI on subjective and objective satiety responses is inconclusive<sup>(3)</sup>. Therefore, the aim of this study was to assess the impact of GI on postprandial appetite response in humans.

We conducted a randomised controlled crossover trial on 13 adults presenting with normoglycaemia, normal BMI and mean age of 28.7 ± 6.6 years. Participants were randomly allocated to consume a high GI meal (HGI) consisting of mashed potatoes, and low GI (LGI) meal of canned whole chickpeas, each providing 50 g total available carbohydrates, after an overnight fast. Postprandial subjective satiety and appetite responses were captured using visual analogue scale (VAS) in 3 domains: hunger, fullness, and prospective food intake. Plasma ghrelin values were also measured by immunoassay (intra-assay variations < 15%), in venous blood samples collected over 3 hours following breakfast intake. Postprandial total area under the curves (AUCs) were calculated by the trapezoidal method, and data were analysed using t-test with statistical significance set at  $p < 0.05$ . Data are presented as mean ± SD.

There were great variations observed in individual responses after intake of both interventions in all outcomes illustrated above. Postprandial hunger responses were significantly lower after ingestion of LGI meal ( $91.2 \pm 37.1$  mm × h) in comparison to HGI meal ( $113.5 \pm 26$  mm × h) ( $p = 0.035$ ); and postprandial fullness responses were significantly higher as demonstrated by AUC values over the 3 hour period following breakfast intake ( $107.3 \pm 37.1$  mm × h) and ( $80.2 \pm 24.7$  mm × h) ( $p = 0.012$ ) respectively. However, there was no significant difference in prospective food intake following different GI meals ( $104.6 \pm 41.9$  mm × h) and ( $126.2 \pm 26.3$  mm × h), respectively. In addition, there were no differences observed in postprandial ghrelin response ( $p > 0.05$ ).

The results suggest that a low meal GI positively affects postprandial satiety response. However, the impact on appetite hormone ghrelin is unclear possibly due to high individual variances in hormonal responses.

### References

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