

## Abstract

# Association between the Postprandial Glucose and Insulin Response and Changes in Anthropometric Parameters after an 8-Week Formula Diet—Data from the Lifestyle Intervention Study †

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**Abstract:** Background and Objectives: There is a high inter-individual variability in the postprandial response to an oral glucose tolerance test (OGTT). However, there is limited evidence on whether the individual postprandial response is associated with the success of a weight management intervention. This work examines postprandial glucose and insulin response to an OGTT as predictors for changes in anthropometric parameters after a standardized weight loss intervention. Methods: Adults (18–65 years) with a body mass index (BMI) between 30.0 and 39.9 kg/m<sup>2</sup> were recruited for the Lifestyle Intervention (LION) study (NCT04023942). Blood samples were taken before the start of the 8-week formula diet and during an OGTT. Several parameters describing the postprandial glucose and insulin response (e.g., area under the curve, peak time, and concentration) were calculated. Anthropometric parameters (e.g., body weight, fat mass) were collected before and after the 8-week formula diet. Finally, regression analyses adjusted for age and sex were fitted. Results: A total of 272 participants (mean age 45 ± 11 years, BMI 34.5 ± 2.9 kg/m<sup>2</sup>, 64% women) were included in the analysis. The formula diet resulted in an average weight loss of 11.8 ± 3.5 kg body weight and 8.2 ± 2.5 kg (4.1 ± 2.2%) fat mass. Postprandial parameters describing the glucose or insulin response from a total of 161 OGTTs showed no significant associations with changes in anthropometric parameters. Discussion: The examined postprandial glucose or insulin responses are not associated with weight loss success after an 8-week formula diet.

**Keywords:** postprandial response; metabolism; weight loss; lifestyle intervention; personalized nutrition



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