**Title:** Is achieving adequate 1-hour post-meal maternal blood glucose control in women with gestational diabetes mellitus better in women meeting the five-a-day recommendation?

**Short title:** Is blood glucose control in women with gestational diabetes associated with fruit and veg intake?

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**Background:**

Measuring diet effectively is essential in women with gestational diabetes mellitus in order to assist with maintaining adequate blood glucose control. This is typically completed using a paper diary in conjunction with advice from dietitians. Methods to make it easier for patients and dietitians to monitor their diets could improve outcomes.

**Methods:**

This is a prospective observational study. All newly-diagnosed pregnant women referred to the gestational diabetes mellitus clinic at a large NHS Trust during the study period in 2015 were be invited to participate in the study. Diet was assessed using myfood24, an online 24h dietary recall tool, in addition to the usual NHS care which involved the women recording their post meal maternal blood glucose levels. Adequate post meal blood glucose control was determined as <7.8mmol/l. Consumption of >=400 grams/day of fruit and vegetables met the UK 5-a-day guidelines.

**Results:**

200 women were recruited into the study of which 121 provided complete dietary records for multiple days. 20% of these women met the 5-a-day fruit and vegetable recommendations. 45%, 63% and 68% women achieved adequate control of their blood glucose after breakfast, lunch and dinner respectively, each day of the study. There was no significant difference (p=0.05) between achieving adequate post meal blood glucose control in those meeting recommendation compared to those who didn’t. When considering quintiles of fruit and vegetable intake no significant difference in blood glucose control was observed.

**Conclusions:**

Meeting the 5-a-day recommendation for fruit and vegetables is not associated with better blood glucose control in women with gestational diabetes mellitus. No difference between those meeting the recommendation and those who don’t was observed. Further work is required to investigate the influence of other key dietary components in achieving adequate blood glucose in women with gestational diabetes mellitus.

**Main messages:**

Fruit and vegetable consumption is not associated with post meal maternal blood glucose control in women with gestational diabetes.

Women with gestational diabetes mellitus are willing to engage with online dietary assessment methods.