

MAY 2020

INSIGHTS: FACTORS WHICH AFFECT POST MEALS BLOOD GLUCOSE LEVELS

Cura-Maker, led by Dr Chong Yeh Woei and our partner dietitian, Jaclyn Reutens of Aptima Nutrition and Sports Consultants conducted a small sample (10 individuals) exercise to assess the impact of food on blood glucose levels within 3 hours of a meal.

The sample group consists of 4 males and 6 females comprising of normal, pre diabetic and diabetic participants. Using Freestyle Libre continuous glucose monitoring system the participants were observed over 14 days. In the first week, the participants were allowed to eat their normal diets and in the second week, there were given dietary plans to follow.

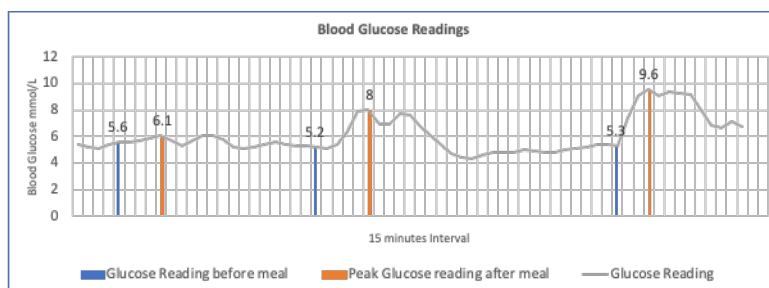
Invariably the results affirm the following:

- Fruits like pineapple and grape have an almost immediate impact on blood glucose levels - where the spikes are steep.
- Low Fibre food and refined carbohydrates e.g . white rice increase blood glucose levels rapidly.
- Fat and alcohol do reduce the rate of increase of the blood glucose levels.
- Meal time may also have an impact on blood glucose levels, especially meals taken at night.
- Glycemic Load (measures the amount of low glycemic index* food taken) is generally a good indicator of impact of food and beverage intake on blood glucose levels. The lower the Glycemic Load the lower the rise in blood glucose levels following consumption of food/beverages.

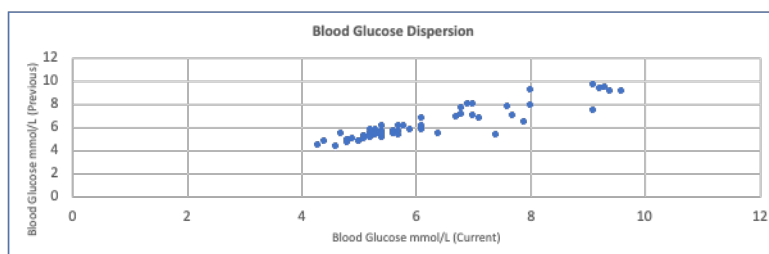
*"The **Glycemic Index (GI)** is a relative ranking of carbohydrate in foods according to how they affect blood glucose levels. Carbohydrates with a low **GI** value (55 or less) are more slowly digested, absorbed and metabolised and cause a lower and slower rise in blood glucose and, therefore usually, insulin levels."....Glycemic Index Foundation.

Snapshot of a day's analysis for a participant[^]:

Description	Calories (kcal)	Carb (g)	Protein (g)	Fat (g)	Fibre (g)	Glycemic Load
Breakfast: 1 punnet bluberries, 10 grapes, kiwi, half cup oats	454	90	15	6	14	48
Lunch: Ginger soup with 4 peanut tang yuan	345	50	5	15	-	28
Afternoon: Piccolo latte	46	4	2	2	-	3
Dinner: Beef pho, half japanese jelly	417	62	25	6	2	26
Total	1,262	206	48	29	16	105



- **Post Meal Time to Peak Reading:**
 - Breakfast – 1 hour
 - Lunch – 1.25 hours
 - Dinner – 0.75 hour
- High : 9.6 mmol/L
- Low: 4.3 mmol/L
- Mean: 6 mmol/L
- Standard Deviation: 1.4



The participant is a 57 year old Chinese male. His blood glucose readings after Lunch and Dinner spiked significantly, largely driven by the intake of grapes and desserts. Such analysis may be useful as a personalized tool to manage dietary intakes for pre diabetic or diabetic individuals.

Avoidance of a sugar “hill” is key to managing blood glucose levels. Spikes in blood glucose levels throughout the day should be avoided. An understanding of the type of food which do not cause a large spike in one’s blood glucose levels and managing the amount consumed across 3 meals, especially in the evening is essential in preventing the onset of chronic illnesses.

[^] Anonymised data with permission obtained from participant to make references to the analysis of his data.