IMPACT OF GLUCOSE LOAD ON GLYCEMIC RESPONSE

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Background & Aims

In a hypoglycemic state, the consumption of adequate amounts of saccharides could be life saving; this was the scope of this practice-oriented study.

(1) To determine the interval of time between the consumption of the Glucose-Saccharose-Fructose jelly (Fig.1) and the maximum recorded glycemic load of both 15 g and 40 g of jelly.

(2) To estimate the maximum glycemia for 15 g and 40 g of jelly respectively

Fig.1: *Glucose-Saccharose-Fructose jelly 15[g] and 40[g]*

Fig.2: *cPG measurement session*

Methods

Subjects

Ten volunteers with ages varying from 19-34 years old and BMIs within a range of 18-31 kg/m^2 participated in the study. Subjects were also required to fast at least ten hours prior to the session.

Study design

Capillary Plasma Glucose (cPG) was measured (Fig.2) during two one-hour sessions in ten-minute intervals. Three measurements were performed at each interval and means were recorded.

- Session 1 – 15[g] jelly was ingested
- Session 2 – 40[g] jelly was ingested

The glucometer used was the Contour Plus One (Fig.3), due to its high precision and accuracy as per previous related studies.

Fig. 3: *Contour Plus One glucometer*

Results

At the 0 min mark the p-value was (> 0.05) before the jelly ingestion, which indicates the fasted cPG was relatively the same at the start of both sessions. The mean cPG values for both of the saccharides were plotted (Fig.4). The delta value was also calculated based on the difference of the cPG at each interval (Fig.5).

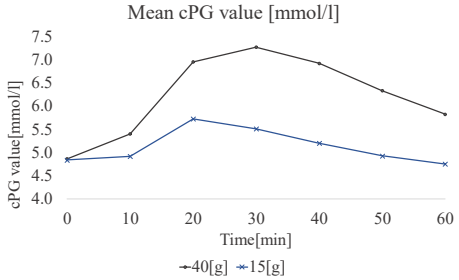

Fig.4:*The means of the cPG values of both sessions*

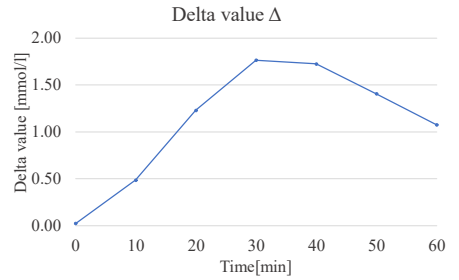

Fig.5: *Difference of cPG values at each interval*

Results

As per the Wilcoxon paired test, the p-value (Table.1) indicates that there is a significant difference (p-value ≤ 0.05) in the two glycemic loads.

Delta value [mmol/l]		
Time [min]	Delta Δ	p-value
0	0.02	0.678
10	0.48	0.038
20	1.23	0.012
30	1.77	0.007
40	1.73	0.007
50	1.41	0.019
60	1.08	0.017

Table 1: *Difference of cPG values at each interval*

Conclusion

From the plotted graph (Fig.5) we conclude that the 40 g jelly shows a higher cPG at every interval. However, the 40 g jelly took a longer time to reach the maximum glycemia recorded which is at the 30-minute interval, compared to maximum of the 15 g jelly recorded at the 20-minute interval.

Acknowledgement

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