

## **Glycemic, non-esterified fatty acid (NEFA) and insulinemic responses to Watermelon and Apple in type 2 diabetic subjects**

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**Background:** Glycemic Index (GI), Insulin and Non-esterified Fatty Acid (NEFA) responses are useful measures for the biological effects of a carbohydrate diet in relation to diabetes and its complications.

**Objective:** To determine those indicators in Watermelon and Apple to help in establishing a balanced and better food exchange table for the diabetic patients in Bangladesh. White bread (WB) was used as the reference food.

**Design:** 13 subjects (8 male and 5 female) under a crossover design, consumed equi-carbohydrate amount of the fruits and bread, with a run-in period of 7 days between the consecutive items. Serum C-peptide was used as the marker of insulin and it was measured by ELISA, HbA<sub>1c</sub> and NEFA were HPLC & Colorimetric methods respectively.

**Outcomes:** Watermelon and Apple had almost similar glycemic response which were lower than WB and its reflected in their GI values (Apple  $94 \pm 19$ , Watermelon  $92 \pm 15$ ). Insulin responses were similar in Apple ( $0.62 \pm 1.13$ ) and in Watermelon ( $0.45 \pm 0.72$ ) and they had a significantly lower Absolute Change (AC) of C-peptide compared to bread ( $P=0.001$  in WB vs Apple and  $<0.001$  in WB vs Watermelon). There was a lower NEFA response of Watermelon compared with Apple and WB but the difference was not significant.

**Conclusions:** a) Equi-carbohydrate of Apple, Watermelon and WB produce almost similar glycemic response. The dynamics of blood glucose changes (avoidance of sharp peak) with Apple, however, makes it a better choice compared to the other two. b) Watermelon maintains a glycemic response similar to Apple and WB at the expense of lower insulin response and may have beneficial effect on dyslipidemia.