

THE GLYCEMIC INDEXES OF GUAVA, TANGERINE AND PINEAPPLE IN THE FORMS OF WHOLE FRUIT, PUREED FRUIT AND FRUIT-JUICE EXTRACT IN TYPE 2 DIABETES

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Abstract:

Fruits are an important source of vitamins, minerals, fibers and carbohydrate which are necessary for good health. Several fruits are consumed by the diabetic patients, while the low glycemic index (GI) fruits are being recommended. A considerable number of diabetic in Thailand are elderly with dental problem, which inevitably forces them to consume soft fruits. If pureed fruit drink and whole fruit do not differ in their glycemic responses, people with diabetes, especially the elderly and those with chewing problem will be able to consume a greater variety of fruit. Thus, this study is aimed to determine the GI of certain fruits in 3 different forms which are whole fruit, pureed fruit and fruit-juice extract.

Eleven participants with type 2 diabetes were included. Each participant underwent 10 tests consisting of consumption of 3 different physical forms (whole fruit, pureed fruit and fruit juice extract) of guava, tangerine and pineapple and a glucose drink. The test fruit contained 25 grams of available carbohydrate. Each test was undertaken every 2 weeks. On the test day, fasting blood specimen was taken for baseline glucose and additional blood glucose samples were collected at 30, 60, 90, 120, 180 and 240 minutes after the first bite.

The Glycemic indexes of guava in the forms of whole fruit (GW), pureed (GP), and juice extract (GE) were 31, 38 and 46, respectively. Whole fruit of tangerine (TW), pureed tangerine (TP) and tangerine-juice extract (TE) had GI of 43, 54 and 58; in addition, GI of whole fruit of pineapple (PW), pureed pineapple (PP) and pineapple-juice extracted (PE) were 50, 51 and 54. TE was classified as having moderate GI whereas all the others had low GI. Peak incremental plasma glucose of all fruits were seen at 60 minutes after ingestion except for that of PE which was present at 30 minutes. At 30 minutes, GW and GP showed significantly lower incremental plasma glucose ($p < 0.005$) than the glucose drink. Although, most forms of these 3 fruits were demonstrated as having low GI, TE had moderate GI. The Glycemic index tended to increase in ascending order according to the intactness of fiber in the fruit from whole fruit, pureed fruit and fruit-juice extract, respectively. Moreover, PE has produced rapid excursion (within 30 minutes) of plasma glucose similar to the glucose drink. These results suggest that guava could be consumed in all forms without worsening the glycemic response, while it is better to consume tangerine and pineapple in the forms of whole fruit and pureed fruit.