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Comparison of a glucometer and an enzymatic assay values of blood glucose during assessment of glycaemic indices: A preliminary study

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There is published data that shows the unsuitability of certain glucometers in determining Glycaemic Index (GI) values. Therefore this study was designed to evaluate the efficacy and reliability of using Accu Check Active glucometer, which is available in Sri Lanka to estimate blood glucose concentrations to determine the glycaemic indices of some meals and to compare these values with the values obtained with conventional enzymatic kit method.

GI of three meals i.e. a) red rice (AT 353, RRI, Batalegoda) with kirihodi b) same rice variety with kirihodi, dhal curry, egg, gotukola sambol and c) string hoppers (100% wheat flour) with kirihodi, egg, coconut sambol were determined. Healthy volunteers, both male and female (N = 10, age - 22-30) participated in the study. Capillary blood samples were taken from the volunteers after an overnight fast (10 –12 hours). The first drop of capillary blood was kept on a test strip, to obtain the blood glucose concentration. The test strip gave a colour change on application of a drop of blood by glucose dye oxidoreductase mediator reaction. Further blood samples and glucometer readings were

taken at 30, 45, 60, 90, and 120 minute intervals after consuming 50 g digestible carbohydrate portion of the above food items. Prima crust top bread was used as the standard. The GI values (Table 1) calculated using the glucometer readings were compared with the values obtained from a glucose oxidase kit method (GOD-PAP).

Table 1: GI values (Mean ± SEM)

Item	Glucose kit values	Glucometer values	P value (< 0.05)
Red rice (AT 353)	99 ±10	90 ± 11	0.2
Red rice (AT 353) meal	62 ± 6	55 ± 8	0.1
String hopper meal	104 ± 11	99 ± 12	0.1

Mean GI values obtained with the two techniques were not significantly different ($p < 0.05$). However, we noticed the tendency of the GI obtained with glucometer to be lower than that of the kit assay. According to the data obtained, no discrepancy was seen when the GI values were determined by the Accu Check Active glucometer with the enzymatic method.

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