

### Blood glucose responses to selected bread varieties

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Glycaemic index (GI) concept categorizes food items according to their influence on blood glucose response following a meal. It is reported that the consumption of food items with low to moderate GI helps in the dietary management of diabetes, cardiovascular disease and cancer. Recent studies indicate a rapidly increasing prevalence of diabetes among both the rural (8%) and urban populations (12%) in Sri Lanka. This might be due to the change of traditional food habits from rice-based meals to wheat-based products such as different varieties of bread. Therefore this study was designed to estimate the glycaemic responses to frequently consumed different varieties of bread i.e. Prima crust top bread, whole meal bread (enriched with bran), bakery bread (all three with 72% extraction rate) and a meal containing whole meal bread consumed with dhal curry. Healthy volunteers, both male and female (N = 10, age - 22-30) participated in the study. Blood glucose concentrations were estimated using an enzymatic method (GOD-PAP). GI was calculated according to the FAO/WHO recommendations using both Prima crust top bread and glucose as the standards.

Table 1: GI values (Mean  $\pm$  SEM) with the two standards

| Food item                     | Prima crust top bread (Standard) | Glucose (standard) |
|-------------------------------|----------------------------------|--------------------|
| Prima crust top bread         | Standard                         | 77 $\pm$ 6         |
| Whole meal bread              | 103 $\pm$ 10                     | 77 $\pm$ 6         |
| Bakery bread                  | 114 $\pm$ 11                     | 80 $\pm$ 4         |
| Whole meal bread + dhal curry | 87 $\pm$ 6                       | 61 $\pm$ 6         |

When the GI values obtained with glucose and prima crust top bread as standards were compared a ratio of 1.36, which is comparable with international literature was obtained. The glycaemic responses of the three bread varieties were not significantly different ( $p < 0.05$ ). The whole meal bread when

consumed with dhal curry (mixed meal) produced lower peaks compared with the bread varieties consumed separately and only the mixed meal can be categorized into the medium GI food group while the other bread varieties belong to the high GI food class.

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