Glycaemic indices of three Sri Lankan wheat bread varieties and a bread-lentil meal

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Abstract

The glycaemic index (GI) concept ranks individual foods and mixed meals according to the blood glucose response. Low-GI foods with a slow and prolonged glycaemic response are beneficial for diabetic people, and several advantages have been suggested also for non-diabetic individuals. The recent investigations imply an increasing prevalence of diabetes mellitus in Sri Lanka. Thus, the present study was designed primarily to determine the glycaemic indices of some bread varieties in Sri Lanka as bread has become a staple diet among most of the urban people. A second objective was to observe the effects of macronutrients and physicochemical properties of starch on GI. Glycaemic responses were estimated according to FAO/WHO guidelines and both glucose and white bread were used as standards. Non-diabetic individuals aged 22-30 years (n=10) participated in the study. The test meals included white sliced bread, wholemeal bread, ordinary white bread and a mixed meal of wholemeal bread with lentil curry. The GI values (±standard error of the mean) of the meals were 77±6, 77±6, 80±4, 61±6, respectively (with glucose as the standard). The GI values of the bread varieties or the meal did not differ significantly (P>0.05). However, the meal can be categorized as a medium-GI food while the other bread varieties belong to the high-GI food group. A significant negative correlation was obtained with protein (P=0.042) and fat (P=0.039) contents of the food items and GI. Although the GI values

of the foods are not significantly different, the inclusion of lentils caused the GI to decrease from a high-GI category to a medium-GI category. According to the present study, a ratio of 1.36 can be used to interconvert the GI values obtained with the two standards.

Keywords: Glycaemic index; bread; effect of macronutrients; diabetes; factors affecting glycaemic index

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