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Dietary Glycemic Index and Glycemic Load: Clinical Significance and Limitations in the Prevention, Pathophysiology, and Treatment of Disease

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Deadline for manuscript
submissions:

closed (20 July 2021)

Message from the Guest Editors

The glycemic index (GI) was introduced to facilitate carbohydrate exchange in meal planning strategies. This index was subsequently extended to take into account the total amount of carbohydrates in a meal (glycemic load (GL)). There is evidence suggesting that carbohydrate quality is linked to human health. The consumption of high GI/GL foods increases the following: (1) obesity, T2D, dyslipidemia, hypertension, coronary heart disease, and stroke; (2) risk of certain cancers; (3) the activity of brain regions related to reward and craving; and (4) glucose fluctuations and oxidative stress. GI and GL have also been linked to exercise performance. However, although these indices are practical in estimating the plasma glucose-raising potential of foods' carbohydrate contents, their value may be limited, because postprandial glucose excursions may depend on factors such as tissue sensitivity to insulin, the fat/fiber content of meals, time spent consuming meals, method of cooking food, intestinal microbiota, consuming vegetables before carbohydrates when eating, and consuming/skipping breakfast.



mdpi.com/si/29485

Special Issue



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