

An Analysis of the “Bolus Guide,” A New Insulin Bolus Dosing Support Tool Based on Selection of Carbohydrate Ranges

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Abstract

In this issue of *Journal of Diabetes Science and Technology*, Shapira and colleagues present new concepts of carbohydrate load estimation in intensive insulin therapy. By using a mathematical model, they attempt to establish how accurately carbohydrate food content should be maintained in order to keep postprandial blood glucose levels in the recommended range. Their mathematical formula, the “bolus guide” (BG), is verified by simulating prandial insulin dosing and responding to proper blood glucose levels. Different variants such as insulin sensitivity factor, insulin-to-carbohydrate ratio, and target blood glucose were taken into this formula in establishing the calculated proper insulin dose. The new approach presented here estimates the carbohydrate content by rearranging the carbohydrate load instead of the simple point estimation that the current bolus calculators (BCs) use. Computerized estimations show that the BG directives, as compared to a BC, result in more glucose levels above 200 mg/dl and thus indicate less hypoglycemia readings.

J Diabetes Sci Technol 2010;4(4):903-905

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Abbreviations: (BC) bolus calculator, (BG) bolus guide, (CSII) continuous subcutaneous insulin infusion, (CV) coefficient of variation, (ISF) insulin sensitivity factor, (ITC) insulin-to-carbohydrate ratio, (T1DM) type 1 diabetes mellitus, (TBG) target blood glucose

Keywords: insulin pump, food counting, prandial insulin, type 1 diabetes

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