Bolus Calculator with Nutrition Database Software, a New Concept of Prandial Insulin Programming for Pump Users

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Abstract

Bolus calculators are effective tools in controlling blood glucose levels in patients treated with insulin. Diabetics is a new software devised for patients to facilitate and improve self-managing for prandial insulin dosing and for better controlling food intake. This device contains two integral parts: a nutrition database and a bolus calculator. The algorithm is based on a formula in which carbohydrate (CHO) and either fat and/or protein (FP) products are engulfed in insulin. The insulin dose setting is programmed individually for CHO in a normal bolus (N-W) and for FP in a square-wave bolus (S-W). The device calculates the dose of insulin for N-W or S-W, suggests the optimal kind of bolus, and indicates the timing in hours for an S-W bolus. In addition, this calculator, which contains a nutrition database and insulin dosing software, helps determine the correct type of necessary boluses for selected foods.

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Abbreviations: (CHO) carbohydrate, (CSII) continuous subcutaneous insulin infusion, (CU) carbohydrate unit, (D-W) dual wave, (FP) fat/protein, (FPU) fat–protein unit, (IR) insulin ratio, (N-W) normal wave, (S-W) square wave, (WPTS) Warsaw Pump Therapy School

Keywords: bolus calculator, insulin pump, type 1 diabetes

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