

Diabetes app to forecast blood sugar levels

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First-of-its-kind, personalized glucose forecasting tool may make meal planning simpler for type 2 diabetes patients



Columbia University researchers have developed a personalized algorithm that predicts the impact of particular foods on an individual's blood sugar levels. The algorithm has been integrated into an app, Glucoracle, that will allow individuals with type 2 diabetes to keep a tighter rein on their glucose levels--the key to preventing or controlling the major complications of a disease that affects 8 percent of Americans.

Medications are often prescribed to help patients with type 2 diabetes manage their blood sugar levels, but exercise and diet also play an important role.

The algorithm uses a technique called data assimilation, in which a mathematical model of a person's response to glucose is regularly updated with observational data i.e. blood sugar measurements and nutritional information to improve the model's predictions.

Glucoracle allows the user to upload fingerstick blood measurements and a photo of a particular meal to the app, along with a rough estimate of the nutritional content of the meal. This estimate provides the user with an immediate prediction of post-meal blood sugar levels. The estimate and forecast are then adjusted for accuracy. The app begins generating predictions after it has been used for a week, allowing the data assimilator has learned how the user responds to different foods.

Encouraged by these early results, the research team is preparing for a larger clinical trial. The researchers estimate that the app could be ready for widespread use within two years.