Glucose Detection in Breath

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Technology description

Purdue University researchers have addressed the goal of noninvasive glucose monitoring by improving a glucose breath monitor.

Background

The World Health Organization estimates that diabetes is was the eighth leading cause of death globally in 2012. According to the American Diabetes Association, in 2012, there were 29.1 million Americans living with diabetes, and in the same year, diabetes cost an estimated $245 billion dollars in medical costs and lost wages. Monitoring blood glucose is one crucial aspect of diabetes management. Currently, monitoring blood glucose requires direct measurement from a blood sample. This inconvenient and invasive monitoring technique prevents the frequent measurement required for careful regulation of glucose.

Technology Summary

Purdue University researchers have addressed the goal of noninvasive glucose monitoring by improving a glucose breath monitor. The glucose monitor consists of a breath condensing unit that monitors the temperature, volume, and glucose concentration of exhaled breath along with a condenser for background air. The glucose concentration of exhaled breath condensate is corrected for humidity and glucose concentration of background air, delivering more reliable measurements

compared to similar technologies. The blood glucose concentration is calculated from its correlation with the corrected glucose concentration in the exhaled breath condensate.

Application area

Monitor blood glucose levels without a blood sample:
Diabetes patients
Hospitals and physicians
Emergency responders

Advantages

Sensor system does not require blood samples
Reduces complications from humidity and glucose in air

Institution

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