

Early prediction of diabetes using AI

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Artificial intelligence can be used to predict the onset of diabetes mellitus given sufficient patient information according to work published in the *International Journal of Business Intelligence and Systems Engineering*.

Shahid Mohammad Ganie, Majid Bashir Malik, and Tasleem Arif of the BGSB University in Rajouri, India, point out that there are millions of people around the world with the complex metabolic condition diabetes mellitus. Many people who have not yet been diagnosed with the condition may well have [health issues](#) of which they are unaware that have set them on a course to developing this serious and potentially life-changing health problem.

Fundamentally, diabetes is associated with high blood sugar concentration over a prolonged period of time. Almost one in ten of us has some form of diabetes. Left untreated it can cause organ damage and even death. There are three forms of diabetes mellitus. Type 1, insulin-dependent diabetes, is an autoimmune dysfunction where the pancreas does not produce sufficient insulin to control blood sugar. It usually develops in childhood or adolescence. Type 2, non-insulin-dependent diabetes, begins with insulin resistance and often proceeds to insufficient insulin. It can affect almost anyone at almost any age. It is most often associated with obesity. Type 3, [gestational diabetes](#), affects women during pregnancy, causing hyperglycemia.

A fourth condition is also noted, pre-diabetes, where genetics, hormonal dysfunction, or exposure to certain exogenous chemicals or other factors ultimately lead to an increase in insulin production.

Type 1 diabetes is treated with controlled injections of insulin. Type 2 can be managed by weight loss, improved diet and exercise, and the avoidance of tobacco products. Type 3 usually resolves after childbirth but for some mothers, having this condition is a risk factor for her or even her child later developing type 2 diabetes.

The team has trained various algorithms with [relevant data](#) associated with [diabetes risk](#) and demonstrated that one of them, the gradient boosting classifier, outperformed all others and offered a prediction

accuracy of more than 92% when tested against known cases.

More information: Shahid Mohammad Ganie et al, Early prediction of diabetes mellitus using various artificial intelligence techniques: a technological review, *International Journal of Business Intelligence and Systems Engineering* (2022). [DOI: 10.1504/IJBISE.2021.122759](https://doi.org/10.1504/IJBISE.2021.122759)

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