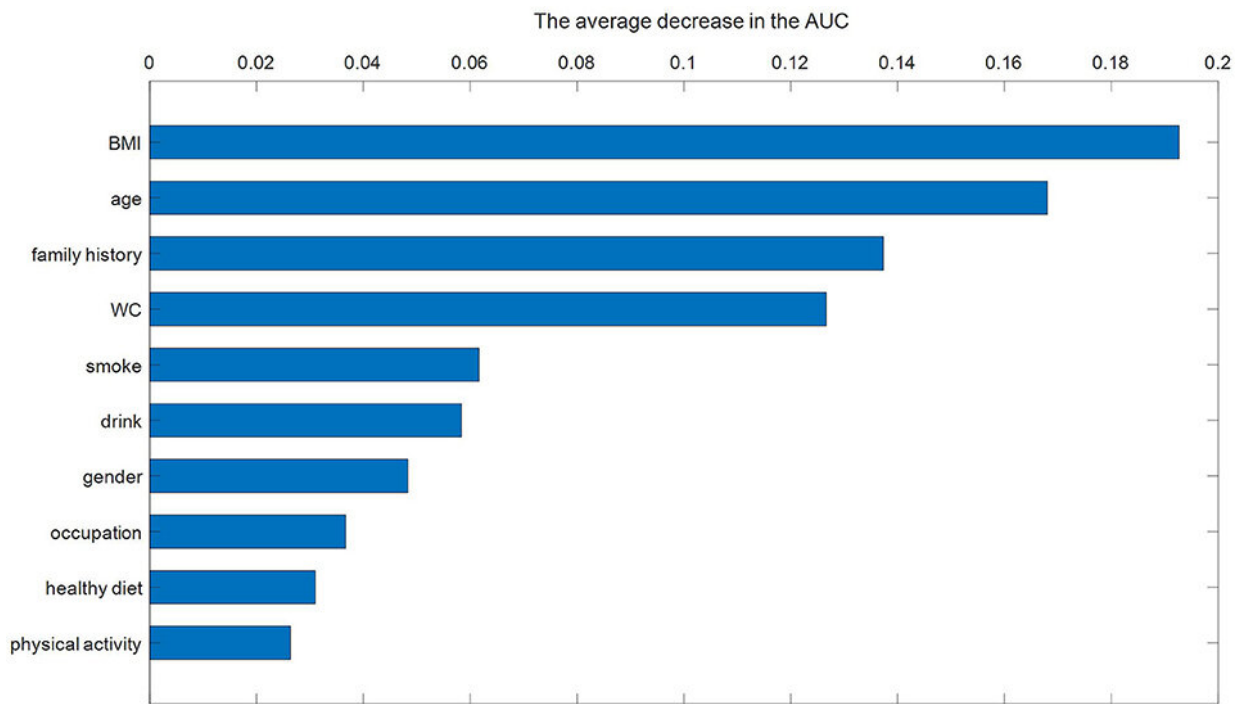# New model helps prevent high blood pressure in early stage

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Feature importance ranking for the RF model. Credit: DOI: 10.3389/fpubh.2021.619429

Researchers from the Hefei Institutes of Physical Science (HFIPS) of the Chinese Academy of Sciences recently have introduced new method to assess the risk of hypertension. Results were published in *Frontiers in Public Health*.

This method, called hypertension risk assessment method based on simple risk factors, is low-cost and easy to operate. It can identify people at high risk of hypertension in the early stage with easily available lifestyle information and anthropometric information.

Hypertension (or high blood pressure) refers to a common disease where blood flows through your arteries at higher-than-normal pressure. If the high-risk group of hypertension could be identified at early stage, intervention measures such as active exercise, reasonable diet can be introduced to reduce the incidence of hypertension. Current complex hypertension risk assessment models have limited predictive ability and poor interpretability, which restrict their application.

In this research, to establish the hypertension risk assessment model, the researchers adopted the method of univariate logical regression analysis and optimized random forest. And the risk factors of hypertension were selected by univariate logical regression analysis.

They then optimized the hyperparameters of random forest classifier through grid search, and finally constructed a prediction model of hypertension risk.

In addition, the importance of predictive variables would be calculated by the contribution of Area Under Curve (AUC) to the model to improve interpretability, according to the researchers.

The study also found six risk factors for high blood pressure: body mass index, age, family history, waistline, smoking and drinking.

This model provides an easy way for "early screening and early intervention" to prevent and control chronic diseases.

   More information: Huanhuan Zhao et al, Predicting the Risk of

Hypertension Based on Several Easy-to-Collect Risk Factors: A Machine Learning Method, *Frontiers in Public Health* (2021). DOI: 10.3389/fpubh.2021.619429