

Study: Personal genetic risk motivates positive changes in health behavior

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A new study from the University of Helsinki shows that information about personal genetic risk for cardiovascular disease motivates individuals to take better care of their health. This is the first comprehensive study assessing the impact of overall disease risk information based on both genetic and traditional health factors on lifestyle.

Thanks to recent advances in genome research, polygenic risk scores (PRS) encompassing hundreds of thousands of genetic risk variants have been developed to predict the disease risk for many common diseases.

Since lifestyle changes and preventive medications can have a significant impact on individual's risk for developing [cardiovascular disease](#) (CVD), personal risk information could be an important motivating factor. On the other hand, making long-term lifestyle changes is known to be challenging.

The main goal of the Finnish GeneRISK study was to examine how returning personal CVD risk information with an interactive web-tool impacted on the participants' health behavior. More than 7,000 middle aged Finnish individuals were recruited to the study and about 5,000 individuals participated in the follow-up visit one and a half years later. This is the first study assessing the impact of returning personal disease risk information to such a large participant group.

Disease risk information communicated in an intuitive way

Communicating risk information, especially if it involves genetic information, is often regarded difficult and requiring in-person counseling.

"One of the main goals of our study was to develop a web-based platform for communicating the genomic and clinical risks to individuals in an easily understandable way," says Elisabeth Widén, MD and a group leader at the Institute for Molecular Medicine, University of Helsinki, who conducted the study.

The novel web-based KardioKompassi tool developed by the team

interprets personal 10-year risk for ischemic heart disease risk directly to the user. Its interactive features allow the user to explore how lifestyle changes, such as smoking cessation, may affect their overall disease risk.

Overall, the study participants found the KardioKompassi tool to be easy to use and stated that the information they received was useful. Ninety percent of the participants said that the risk information was easy to understand.

Information about personal disease risk impacts health behavior

Nine out of 10 GeneRisk study participants said that the information they received motivated them to take better care of their health. The results related to [lifestyle changes](#) recorded after a follow-up time of 1.5 years were also promising.

A significant proportion of the participants in a high CVD risk took action to reduce their risk during the follow-up. Some risk-reducing behavior, such as weight loss, giving up smoking, visiting a doctor or participating in online health coaching was seen in 43 percent in those with a predicted 10-year CVD risk of more than 10 percent.

The GeneRISK study also assessed the participants' attitudes towards the usefulness and utilization of personal risk information in health care. Seventy-five percent of the participants believed that physicians know how to interpret and utilize genomic [information](#) in their clinical practice. As many as 97 percent stated that they think that their CVD-risk is influenced significantly by genetic factors. Nonetheless, this belief did not discourage them from undertaking actions to improve their [health](#).

"Overall, the participants seemed to have recognized the multifactorial nature of the disease given that the vast majority considered both genomic factors and lifestyle factors as important contributors to their personal risk. Our results encourage an approach where personal disease risk is estimated in a more comprehensive way than is currently done, taking also genetic risk into account," says Professor Samuli Ripatti from the University of Helsinki, who led the study.

More information: Elisabeth Widén et al, How Communicating Polygenic and Clinical Risk for Atherosclerotic Cardiovascular Disease Impacts Health Behavior: an Observational Follow-up Study, *Circulation: Genomic and Precision Medicine* (2022). [DOI: 10.1161/CIRCGEN.121.003459](https://doi.org/10.1161/CIRCGEN.121.003459)

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