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What's Your Risk for Colorectal Cancer? Find Out With This Free Online Tool

Fred Hutch researchers developed the online calculator MyGeneRisk to help users estimate colorectal cancer risk.

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Fred Hutch Cancer Center researchers have developed a new tool that enables anyone to immediately assess their colorectal cancer risk online. Called MyGeneRisk, the free, web-based calculator allows users to input basic health information, including lifestyle habits and genetic data, to estimate their risk.

With colorectal cancer on the rise and now the third most common cancer and the second leading cause of cancer death in the U.S., researchers were interested in creating a tool that could help users initiate conversations with their healthcare providers about their risk and explore early interventions or lifestyle changes to reduce their risk.

"Our aim in creating this tool was to help people engage with information on colorectal cancer and empower them understand their risk in an interactive way," said Ulrike "Riki" Peters, PhD, MPH, genetic epidemiologist in the Fred Hutch Public Health Sciences Division and Fred Hutch 40th Anniversary Endowed Chair.

To assess their risk, users can upload raw genetic data from direct-to-consumer DNA testing services and answer questions about lifestyle, such as diet, exercise and smoking habits. Users without genetic data can simply complete the lifestyle portion of the questionnaire. The tool then generates a report based on the user's genetic and lifestyle information, providing a personalized risk assessment for colorectal cancer and educating users about actions to take based on level of risk, such as lifestyle changes and screenings.

The tool determines a user's risk using a polygenic risk score, which combines the effects of over 1 million genetic variants associated with colorectal cancer risk into a single score.

"We collaborated with researchers around the world, bringing together the largest genetic dataset for colorectal cancer to date, including over 100,000 participants with colorectal cancer and 150,000 control participants," said Li Hsu, PhD, a biostatistician in Fred Hutch's Public Health Sciences Division. "Our risk prediction model integrates that robust genetic data with lifestyle and environmental factors using machine-learning approaches."

To ensure data safety and security, MyGeneRisk intakes user data to create a personalized risk score, allows the user to download the result, then deletes the user's genetic and lifestyle information. The tool does not ask the user's name, email address or phone number, and does not store or share the data provided.

"Data security was one of our top considerations when developing MyGeneRisk. To maximize protection of individual information, once the calculation of a user's risk score is completed, the tool immediately deletes the information and does not store the results," said Robert Steinfelder, PhD, a member of Dr. Peters' team who developed the tool's underlying architecture.

With MyGeneRisk now launched for colorectal cancer, the research team plans to expand the tool for other cancers and incorporate rare genetic mutations to further enhance risk prediction.

"Our team is eager to explore how we can continue to build upon this tremendous work and help empower more people to know their cancer risk and the steps they can take to improve their health," said Peters.

Visit the site at mygenerisk-colon.fredhutch.org.

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