Leibniz Institute
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New lifestyle-based prediction tool estimates individual colorectal cancer risk

Bremen, Germany – The new LifeCRCscore provides individuals a simple method to estimate their 10-year risk of developing colorectal cancer. This could also prove useful for physicians to estimate their patients risk. The tool is based on age, anthropometry and several lifestyle habits and can also be used to provide tips for incorporating healthy habits into daily lives. It was developed by a team around Prof. Dr. Krasimira Aleksandrova, deputy head of the Department of Epidemiological Methods and Etiological Research at the Leibniz Institute for Prevention Research and Epidemiology – BIPS.

Colorectal cancer accounted for over 1.8 million new cases or 10 per cent of all new cases of cancer worldwide in 2018. It is one of the most common cancers. Worryingly, the global burden of colorectal cancer is expected to rise by 60 per cent reaching 2.2 million new cases and 1.1 million deaths in 2030, with European countries ranking highest. In recent years the rates are increasing especially in younger individuals.

Nutrition and lifestyle have been long established as risk factors for colorectal cancer. Modifiable behaviors such as smoking, diet, excess alcohol consumption, physical inactivity, as well as obesity and weight gain can increase the long-term risk of a person to develop colorectal cancer. Therefore, so called lifestyle-based risk models may aid the identification of persons with a high risk, guide referral to screening and motivate behavior change. The team around Prof. Aleksandrova therefore set out to develop and validate a lifestyle-based risk prediction algorithm for colorectal cancer.

The study was conducted in close cooperation with the International Agency for Research on Cancer (IARC) and other collaborators in the EPIC study. Their results have now been published in the journal BMC Medicine.

The model was developed using health data from 255,482 participants in the European Prospective Investigation into Cancer and Nutrition (EPIC) study, who were free of cancer in 1992-2000 and were followed for up to 15 years. The model was additionally validated in a sample of 74,403 participants. During the study period, there were 3645 and 981 cases of colorectal cancer in the development and validation samples.

LiFeCRC score

„One goal of this research was to help individuals estimate their own risk for colorectal cancer and base lifestyle choices on this knowledge“, explains Prof. Aleksandrova. She adds: „This tool represents the first time that data from a large-scale, well-conducted European cohort study were used to develop an easy-to-use colorectal cancer prevention tool. The model takes into account individual age, waist circumference and height, as well as critical diet and lifestyle factors that can influence a person’s risk of developing colorectal cancer in the next 10 years such as daily alcohol con-

sumption, smoking status, physical (in)activity and dietary intakes of vegetables, dairy products, processed meat and sugar and confectionary."

„Currently, the target population for colorectal cancer screening is mainly selected based on age alone", says Prof. Aleksandrova. „Although age is undoubtedly an important predictor of colorectal cancer as shown in our data, information on modifiable lifestyle factors allows provision of preventive health recommendations for individuals at risk. Despite being one of the leading causes of cancer morbidity and mortality, colorectal cancer is largely preventable. We hope that our model can contribute to this through motivating lifestyle change at the individual level."

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