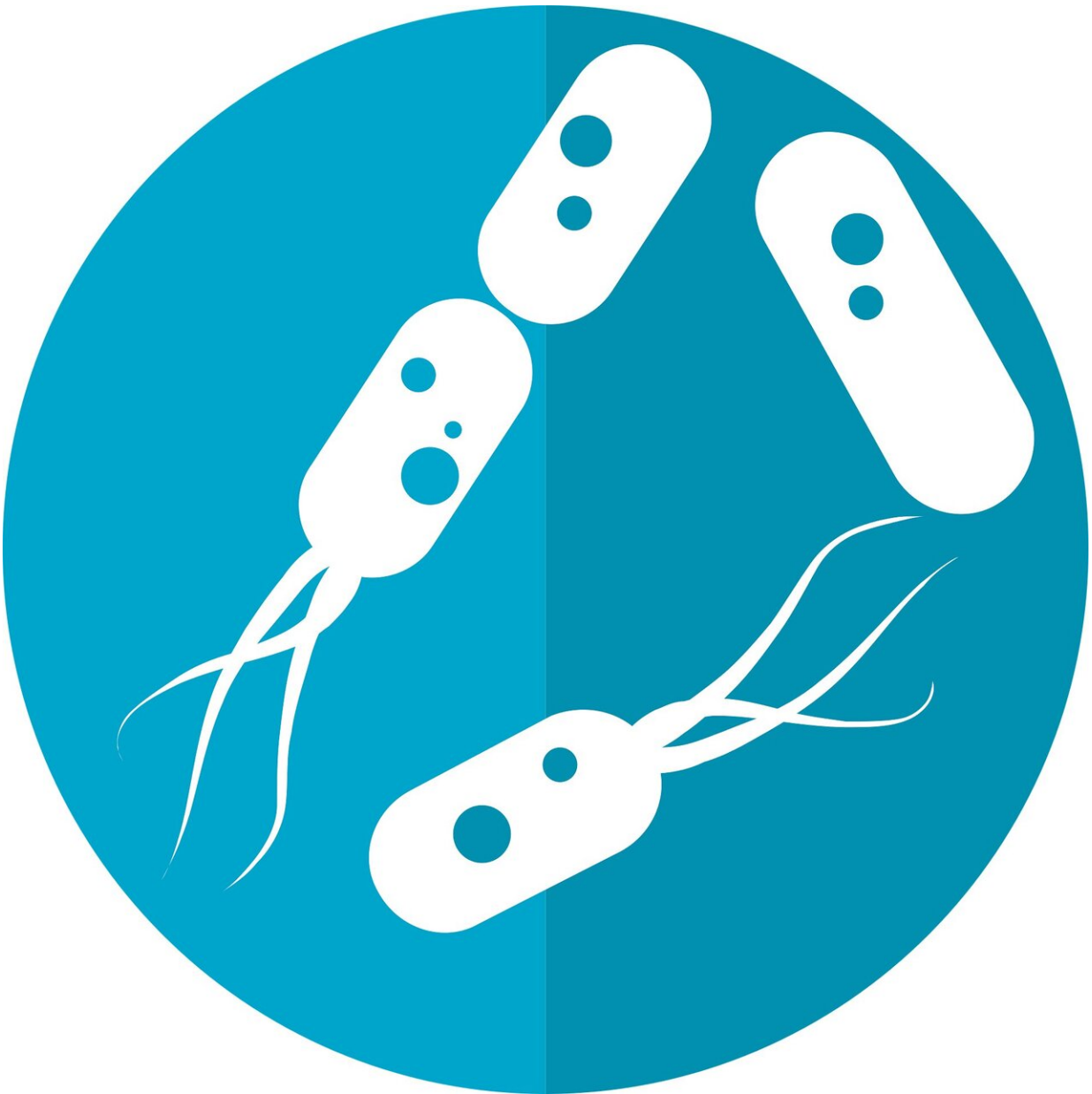


Gut microbes could unlock the secret to healthy ageing

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Bacteria and other microorganisms in the digestive tract are linked with dozens of health conditions including high blood pressure, high blood lipids, and body mass index (BMI) according to research presented today at ESC Congress 2020.

"Our study indicates that microbiota might have an important role in maintaining health and could help us develop novel treatments," said study author Dr. Hilde Groot of University Medical Centre Groningen, the Netherlands.

The human [gut microbiome](#) is the totality of microorganisms (generally bacteria and single-celled organisms called archaea) and their collective genetic material present in the digestive tract. Small-scale studies have suggested a link between the gut [microbiome](#) and individual diseases.

This study, for the first time, investigated multiple diseases and other traits in one cohort—revealing the staggering extent to which the microbiome influences sickness and health. The analysis used [genetic data](#) as a proxy for microbiome composition.

Dr. Groot explained: "Previous research has shown that the [human gut microbiome](#) composition could be partially explained by genetic variants. So, instead of directly measuring the make-up of the microbiome, we used genetic alterations to estimate its composition."

The study included 422,417 unrelated individuals in the UK Biobank who had undergone genotyping to identify their genetic make-up. Information was also collected on a wide range of diseases and other characteristics including BMI and blood pressure. The average age of

participants was 57 years and 54% were women.

The researchers found that higher levels of eleven bacteria (estimated from genetic data) were associated with a total of 28 health and [disease](#) outcomes. These included [chronic obstructive pulmonary disease](#) (COPD), atopy (a genetic tendency to develop allergic diseases like asthma and eczema), frequency of alcohol intake, [high blood pressure](#), high blood lipids, and BMI.

To take one example, higher levels of the genus Ruminococcus were linked with increased risk of high blood pressure.

Regarding [alcohol consumption](#), Dr. Groot said: "What we eat and drink is connected to microbiome content, so we studied the links with meat, caffeine, and alcohol. We observed a relationship between raised levels of Methanobacterium and drinking alcohol more often. It is important to stress that this is an association, not a causal relation, and more research is needed."

A real strength of the study was conducting a broad analysis in the same group of people. Dr. Groot said: "Considering that the results were observed in one cohort, this cautiously supports the notion that microbiota and the substances they produce (called metabolites) provide links between numerous diseases and conditions. The findings may help identify common pathways. Nevertheless, more research (for example in other cohorts) is needed to validate our findings."

She concluded: "Follow-up studies are required to study causality before giving concrete advice to the public and health professionals. This study provides clues where to go."

More information: Abstract title: Human genetic determinants of the gut microbiome and their associations with health and disease: A

phenome-wide association study.

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