

Epigenetic markers predict mortality better than biological age

Chemical changes to DNA that accumulate over a lifetime amount to a kind of biological clock. By analyzing these changes, scientists based at the University of Edinburgh found that if “biological clock age” exceeds actual chronological age, earlier death is more likely.

The chemical changes that the scientists used to predict people’s ages are epigenetic in nature. That is, they do not alter DNA’s underlying code of base sequence. Rather, they consist of methylation marks, which are characterized by the addition of a methyl group to a cytosine nucleotide primarily at cytosine-phosphate-guanine (CpG) sites.

DNA methylation, which alters the degree to which genes are active, plays an essential role in development, and it may vary over the course of one’s life. For example, the degree to which DNA is methylated may depend on lifestyle and environmental factors, as well as genetic variation.

Although various factors contribute to variations in DNA methylation, the University of Edinburgh researchers, in collaboration with researchers in Australia and the United States, were able to conclude that “DNA methylation-derived measures of accelerated ageing are heritable traits that predict mortality independently of health status, lifestyle factors, and known genetic factors.”

This finding emerged from a study of four independent cohorts of older people. Overall, nearly 5,000 people had their biological clock ages, or DNA methylation ages, determined from blood samples. Follow-up periods lasted as long as 14 years.

Read full, original article: [Is Your DNA Clock Running Fast? You May Die Sooner Than Later](#)