The test that can predict cancer 13 years before it develops

By Sarah Knapton

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Would you want to know if you will develop cancer in the future? Photo / 123RF
A test that can predict with 100 per cent accuracy whether someone will develop cancer up to 13 years in the future has been devised by scientists.

Harvard and Northwestern University discovered that tiny but significant changes took place in the body more than a decade before cancer was diagnosed. Protective caps on the ends of chromosomes, which prevent DNA damage, had significantly more wear and tear in those who went on to develop cancer. In fact, they looked like they belonged to a person who was 15 years older.

The caps, known as telomeres, were much shorter than they should have been and continued to get shorter until around four years before the cancer developed, when they suddenly stopped shrinking.

"Understanding this pattern of telomere growth may mean it can be a predictive biomarker for cancer," said Dr Lifang Hou, the lead study author and a professor of preventive medicine at Northwestern University.

"Because we saw a strong relationship in the pattern across a wide variety of cancers, with the right testing these procedures could be used eventually to diagnose a wide variety of cancers."

Although many people may not wish to know that they will develop cancer in the future, it could allow them to make lifestyle changes to lower their risk. Stanford University is also looking at how telomeres can be regrown.

Insurance companies warned that such a test could push up policy premiums.

Matt Sanders, who is in charge of protection insurance products at GoCompare, said people with such a diagnosis could be priced out of the insurance market. "If this test showed 100 per cent probability over a certain number of years then it could affect premiums. It would be the equivalent of living in a high theft area for someone looking for home insurance," he said.

In the new study, scientists took multiple measurements of telomeres over a 13-year period in 792 people, 135 of whom were eventually diagnosed with different types of cancer, including prostate, skin, lung and leukaemia. Initially, scientists discovered that telomeres had aged much faster in individuals who were unwittingly developing cancer. But then they found the accelerated ageing process stopped three to four years before the cancer diagnosis. "We found cancer has hijacked the telomere shortening in order to flourish in the body," said Dr Hou.

The research was published in the online journal *Ebiomedicine*.

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