

Hormone discovery could predict long-term health of men

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Researchers have discovered the vital role of a hormone, which develops in men during puberty, in providing an early prediction of whether they could develop certain diseases in later life.

Scientists from the University of Nottingham have discovered that the novel insulin-like peptide hormone, called INSL3, is consistent over long periods of time and is an important early biomarker for prediction of age-linked disease. Their latest findings have been published today in *Frontiers in Endocrinology*.

INSL3 is made by the same cells in the testes that make testosterone, but unlike testosterone, which fluctuates throughout a man's life, INSL3 remains consistent, with the level at puberty remaining largely the same throughout a man's life, decreasing only slightly into old age. This makes it the first clear and reliable predictive biomarker of age-related morbidity as compared to any other measurable parameters.

The results show that the level of INSL3 in blood correlates with a range of age-related illnesses, such as bone weakness, sexual dysfunction, diabetes, and cardiovascular disease.

The discovery of the consistent nature of this hormone is very significant as it means that a man with high INSL3 when young will still have high INSL3 when he is older. But someone with low INSL3 already at a young age will have low INSL3 when he is older, making him more likely to acquire typical age-related illnesses. This opens up exciting possibilities for predicting age-related illnesses and finding ways to prevent the onset of these diseases with early intervention.

The research was led by Professor Ravinder Anand-Ivell and Professor Richard Ivell, and is the latest of three recent studies into this hormone. Professor Ravinder Anand-Ivell explains, "The holy grail of aging research is to reduce the fitness gap that appears as people age.

Understanding why some people are more likely to develop disability and disease as they age is vital so that interventions can be found to ensure people not only live a [long life](#) but also a [healthy life](#) as they age. Our hormone discovery is an important step in understanding this and

will pave the way for not only helping people individually but also helping to ease the care crisis we face as a society."

The team analyzed [blood samples](#) from 3,000 men from 8 regional centers in north, south, east, and west of Europe, including the UK, with two samples taken four years apart. The results showed that unlike testosterone, INSL3 remains at consistent levels in individuals

The study also showed that the normal male population, even when young and relatively healthy, still shows a wide variation between individuals in the concentration of INSL3 in the blood—almost 10-fold.

Professor Richard Ivell adds, "Now we know the important role this [hormone](#) plays in predicting disease and how it varies amongst men, we are turning our attention to finding out what factors have the most influence on the level of INSL3 in the blood. Preliminary work suggests early life nutrition may play a role, but many other factors, such as genetics or exposure to some environmental endocrine disruptors, may play a part."

More information: The Lydia cell biomarker INSL3 as a predictor of age-related morbidity: Findings from the EMAS cohort, *Frontiers in Endocrinology* (2022). [DOI: 10.3389/fendo.2022.1016107](https://doi.org/10.3389/fendo.2022.1016107)

Provided by University of Nottingham

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