Smart watch backed by Bill Gates will monitor for early signs of dementia

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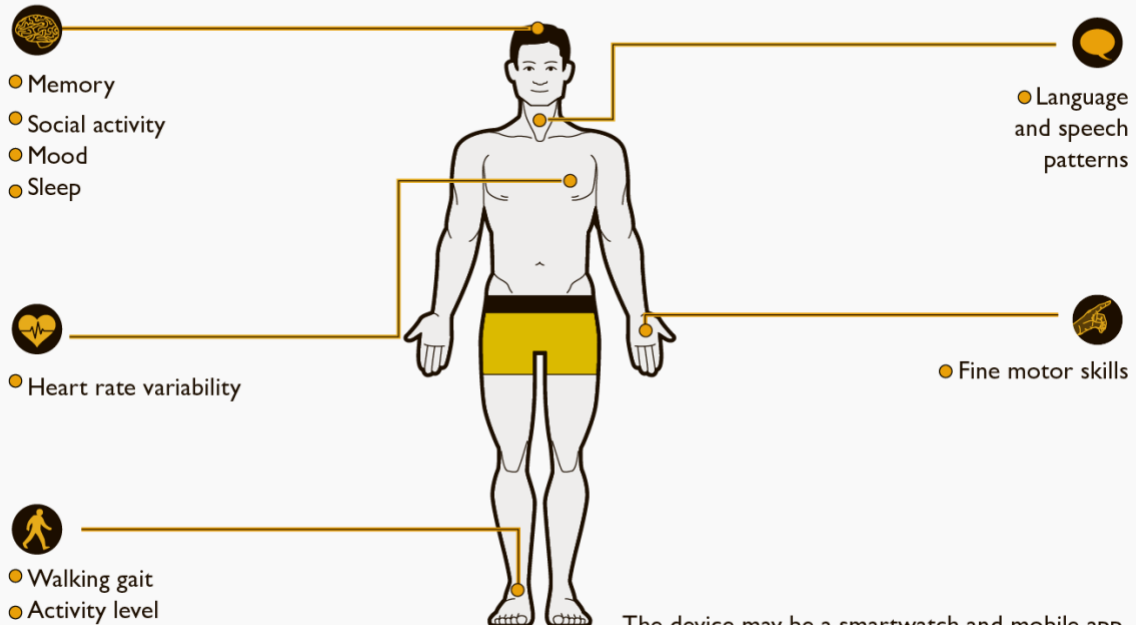**Early intervention could help the 50 million people worldwide who have dementia** ALAMY

A million British people are being recruited to test a device that could "revolutionise" the detection and treatment of dementia, in a £100 million project backed by Bill Gates.

The wrist-worn device will use artificial intelligence to monitor more than 30 indicators, including speech, gait and sleep. Lifestyle changes can slow the progression of dementia if symptoms are caught early.

If trials are successful, the device could be offered on the NHS as part of annual health checks. The trials are part of a multimillion-pound global initiative launched today by Alzheimer's Research UK and funded in part by Mr Gates, the founder of Microsoft.

Keeping tabs

Things they hope to monitor

- Memory
- Social activity
- Mood
- Sleep

- Heart rate variability

- Walking gait
- Activity level

- Language and speech patterns

- Fine motor skills

The device may be a smartwatch and mobile app

Alzheimer's and other forms of dementia develop up to 20 years before symptoms show but are often not diagnosed until extensive damage has occurred. Early intervention could help the 50 million people worldwide who have the condition. Scientists in Britain are analysing the clinical data of up to 10,000 people with dementia who have taken part in studies across the world. The aim is to create "fingerprints" of the disease that could be used to diagnose others.

In three years the prototype will be worn by a million over 40s, recruited as part of the government's Accelerating Detection of Disease programme.

Dementia, which causes memory loss, confusion and personality change, is the leading cause of death in Britain. There are no treatments to slow or stop the brain diseases that cause dementia.

Alzheimer's Research UK is collaborating with leading organisations in clinical and neurodegenerative research and data science, including the Alan Turing Institute, University College London, and Newcastle, Exeter and Cambridge universities.

The initiative aims to secure at least £67 million in the first six years, and up to £100 million by 2030. Initial funds have been donated by Mr Gates and the charitable foundation of Iceland Foods.

Carol Routledge, a director at Alzheimer's Research UK, said: "Developing digital fingerprints that can be detected using phone apps or wearable technologies like smart watches would provide a low-cost approach to identifying those most at risk of disease.

"Identifying the very earliest changes in these diseases would transform research efforts."

Professor Chris Holmes, a director at Oxford's Alan Turing Institute, said: "More accurate and timely detection will enable earlier enrolment for patients on to clinical trials and provide new scientific insight into the initial stages of diseases like Alzheimer's.

"The UK is uniquely placed to undertake this work with its expertise in AI and the clinical sciences, coupled with [the] NHS."

Caroline Dinenage, minister for health and social care, said: "We want to make this the best country in the world to live well with dementia, and early detection and diagnosis is a huge step toward improving the lives of those with the condition." She hoped that one day such "cutting-edge technology" would "stop this disease in its tracks".