

# First trial of Cognition Kit wearables demonstrates effectiveness in measuring mental health

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The neuroscience company Cambridge Cognition Holdings PLC, which develops near patient technologies for the assessment of brain health, has announced results from a new technology feasibility study. The results demonstrate for the first time that consumer grade wearables such as the Apple Watch® and Microsoft Band can be used to accurately measure clinically relevant cognitive performance in everyday life using the Company's new Cognition Kit software.

Mental health conditions are among the leading causes of disability worldwide. With more than 450 million people living with mental illnesses, the cost of treatment and care to global economies will double by 2030 to over \$6 trillion (Source: World Health Organization).

Current methods of brain health assessment rely on infrequent snapshots to characterise impairment and recovery. Such sparse sampling will often miss clinically significant changes, which can impact on a patient's quality of life and limit the ability to accurately measure the effect of intervention and treatment.

Cognition Kit is a wearable software platform developed under a joint venture between Cambridge Cognition and London research agency Ctrl Group to address this growing need. The technology will enable doctors, scientists and patients to better understand and manage day-to-day brain health by measuring the key biological and psychological factors affecting mental performance accurately in real time.

The new study shows for the first time that wearable consumer devices can be used clinically to measure cognitive performance accurately when programmed with the Cognition Kit software.

During the study participants wore a wearable device to monitor their levels of stress and physiological activity using built-in sensors of heart rate, galvanic skin response and skin temperature.

Throughout each day, subjects completed game-like micro tests of cognition on the device to measure attention, memory, mood and reaction speed.

After each cognitive game, subjects reported how they felt by selecting one of six faces to convey their current mood. On June 24th, the day of the EU referendum results in the UK, the researchers observed a significant drop in the general mood of the British participants in the study.

The 30 million data points recorded demonstrate distinct patterns of performance within and across days, allowing a rich picture of a subject's cognitive health to emerge. Cognition Kit thus has the potential to revolutionise brain health treatment at all stages – from patient assessments during the development of disease-modifying interventions to monitoring of patient health.

With drug development companies increasingly being required to demonstrate clinical outcomes-based value of treatments in patients, this Cognition Kit study provides evidence that new technologies could transform healthcare and medical research in a wearable health industry estimated to be worth \$2 billion (Source: Soreon Research Wearable Healthcare Report 2014).

Cambridge Cognition is in discussion with a number of pharmaceutical partners following significant early interest boosted by the results of the study and expects to sign the first Cognition Kit contracts in the near future.

Francesca Cormack, PhD, Director of Research and Innovation, Cambridge Cognition commented

"This proof of concept study demonstrates for the first time that these consumer devices are enabling the rapid and accurate collection of largescale scientific datasets. This not only allows dramatically more detailed knowledge of moment-by-moment brain function but also opens up new possibilities to develop machine learning algorithms that will enable earlier detection and intervention in brain disorders."

Ben Fehnert, Co-founder of Ctrl Group and Director of Cognition Kit commented

“Simple, regular interaction with peoples own phones and wearable devices is key to helping understand daily and longer term fluctuations in cognitive function. This study is the first demonstration of how Cognition Kit software can build a rich picture of brain health using peoples own devices during their daily lives.”

### **About Cognition Kit**

Cognition Kit is a joint venture between Cambridge Cognition and Ctrl Group formed in 2016 to develop digital health tools on mobile and wearable devices. Cognition Kit software takes research out of the lab and into daily life, enabling doctors, scientists and the public to better understand and manage day-to-day brain health.

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Source:

[www.cognitionkit.com](http://www.cognitionkit.com)

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