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Research finds hope for more accurate diagnosis of memory problems

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More accurate tests could be created to diagnose diseases such as Alzheimer's or memory problems stemming from head injuries, leading to earlier intervention, according to new findings from the University of East Anglia (UEA).

The research involved investigating the components of memory using a combination of tests and neuroimaging – a method that could be used to create a diagnostic tool for distinguishing between different types of dementia, memory damage from stroke or forms of amnesia caused by head trauma.

Dr Louis Renoult, a lecturer in UEA's School of Psychology, said: "We are creating a new model of how we look at memory that's more nuanced and gives us a better picture of how memories, particularly long-term memories, are imprinted."

The findings, published today in The *Journal of Cognitive Neuroscience*, are part of a project led by Dr Renoult with contributions from academics at the University of Ottawa, the State University of New York College at Old Westbury, and the Rotman Research Institute, Baycrest, Toronto.

Dr Renoult said: "If patients lose semantic memory, they struggle with knowledge of everyday objects in the world, and have trouble communicating.

"But if you provide some personal application to those objects – for example showing a dog to someone who kept a dog as a pet – the patient may demonstrate they've retained memory of that object.

"The research shows this retained memory performance may result from the brain's automatic activation of personal episodes by related knowledge.

"We haven't previously been aware of this intermediate form of memory, which combines semantic knowledge with autobiographical, or 'episodic' memory.

"The hope is that advanced methods could be developed to test this newly discovered intermediate form of memory, leading to better approaches to rehabilitation."

More information: "Autobiographically Significant Concepts: More Episodic than Semantic in Nature? An Electrophysiological Investigation of Overlapping Types of Memory." Renoult L, Davidson PS, Schmitz E, Park L, Campbell K, Moscovitch M, Levine B. *J Cogn Neurosci*. 2014 Jul 25:1-16. [Epub ahead of print]. www.ncbi.nlm.nih.gov/pubmed/25061931

Provided by University of East Anglia

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