When you can recite a poem but not remember who asked you to learn it a few days earlier

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Memory is not a single process but is made up of several sub-processes relying on different areas of the brain. Episodic memory, the ability to remember specific events such as what you did yesterday, is known to be vulnerable to brain damage involving the hippocampus. The question is, what happens when damage to the hippocampus occurs very early in life? In a case study published in the September 2011 issue of Elsevier's *Cortex*, clinical neuropsychologists have reported that a child can develop normally despite severe damage to the hippocampus resulting from lack of oxygen in the first days of life. This supports the theory that the different aspects of memory rely on distinct areas of the brain.

Dr. Claire Bindschaedler and Dr. Claire Peter-Favre from the Neuropsychology Unit of Lausanne's University Hospital in Switzerland, together with their colleagues Prof. Philippe Maeder, Dr. Thérèse Hirsbrunner and Prof. Stephanie Clarke, investigated the case of a patient known as VJ, one of the few cases of developmental amnesia reported in the scientific literature. Repeated neuropsychological testing showed that VJ cannot remember being read a story or shown a picture half an hour earlier, or at least remembers little of it. At the same time however, VJ does do well on tests of general knowledge, also called semantic memory. In fact, when tested regularly over his childhood and teenage years, VJ was found to develop at the same rate as other children in areas of general knowledge and general intelligence.

Analysing MRI scans of VJ's brain, Dr. Philippe Maeder found very severe atrophy (wasting away of brain tissue) in the hippocampi, while the adjacent area of the brain, known as the perirhinal cortex, was relatively spared from damage. This latter area is hypothesised to be important for the acquisition of semantic memory. These findings lend support to the idea that episodic memory (but not semantic memory) depends on the hippocampus.

More information: The article is "Growing up with bilateral hippocampal atrophy: From childhood to teenage" by Claire Bindschaedler, Claire Peter-Favre, Philippe Maeder, Thérèse Hirsbrunner, Stephanie Clarke, and appears in *Cortex*, Volume 47, Issue 8 (September 2011)

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