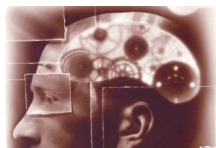


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By: Stefan Anitei, Science Editor



[Too Much Memory Makes You Forgetful](#)

Working memory is inhibited by neurogenesis

Indeed, too much of anything, even if it can seem good on one side, can occult another side. A new investigation made at Columbia University Medical Center was able to explain why people possessing a vast amount of scientific knowledge, recalling historical dates or long-ago events may find it hard to recall what they had today for lunch. Paradoxically, researchers found that displaying too much memory can make it harder to filter out data and rises the time it takes for new short-term memories to be processed and stored.

Neurogenesis is the phenomenon of growing new neurons in the brain. The researchers found that the absence of neurogenesis in the hippocampus - the brain region responsible for learning and memory - increases working memory, a type of short-term memory linked to the ability to store task-specific information for a limited time frame, like for example remembering where you parked your car in a huge mall lot or a phone number for few seconds before writing it down. As working memory is extremely influenced by information previously stuck in memory; losing such memories could therefore be useful for accomplishing everyday working memory tasks, like balancing your check book or decision making. "We were surprised to find that halting neurogenesis caused an improvement of working memory, which suggests that too much memory is not always a good thing, and that forgetting is important for normal cognition and behavior," said first author Dr. Gaël Malleret, a research scientist at the Center for Neurobiology and Behavior at Columbia University Medical Center. "Altogether, our findings suggest that new neurons in the hippocampus have different, and in some cases, opposite roles in distinct types of memory storage, and that excess neurogenesis can be detrimental to some memory processes. We believe these findings have important implications for diverse disciplines ranging from medicine to artificial intelligence," said Malleret. "In medicine, these findings have significant implications for possible therapeutic interventions to improve memory - a careful balance of neurogenesis would need to be struck to improve memory without overwhelming it with too much activity." "Neurogenesis in the hippocampus, and especially, in the dentate gyrus region, was regarded as crucial for a good memory. Previous research made by the same team had revealed that decreased neurogenesis inflicts long-term memory deficits. The team had hypothesized since then that the growth of too many new neurons may actually harm the working memory. They experimented on two mice groups, one of which included individuals with suppressed neurogenesis in the hippocampus regions. When the mice were put to locate food within specific areas of a maze, those with impaired neurogenesis made more correct choices and discovered the food quicker. "In our world, we are constantly bombarded by new information so we are constantly filtering -and if we did not do this, we would be overwhelmed," said Malleret. "Our research indicates that those with better working memory may have fewer new neurons being developed in their hippocampus, which helps them forget old and useless information sooner and enable them to take in new information faster."