

Adult hippocampal neurogenesis is abundant in neurologically healthy subjects and drops sharply in Alzheimer's disease patients.

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Memory impairment in Alzheimer's Disease (AD) can be attributed to a significant decline in the functioning of the hippocampal formation, a brain region crucial for learning and memory. Moreover, this structure hosts one of the most unique phenomena of the adult mammalian brain, namely the addition of new neurons throughout lifetime. While synapse loss and consequent death of mature neurons may be responsible for much of the hippocampal malfunctioning in AD, studies in mice suggest that the disease could also target the generation of new neurons – or adult hippocampal neurogenesis (AHN). Nonetheless, direct evidence of AHN in humans has remained elusive. In this work, we revisited the occurrence of continued neurogenesis in the human hippocampus of aged healthy subjects and AD patients, using brain material obtained under tightly controlled conditions and applying state-of-the-art tissue processing methods. Our data evidence that AHN is a robust phenomenon in the human brain, and points to impaired neurogenesis as a potentially relevant mechanism underlying AD that may be amenable to novel therapeutic strategies.