

Abstract

Two brain structures in particular - the hippocampus and the prefrontal cortex (PFC) - are essential for episodic memory, the ability to recall personal experiences with details of time, place, and event. It is their developmental changes that contribute significantly to the progressive development of episodic memory. The hippocampus is a complex structure composed of several subregions that is crucial to the function of the neural basis of episodic memory. Findings show that both neuronal changes within the hippocampus and changes in its volume and the volume of hippocampal subfields influence episodic memory. As in the hippocampus, changes in the prefrontal cortex also affect episodic memory, with the PFC being among the last regions to fully mature and affecting the accuracy of recalling contextual details of episodic memories. The transfer of information between brain regions is also crucial for episodic memories, and is provided by white matter connections (fornix, cingulum, uncinate fasciculus). This thesis summarizes the knowledge about the structures and mechanisms involved in the development of episodic memory and mentions the factors that influence its development.

Keywords: episodic memory, ontogeny, hippocampus, prefrontal cortex, synaptic plasticity