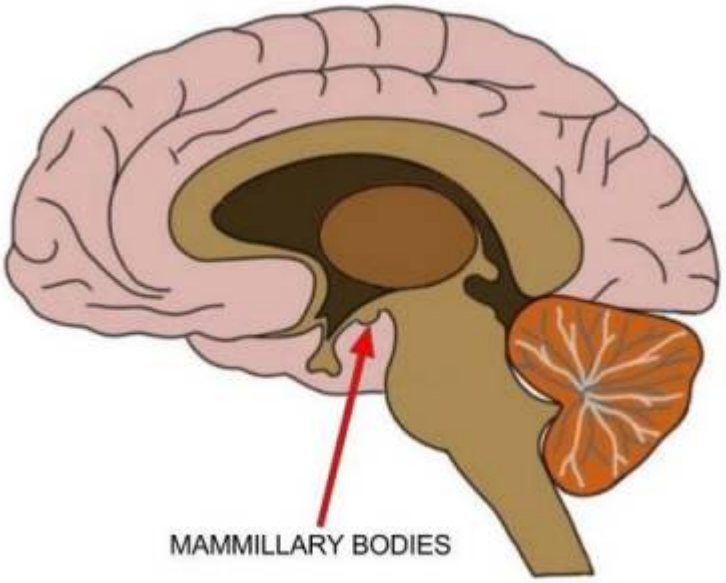
Mammillary bodies



The mammillary bodies (mamillary bodies) are a pair of small round bodies, located on the undersurface of the brain, that, as part of the diencephalon form part of the limbic system. They are located at the ends of the anterior arches of the fornix.

They consist of two groups of nuclei, the medial mammillary nuclei and the lateral mammillary nuclei.

Neuroanatomists have often categorized the mammillary bodies as part of the hypothalamus.

They are connected to other parts of the brain (as shown in the schematic, below left), and act as a relay for impulses coming from the amygdalae and hippocampi, via the mamillo-thalamic tract to the thalamus.

This circuit, from amygdalae to mammillary bodies, and then on to the thalamus, is part of the larger Papez circuit.

Mammillary bodies, and their projections to the anterior thalamus via the mammillothalamic tract, are important for recollective memory.

The medial mammillary nucleus is mainly responsible for the spatial memory deficits that are seen in rats with mammillary body lesions.

They are believed to add the element of smell to memories.

Damage to the mammillary bodies due to thiamine deficiency is implied in pathogenesis of Wernicke-Korsakoff syndrome. Symptoms include impaired memory, also called anterograde amnesia, suggesting that the mammillary bodies may be important for memory. Lesions of the medial dorsal and anterior nuclei of the thalami and lesions of the mammillary bodies are commonly involved in amnesic syndromes in humans.

Mammillary body atrophy is present in a number of other conditions, such as colloid cysts in the third ventricle, Alzheimer’s disease, schizophrenia, heart failure, and sleep apnea. In spite of this the exact function of the mammillary bodies is still not clear.

The tuber cinereum is a hollow eminence of gray matter situated between the mammillary bodys and the optic chiasm. The tuber cinereum is part of the hypothalamus.

Craniopharyngiomas frequently grow from remnants of the Rathke pouch, which is located on the cisternal surface of the hypothalamic region. These lesions can also extend elsewhere in the infundibulohypophyseal axis.

These tumors can also grow from the infundibulum or tuber cinereum on the floor of the third ventricle, developing exclusively into the third ventricle.