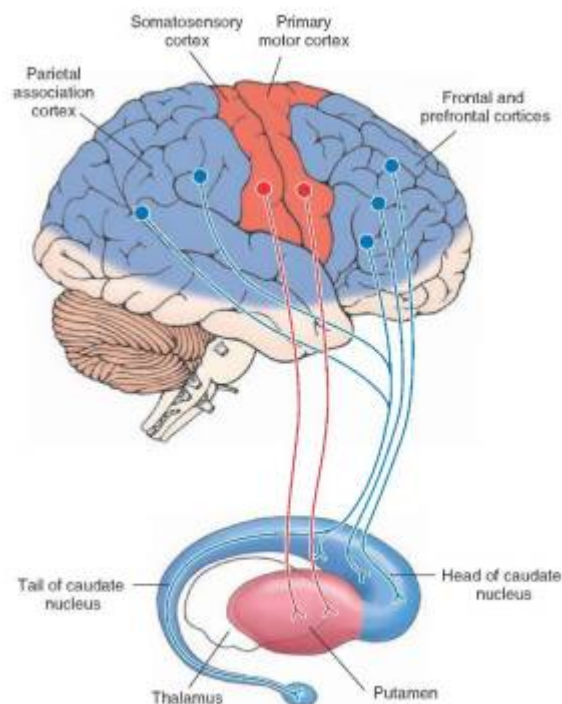


Basal ganglia



The basal [ganglia](#) (or basal nuclei) comprises multiple [subcortical nuclei](#), of varied origin, in the [brain](#), which are situated at the base of the [forebrain](#).

Components

The main components of the basal ganglia are:

[Striatum](#) ([caudate nucleus](#) and [putamen](#))

[Globus pallidus](#)

[Substantia nigra](#)

[Nucleus accumbens](#)

[Subthalamic nucleus](#)

[Thalamus](#)

Interconnections

Basal ganglia are strongly interconnected with the [cerebral cortex](#), [thalamus](#), and [brainstem](#), as well as several other brain areas. The basal ganglia is associated with a variety of functions including: control of voluntary motor movements, procedural learning, routine behaviors or “habits” such as bruxism, eye movements, cognition and emotion.

Over the past years, research into the neurophysiology of the basal ganglia has provided new insights into the pathophysiology of [movement disorders](#). The presence of pathological oscillations at specific frequencies has been linked to different signs and symptoms in PD and dystonia, suggesting a new model to explain basal ganglia dysfunction. These advances occurred in parallel with improvements in imaging and neurosurgical techniques, both of which having facilitated the more widespread use of DBS to modulate dysfunctional circuits. High-frequency stimulation is thought to disrupt pathological activity in the motor cortex/basal ganglia network; however, it is not easy to explain all of its effects based only on changes in network oscillations ¹⁾.

Pathology

[Basal ganglia hemorrhage](#).

[Basal ganglia infarction](#).

[Basal ganglia tumor](#).

a) anoxicemic [anoxia](#) severely affects [globus pallidus](#)

b) anemic anoxia affects the [caudate nucleus](#) and [putamen](#)

¹⁾

Guridi J, Alegre M. Oscillatory activity in the basal ganglia and deep brain stimulation. *Mov Disord*. 2016 Aug 22. doi: 10.1002/mds.26714. [Epub ahead of print] Review. PubMed PMID: 27548437.

From:

<https://neurosurgerywiki.com/wiki/> - **Neurosurgery Wiki**

Permanent link:

https://neurosurgerywiki.com/wiki/doku.php?id=basal_ganglia

Last update: **2024/06/07 03:00**

