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## Thalamic Gating

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## Synonyms

[Filtering](#); [Gating](#); [Inhibition](#)

## Definition

The thalamic gating mechanism is part of a complex cortico-subcortical network that collates sensory information from the brain and then selectively filters information that is relayed to the frontal lobes.

## Current Knowledge

Thalamic disruption is often used to explain impaired executive behavior. Across animal and human studies, the thalamus is thought to have a major regulatory role in the cortical synchronization of behavior via the basal ganglia (Benarroch 2008; Steriade and Pare 2007). Several

researchers have speculated that the inhibitory actions of the basal ganglia serve as a selective gating mechanism that updates and directs operations that are then fed back to the frontal lobes through the thalamus (Beiser and Houk 1998; Frank et al. 2001). When these structures are damaged, the frontal lobes cannot effectively function to filter information for an appropriate response.

## Cross-References

- ▶ [Anterior Cingulate](#)
- ▶ [Frontal Lobe Syndrome](#)
- ▶ [Thalamus](#)

## References and Readings

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