Projection Pathways

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Definition

Fiber bundles in the brain that interconnect cortical with subcortical structures. These contrast with the commissures and association pathways which connect the two hemispheres and different cortical areas within the same hemisphere, respectively. While some corticobulbar or corticospinal projection pathways may decussate once they reach the brainstem, these pathways largely remain ipsilateral within the brain itself. Among the most prominent of these pathways are the internal, external and extreme capsules, and the optic radiations. The capsules provide a means for the cortex to influence the basal ganglia, the thalamus, and other subcortical structures. The

internal capsule, the largest of the three, also contains major corticospinal, corticopontine, and other corticobulbar fibers which allow the cortex to control movements of the face, eyes, head, trunk, and limbs, as well as supply information regarding its intentions to the cerebellum. At the level of the midbrain these latter tracts are collectively referred to as the *cerebral peduncles* or *crus cerebri*. The internal capsule (ascending portion) also provides a pathway for the thalamus to relay sensory, basal ganglia, and cerebellar feedback to the cortex. One of the more prominent thalamocortical pathways is the optic radiations which transmit visual input from the lateral geniculates to the primary visual cortex.

Cross-References

- ▶ [Association Pathways](#)
- ▶ [Commissures](#)
- ▶ [Internal Capsule](#)
- ▶ [Optic Radiations](#)