# Structures and Functions of the Major Components of the Brain

<table>
<thead>
<tr>
<th>BRAIN COMPONENT</th>
<th>MAJOR FUNCTIONS</th>
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| **Cerebral cortex** | 1. Sensory perception  
2. Voluntary control of movement  
3. Language  
4. Personality traits  
5. Sophisticated mental events, such as thinking, memory, decision making, creativity, and self-consciousness |
| **Basal nuclei** | 1. Inhibition of muscle tone  
2. Coordination of slow, sustained movements  
3. Suppression of useless patterns of movement |
| **Thalamus** | 1. Relay station for all synaptic input  
2. Crude awareness of sensation  
3. Some degree of consciousness  
4. Role in motor control |
| **Hypothalamus** | 1. Regulation of many homeostatic functions, such as temperature control, thirst, urine output, and food intake  
2. Important link between nervous and endocrine systems  
3. Extensive involvement with emotion and basic behavioral patterns |
| **Cerebellum** | 1. Maintenance of balance  
2. Enhancement of muscle tone  
3. Coordination and planning of skilled voluntary muscle activity |
| **Brain stem** (midbrain, pons, and medulla) | 1. Origin of majority of peripheral cranial nerves  
2. Cardiovascular, respiratory, and digestive control centers  
3. Regulation of muscle reflexes involved with equilibrium and posture  
4. Reception and integration of all synaptic input from spinal cord, arousal and activation of cerebral cortex  
5. Sleep centers |