

Diencephalon, Brainstem, and Cerebellum

1. 3 parts of the diencephalon.
2. Role of thalamus
3. Role of epithalamus
4. Roles of hypothalamus
5. Functions of cerebellum
6. 3 parts of brainstem
7. Two parts of the midbrain
8. Disease associated with death of cells in substantia nigra
9. One role of the colliculi
10. 2 functions of pons
11. Define Hering-Breuer reflex
12. 5 functions of Medulla oblongata

Answers:

Diencephalon, Brainstem, and Cerebellum

1. 3 parts of the diencephalon.
thalamus, hypothalamus, epithalamus
2. Role of thalamus:
Relay station for all information traveling between the cerebrum and the brainstem.
3. Role of epithalamus:
pineal gland is located here and it releases melatonin in the dark. Melatonin makes us sleepy.
4. Roles of hypothalamus
 - **The hypothalamus controls the pituitary gland. Since the pituitary gland releases 9 hormones, so the hypothalamus ultimately regulates release of:**
 - **reproductive hormones**
 - **growth and repair hormones**
 - **stress hormones**
 - **metabolism/fat-burning hormones**
 - **water balance/thirst hormones**
 - **Regulates body's temperature (turns up the "thermostat" during infections, resulting in fever)**
 - **Can modulate the medulla oblongata's control of HR, blood pressure and breathing**
 - **sleep cycles**
 - **connected to the limbic system via the fornix, so emotions affect control of all these areas and help explain psychosomatic illness**
5. Functions of cerebellum
coordination of fine motor skills; spatial skills; puzzle solving
6. 3 parts of brainstem
midbrain, pons, medulla oblongata
7. Two parts of the midbrain
cerebral peduncle
corpora quadrigemina (AKA superior and inferior colliculi)
8. Disease associated with death of cells in substantia nigra
Parkinson's disease
9. One role of the superior and inferior colliculi
eye and hearing reflexes that help us move away from quickly approaching objects
10. 2 functions of pons
"bridge" between cerebellum and cerebrum; and between cerebrum and spinal cord
helps regulate breathing
11. Define Hering-Breuer reflex
Reflex that prevents the lungs from overinflating
12. 5 functions of Medulla oblongata
 1. **Controls HR: cardioacceleratory and cardioinhibitory centers**
 2. **Vasomotor centers: control blood vessel constriction and therefore BP**
 3. **Lack of blood/brain barrier allows sampling of toxins in blood: vomiting reflex**
 4. **coughing/sneezing reflexes**
 5. **deliver motor output to spinal cord—the pyramidal tracts cross here, causing the right side of the precentral gyrus to ultimately control the left side of the body; and the left side of the precentral gyrus to ultimately control the right side of the body.**