

Brain Structures and Their Functions

Page	System or part	Function	Misc.
p. 72	Brainstem	Responsible for automatic survival functions	
	Spinal cord	Controls simple reflexes	Pathway for neural fibers to & from brain
p.	Medulla	Controls/regulates heartbeat & breathing	
p.	Reticular formation	Helps controls arousal; responds to change in monotony	
p. 73	Thalamus	Relays sensory information Switchboard between sensory neurons & higher brain regions	Deal w/ sight, hearing, taste, touch Transmits replies from higher brain to cerebellum & medulla
p. 73	Cerebellum	Influences memory & learning Coordinates voluntary movement & balance	Little brain; extends from the rear of the brainstem
p. 74	The Limbic System	Links emotion (Fear/anger) & basic motives (Sex/food)	
p. 74	Hippocampus	Memory [remembering & learning]	
p. 74	Amygdala	Emotion, such as aggression, rage & fear	Kliver & Bucy lesioned monkey's amygdala
p. 75	Hypothalamus	Regulates thirst, hunger, body temperature & sexual behavior (hormonal release & monitors) Controls & regulates maintenance functions, i.e., eating Helps keep the bodies internal steady Linked to emotion & reward center	Helps govern endocrine system; controls & monitors glands, such as the Pituitary gland Controls hunger drive for more or less Linked to emotion & reward; Olds & Milner found the pleasure reward center
p. .95	Pituitary gland	Influences hormonal releases by other glands Master endocrine gland	Part of the endocrine system, not the brain; controlled by Hypothalamus
p. 76-	Cerebral Cortex Associative areas	Learning & thinking, enabling increased adaptability Integrates higher level thinking	Ultimate control & info processing center Interprets, integrates & acts on info processed by sensory areas
p. 77	Frontal lobe	Speaking, muscle movements; making plans & judgments; Decision making & attention feels remorse, learn moral behavior	Behind forehead; controls motor cortex
p.	Prefrontal cortex	critical role in how the human brain processes emotions.	A region at the front of the right hemisphere
p.	Frontal gyrus	Moves body parts/muscles; sends messages out to the body; controls voluntary movements	
p. 78	Motor cortex	Produces speech through its control of the motor cortex; contained in left frontal lobe, left hemisphere;	Runs along the fissure just behind the frontal lobe, from ear to ear Damage disrupts speaking, but could still sing & comprehend speech
p.82-3	Broca's Area		
p. 77	Temporal lobe	Auditory	Just above ears
	Auditory cortex	Used for hearing & processing sounds	In the left hemisphere, left temporal lobe
p. 80	Wernicke's Area	Processes speech sounds from others; language comprehension; auditory code received & understood	Damage disrupts language comprehension
p.82-3			
p. 77	Occipital lobe	Includes visual areas; receives visual info from opposite visual field	Back of the head, above cerebellum; contains visual cortexes
p.80	Visual cortex	Used for vision	
p.82-3	Angular Gyrus	read words turned into auditory code [reading aloud]	Damage, can speak & understand, but not read
p. 77	Parietal lobe	Includes sensory cortex; math & spatial reasoning	At top & rear of cerebral cortex
p. 79	Sensory cortex	Incoming messages from skin & movement of the body parts; registers & processes body sensations; tactile [physical feeling]	Just behind & parallel to the motor cortex sense of touch Modulates speech to make meaning clear
p. 85	Corpus callosum	Axon fibers connecting the two hemispheres	Sperry & Gazzaniga split brain experiments
p. 85-	Right hemisphere	Visual-spatial processing & comprehension, emotional expression, & intuitive; music; perceiving/expressing emotions & differences;	Spatial ability; perceptual tasks; perceives & constructs patterns; able to deal w/ things all at once
p. 85-	Left hemisphere	verbal: language functions & abilities; processes info sequentially; attempts to 'interpret' our actions; logical & analytical, specializing in recognizing parts which make a whole;	Separates out parts that make a whole Processing verbal language info; reading writing speaking arithmetic reasoning & understanding

The Endocrine System and Its Functions

p.94-5	Endocrine System		
	Hypothalamus		
	Pituitary gland	Secretes many different hormones, some of which affect other glands	
	Thyroid	Affects metabolism, among other things	
	Parathyroid	Helps regulate the level of calcium in the blood	
	Adrenal glands	Inner part, called the medulla, helps trigger the "fight or flight" response	
	Pancreas	Regulates the level of sugar in the blood	
	Ovaries	Secretes female sex hormones	
	Testis	Secretes male sex hormones	