

2.脑区

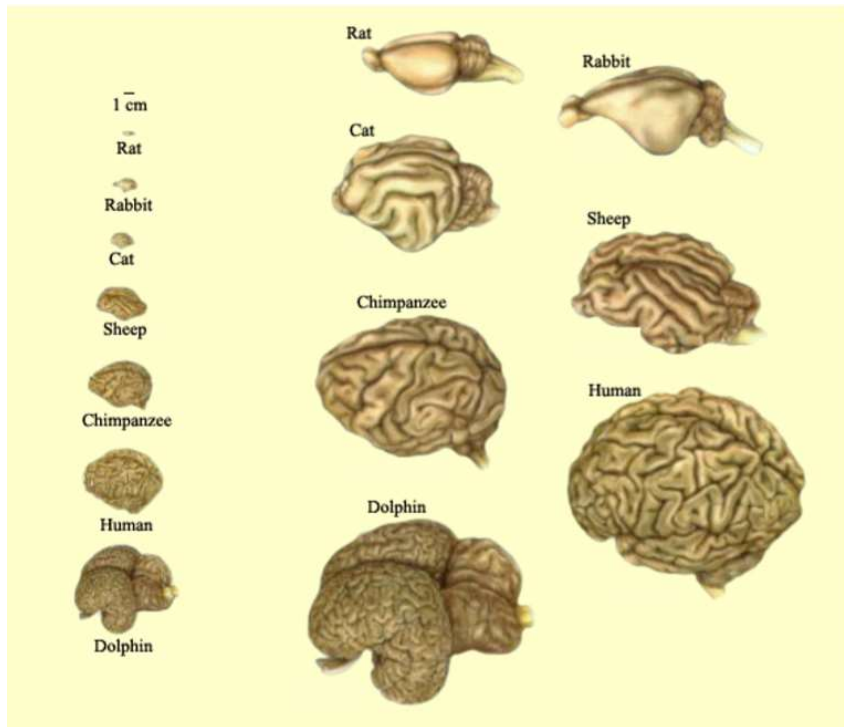
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大脑皮层有序的结构

沟回与智商没有直接联系

人的cerebrum cortex density 最高

大脑的代偿功能和可塑性--I'm the only me



4 Lobes of Cerebrum

1. frontal lobe : 额叶(planning, critical thinking, attention, motor)

prefrontal cortex成熟较晚, Might not be fully developed until mid 20s

prefrontal作用: 抑制冲动行为, 相关疾病: ADHD

primary motor cortex 运动神经中枢:中央前回

neural bypass system--高位截瘫重新控制四肢

2. parietal lobe : 顶叶(touch, proprioception)

somatosensory cortex躯体感觉皮质: 不同体区范围不同, 敏感度不同

敏感度的测试: two point discrimination

proprioception 本体感受--- 6th sense: Sense where your body is in space

e.g. 走路不用看着自己的脚迈到什么位置

3. temporal lobe : 颞叶(hearing, smell, memory, speech)

Wernicke's area (只存在于左半球侧后方); 流畅性失语症(fluent Wernicke's aphasia)

Broca's area(双侧前方); 运动性失语症(non-fluent broca's aphasia)

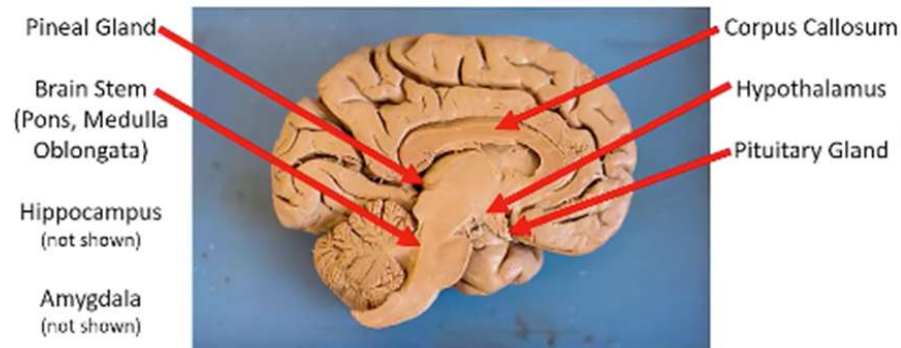
fusiform gyrus(梭形脑回) damage: 脸盲facial blindness (recognition deficiency)

4.occipital lobe: 枕叶(sight)

visual processing

Subcortical Regions皮层下区域

older functions: fear, hunger, breathing, 皮层可塑性更强



1.corpus callosum 胼胝体, 主要由轴突组成

颞叶癫痫seizures → 极端的治疗方法: split-brain procedure

2.hypothalamus& pituitary gland

神经内分泌系统的控制 neural- endocrine systems

hypothalamus& pituitary gland& stress,

"HPA axis": hypothalamus to pituitary gland to adrenal cortex, release cortisol, release glucose

"FIGHT OR FLIGHT", suppression of immune system

3.pineal gland 松果体(没有BBB, 毒素细菌易感性强)

Produce more melatonin(褪黑素) in darkness, soul

Brain Stem:

1.mid brain 神经调质作用丰富

serotonin(5-HT) and dopamine system

Parkinson's disease "black substance" 黑质

纹状体 corpus striatum: caudate尾状核, NACC/NACS, putamen豆状核

2.pons

axons, the connection of cerebrum& cerebellum, sensory neurons to the thalamus

大小脑连接, 感觉上行至丘脑

3.medulla oblongata 延髓

控制许多基本生命活动, 呼吸心跳等

"Mike the headless chicken"无头鸡

4.hippocampus 海马

情景记忆 "Morris Water Maze test"; 工作记忆

5.amygdala 杏仁核

闪光灯记忆

产生恐惧感 "free solo"

杏仁核主导产生恐惧，前额叶可对其起到抑制作用