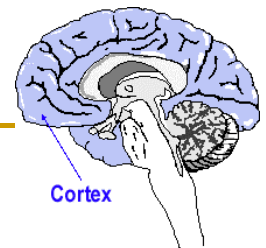


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# 神经系统的基本组成（二）

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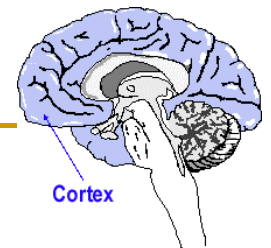
第四军医大学基础部人体解剖学教研室



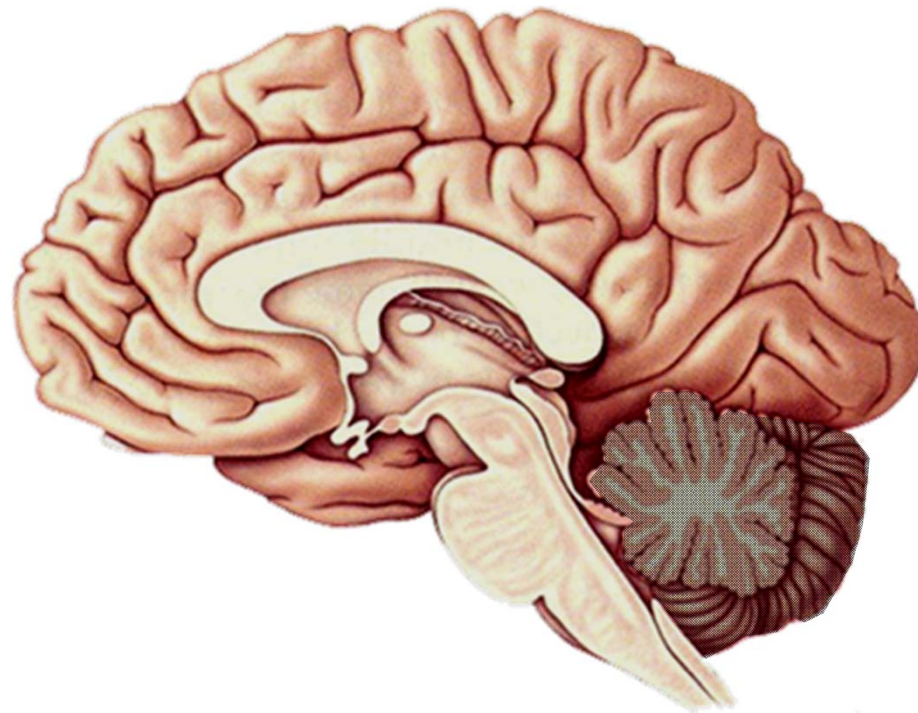
# 授课内容

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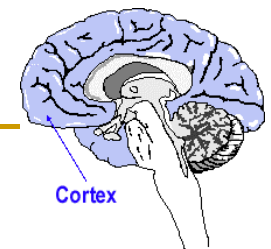
- 1. 小脑的形态、组成和基本功能**
- 2. 间脑的形态、组成和基本功能**
- 3. 大脑的外形、构造及功能**



# 小 脑 ( cerebellum )



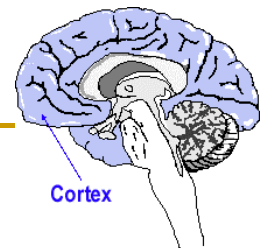
脑的正中矢状切面

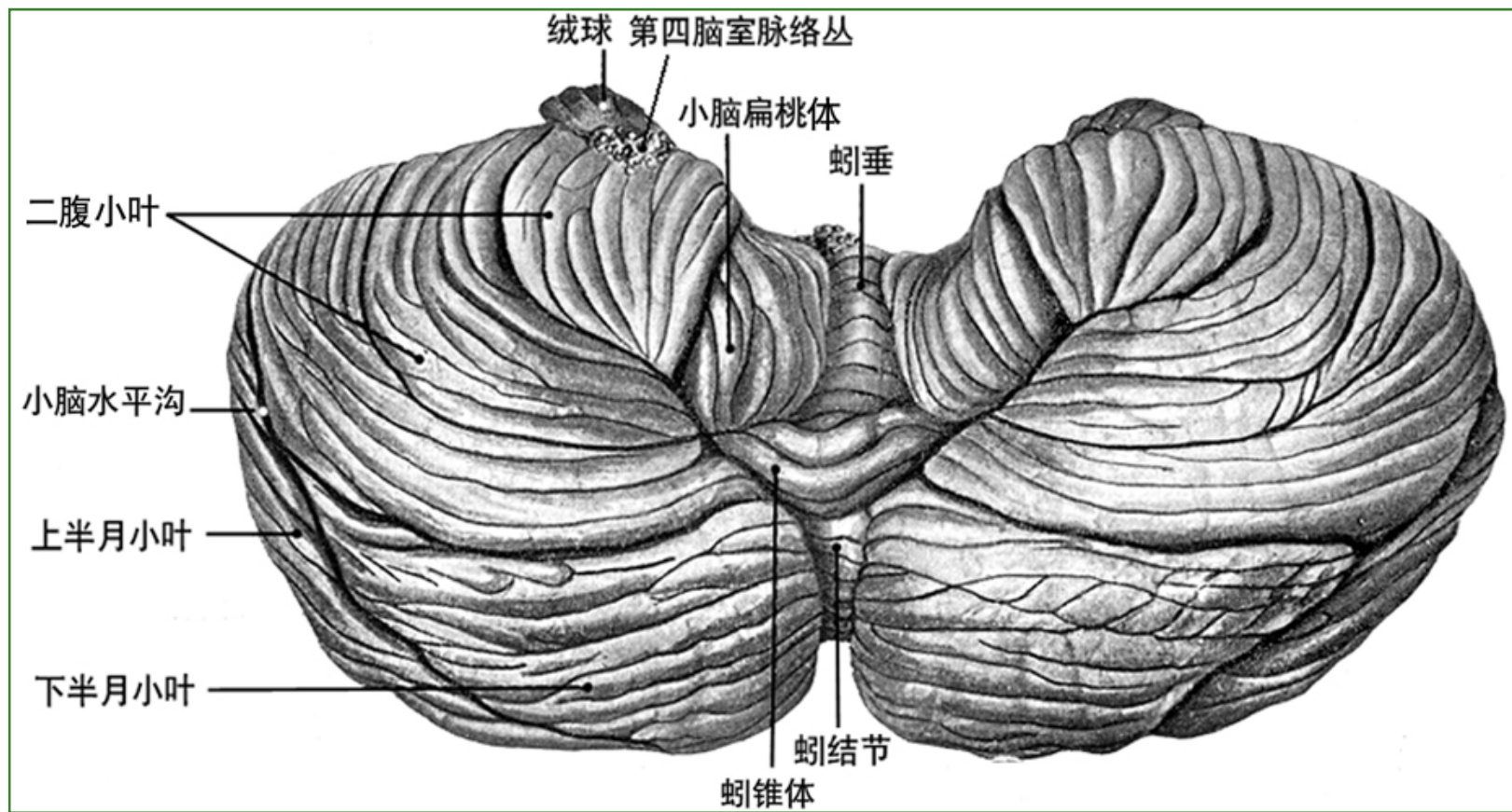


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小脑位于颅后窝内,上面被硬脑膜的小脑幕覆盖。小脑的前面与脑干共同围成第四脑室, 两侧借**3**对小脑脚与脑干相连。

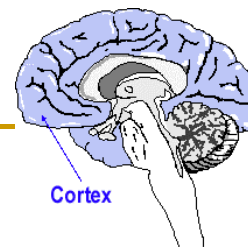
小脑是与运动调节有密切关系的**皮质下中枢**。

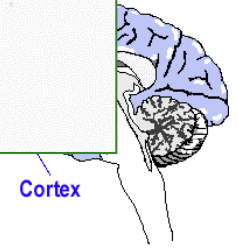
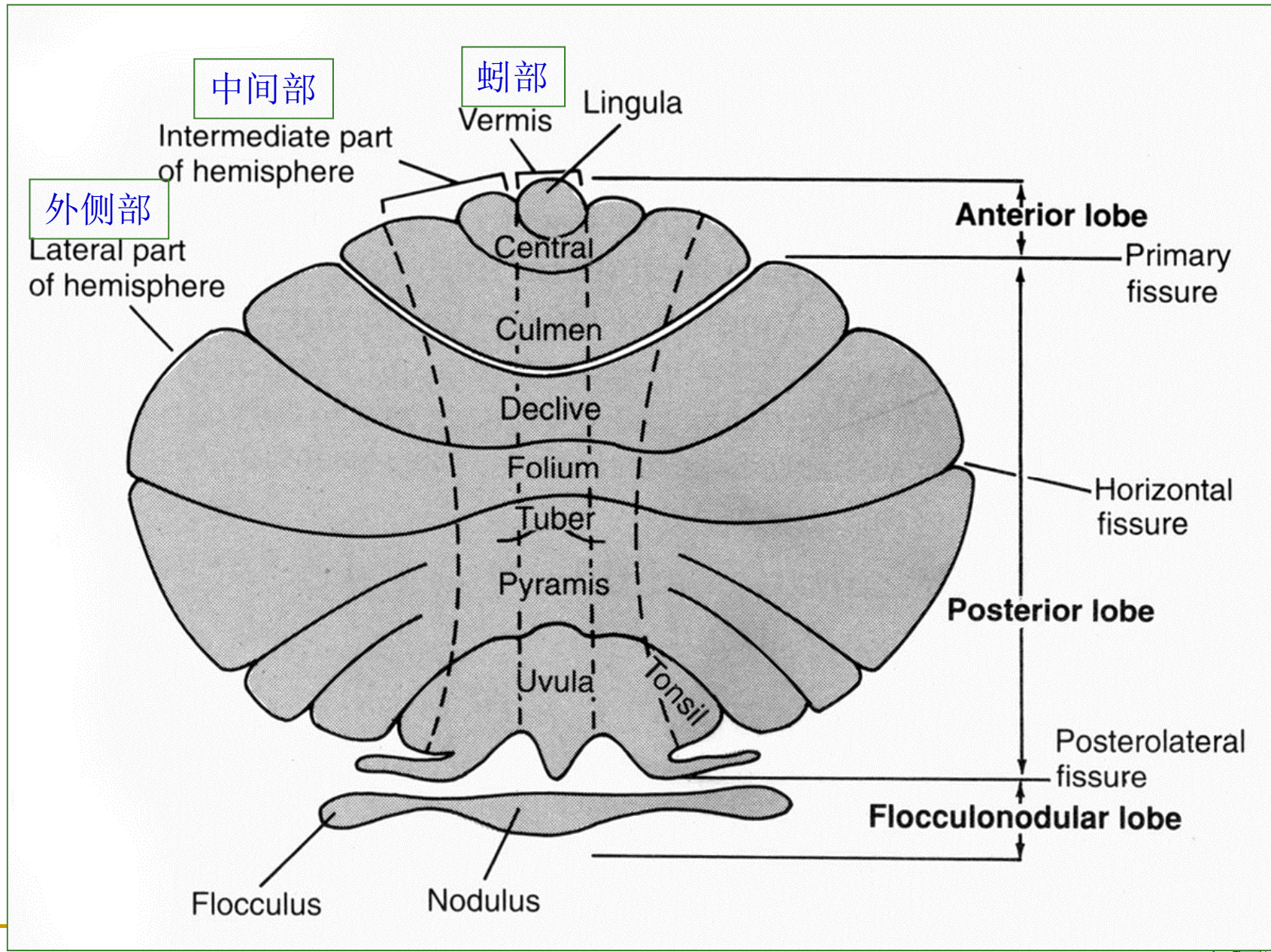


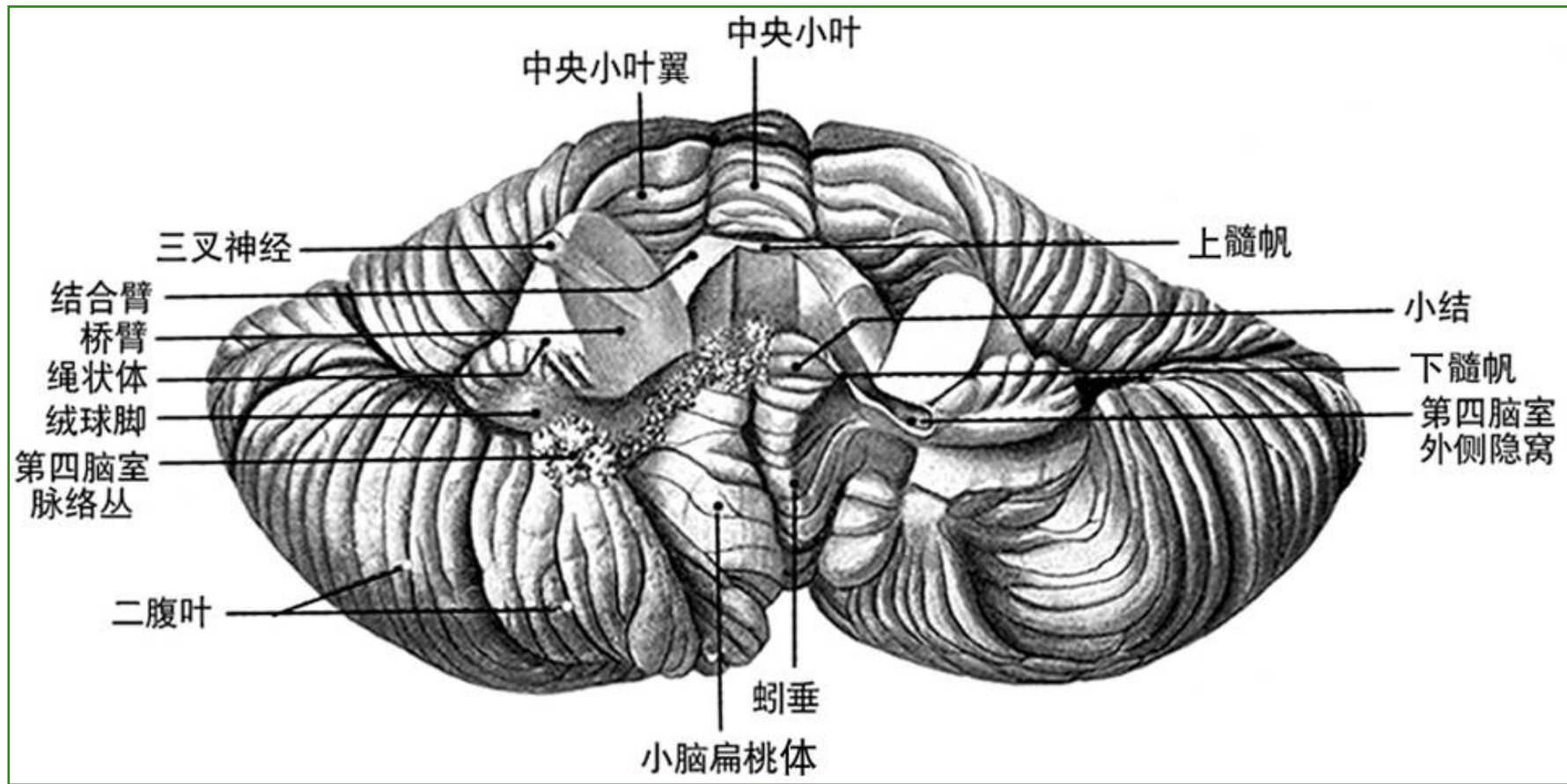


- ♣ 绒球小结叶
- ♣ 左右小脑半球
- ♣ 中间为蚓部

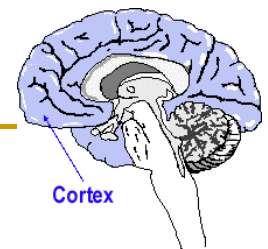
## 小脑后面观



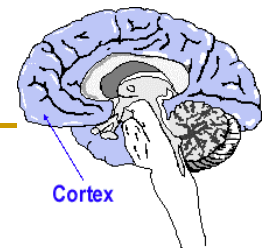
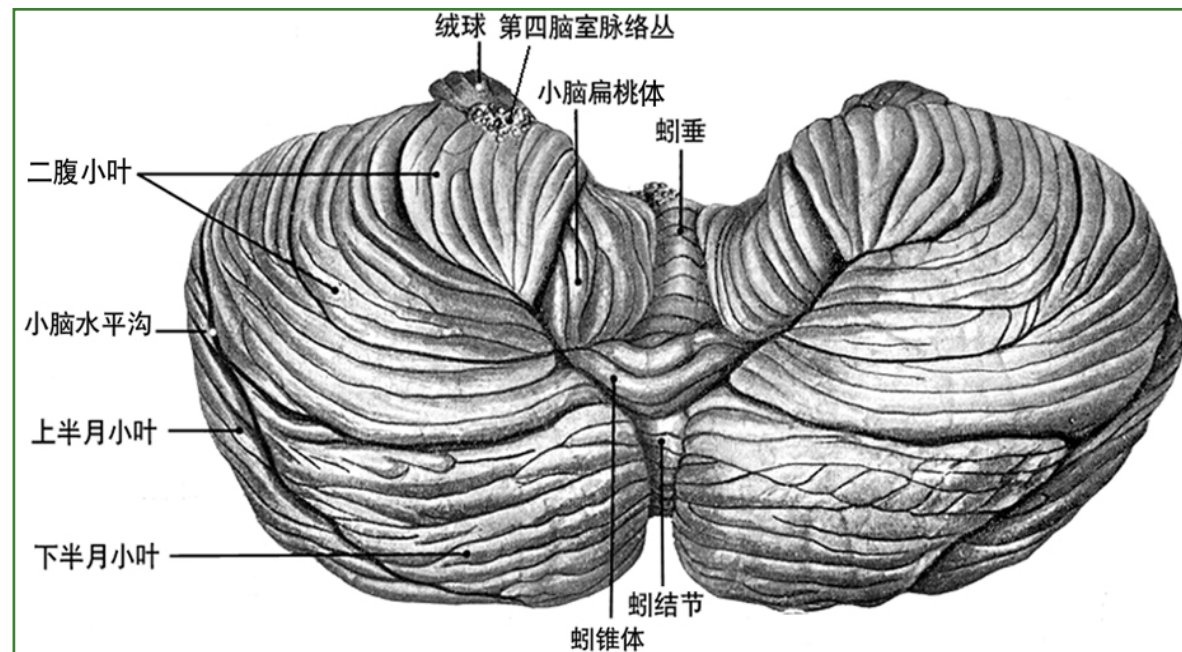




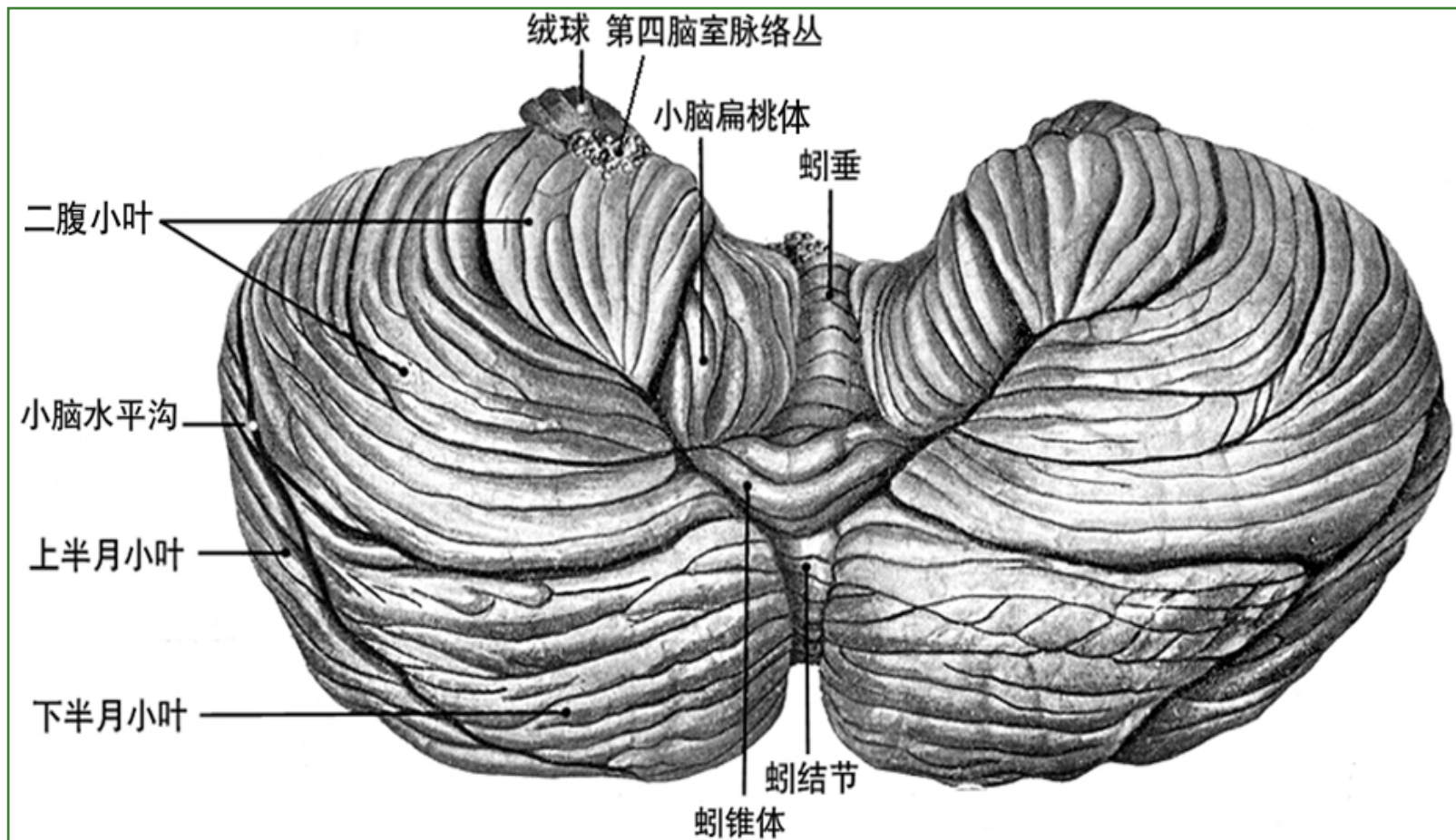
## 小脑的腹侧面观



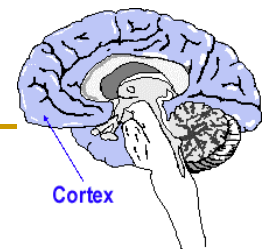
- ❁ 小脑皮质表面生有较密且深的平行的横沟将小脑分为横行的薄片称为小脑叶片，每一叶片均由皮质和髓质构成。
- ❁ 若干叶片再组成一个小叶。

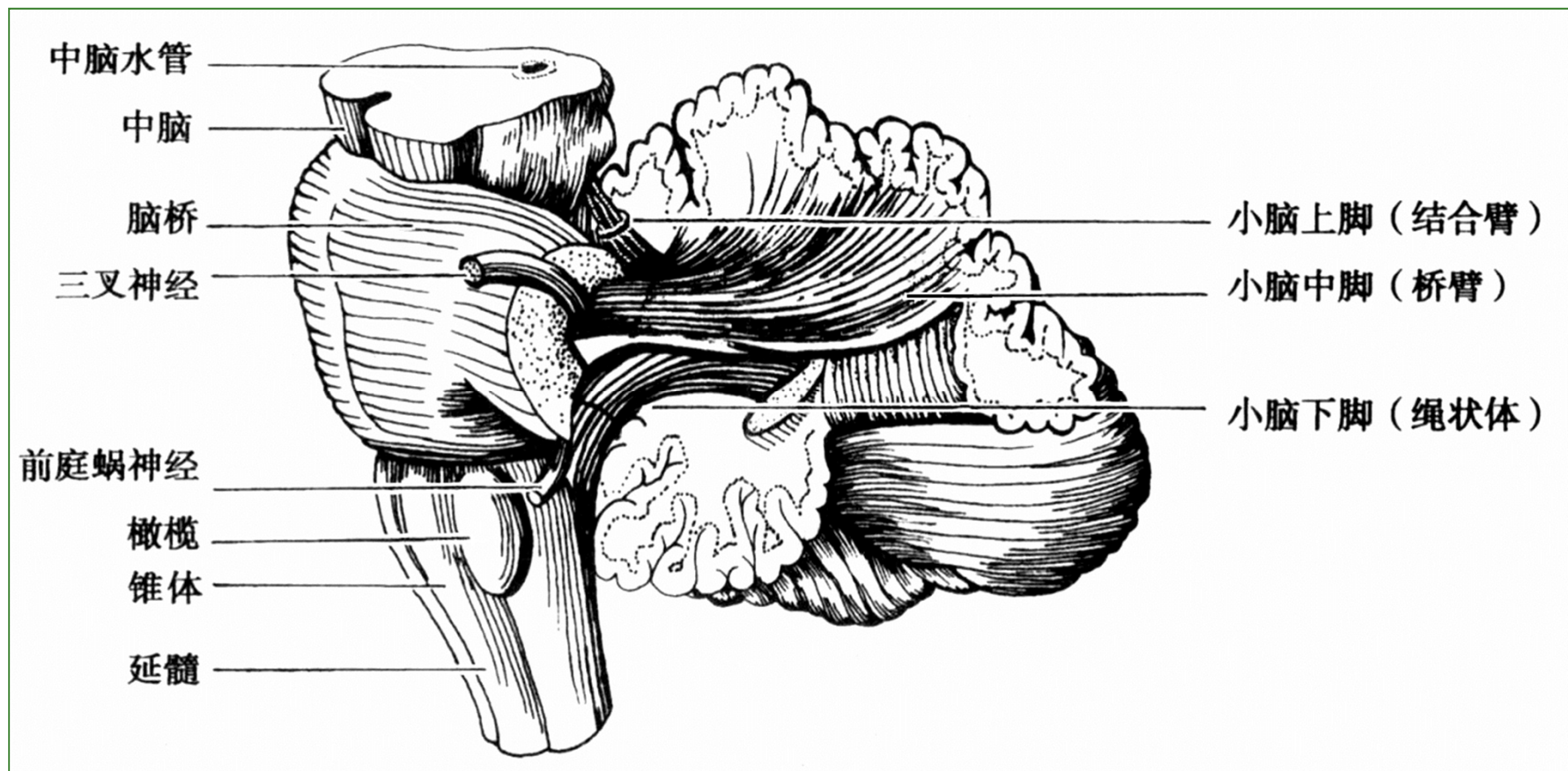




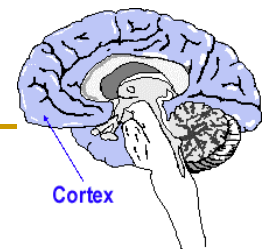


❁ 小脑叶片  
❁ 小叶



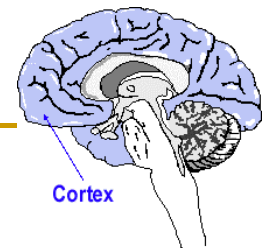


## 三对小脑脚

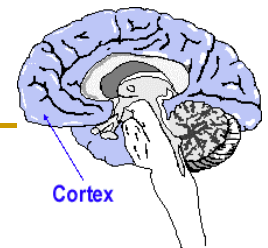
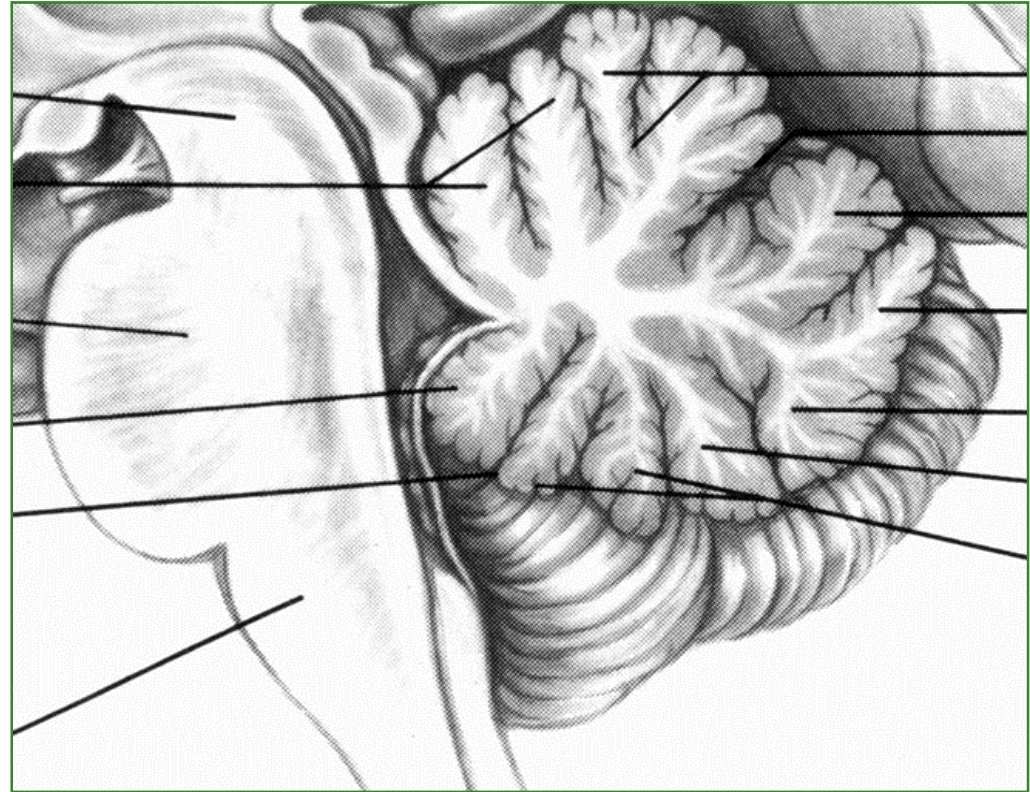


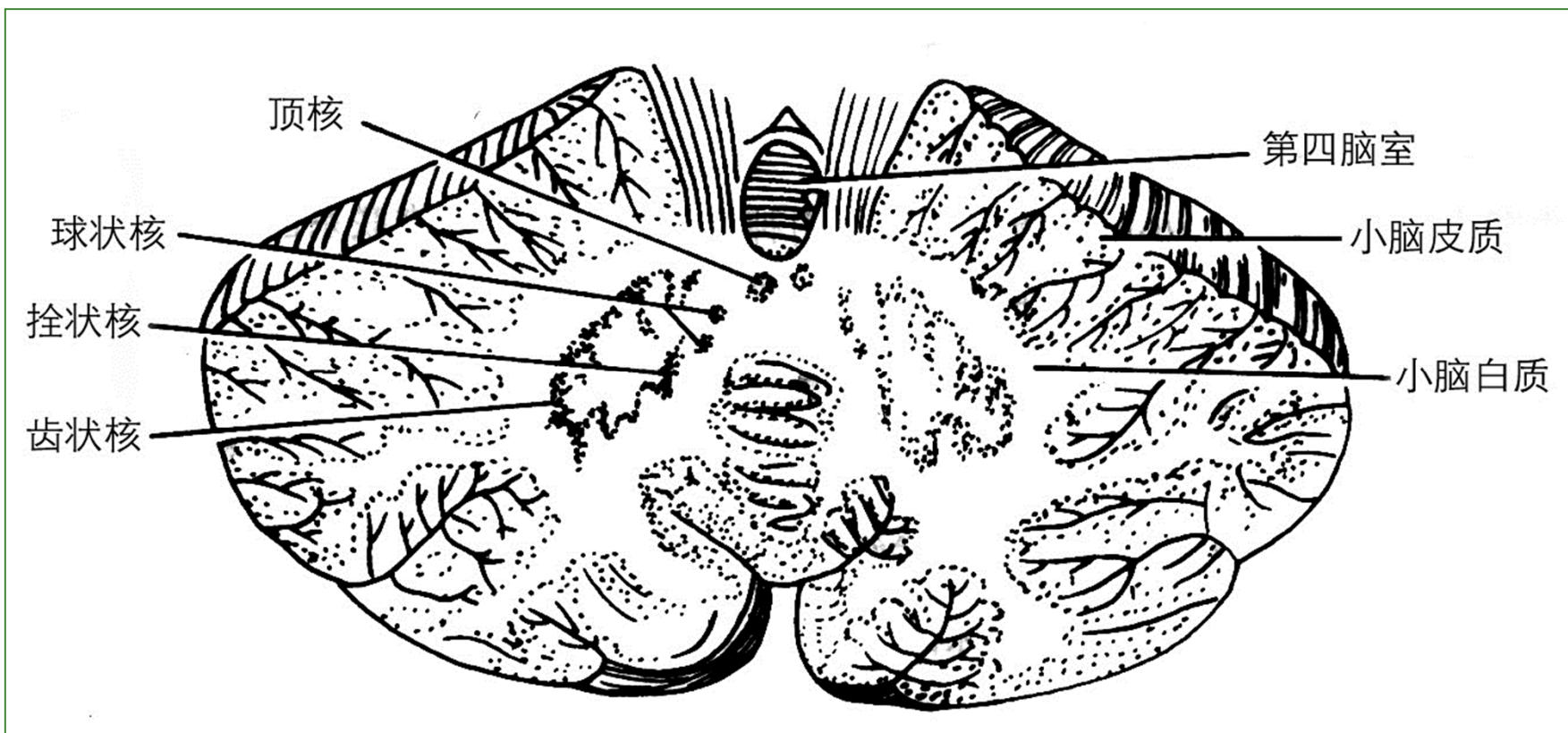
# 小脑的内部结构

1. 小脑皮质、髓质
2. 小脑核团（中央核）

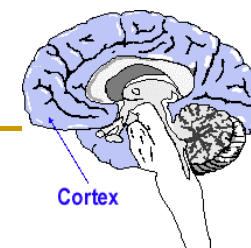


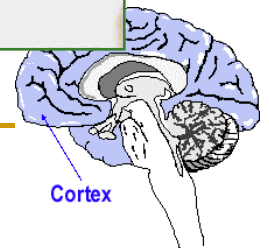
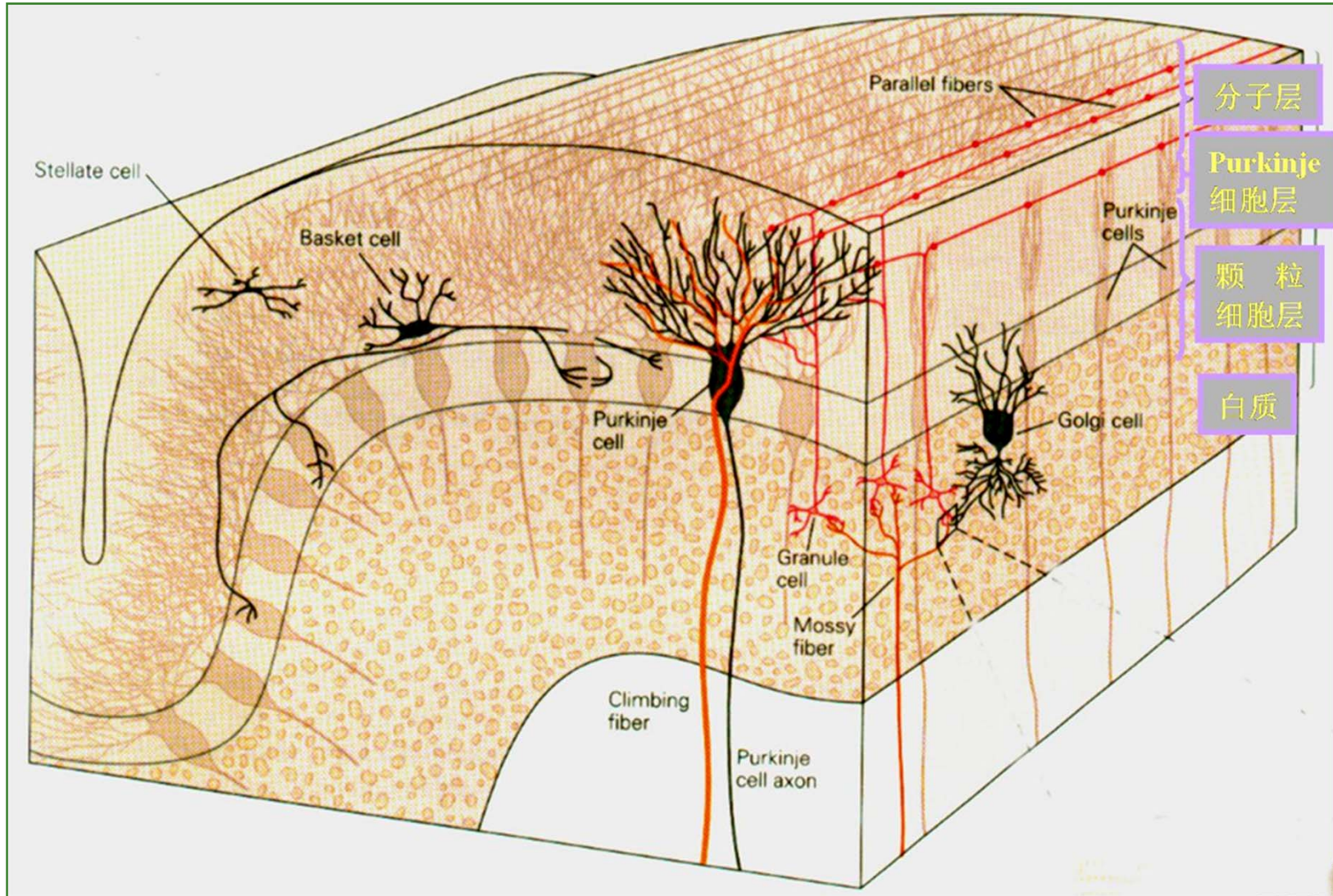
- ❁ 小脑表面的灰质称小脑皮质
- ❁ 白质位于深部称髓质
- ❁ 埋藏在髓质内的灰质团块称小脑核(中央核)





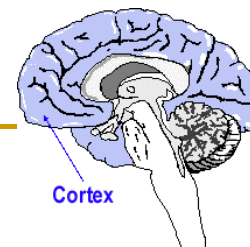
## 四对小脑中央核



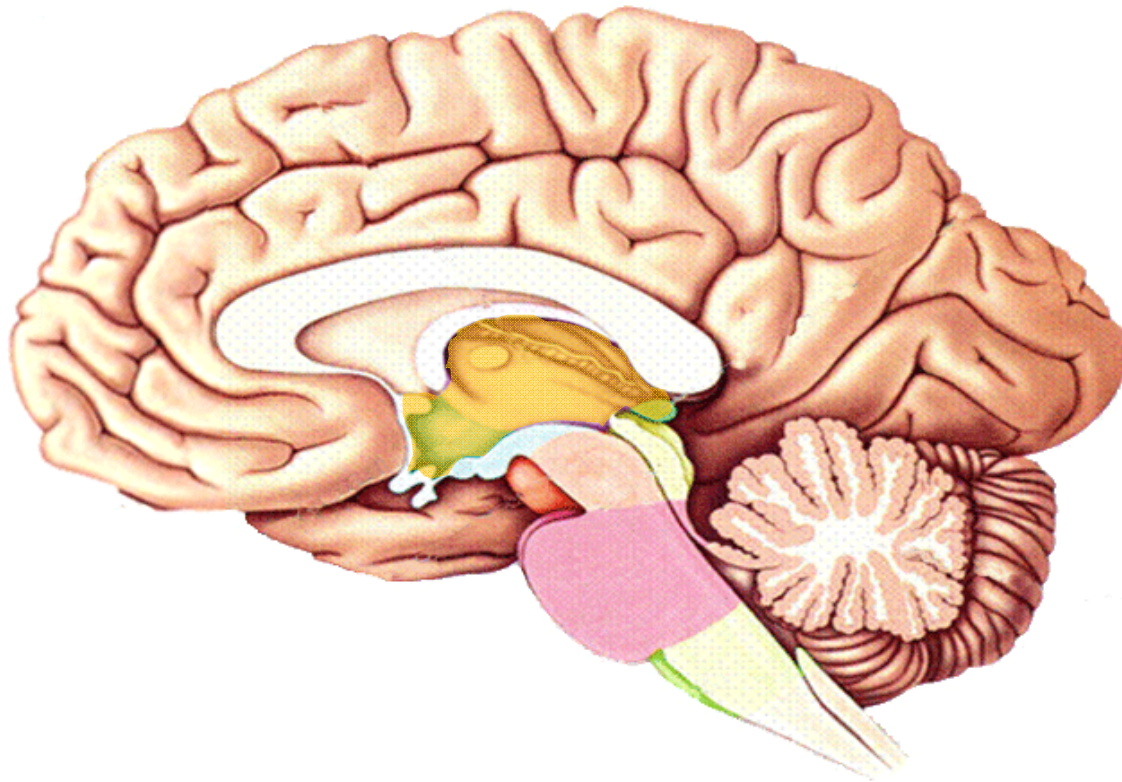


# 小脑的功能

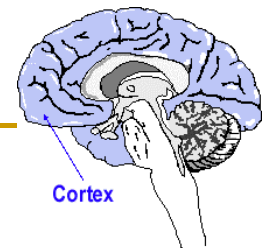
- \* 协调随意运动
- \* 维持身体平衡与调节肌张力



# 间脑 (diencephalon)



脑正中矢状切面





# 间脑概况

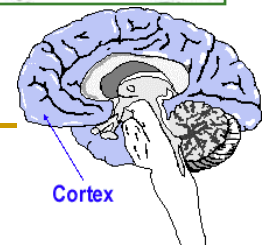
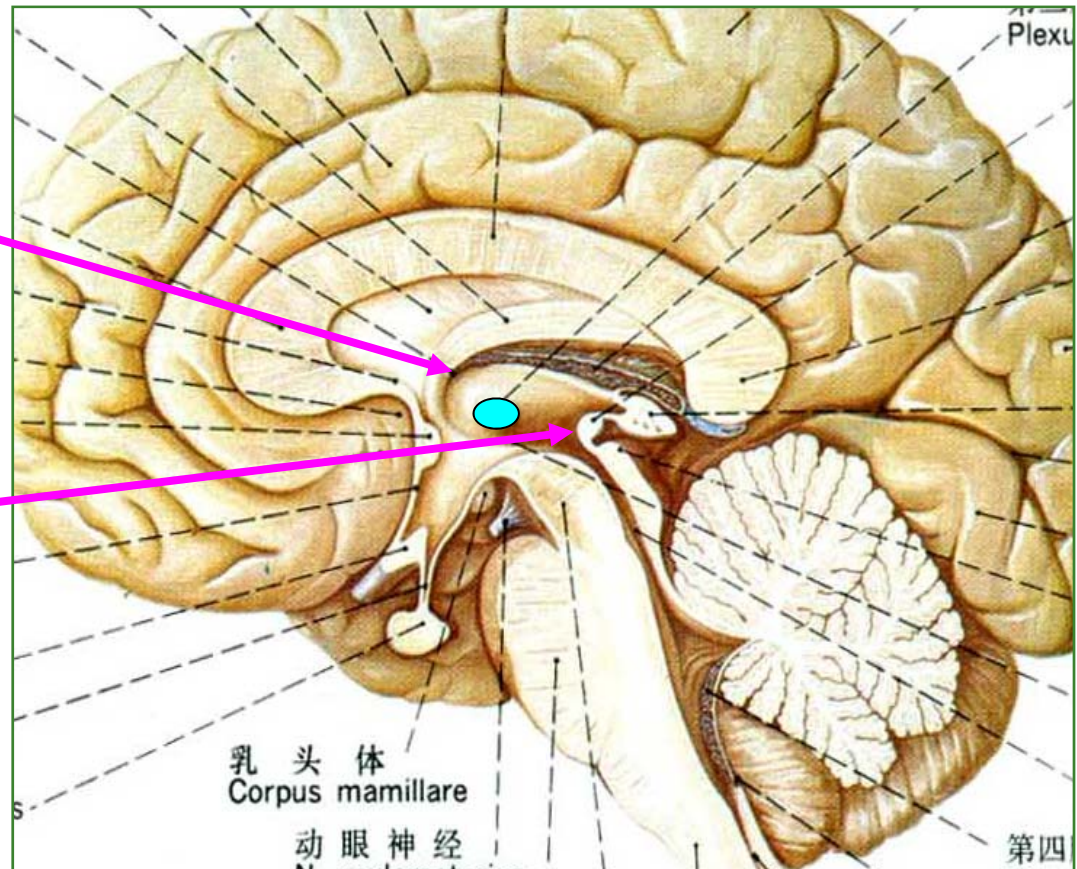
位置：端脑和中脑之间

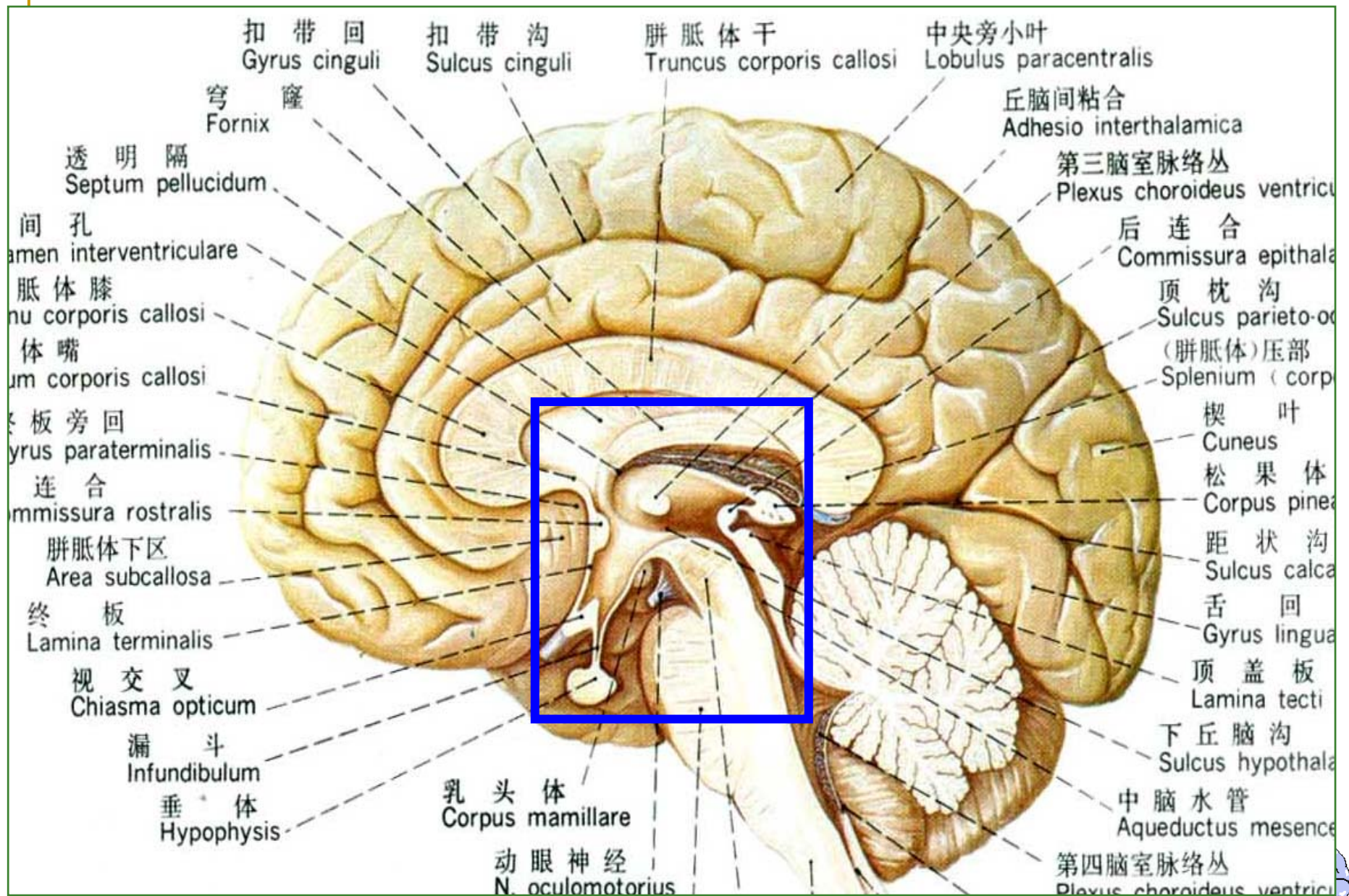
前界：借室间孔至视交叉上缘的连线与端脑分界

后界：借后连合至乳头体的连线与中脑分界

外侧：与尾状核和内囊相邻

内侧：第三脑室  
(中间块)





Cortex

# 分部

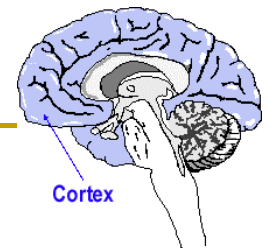
丘脑背侧部 (丘脑)

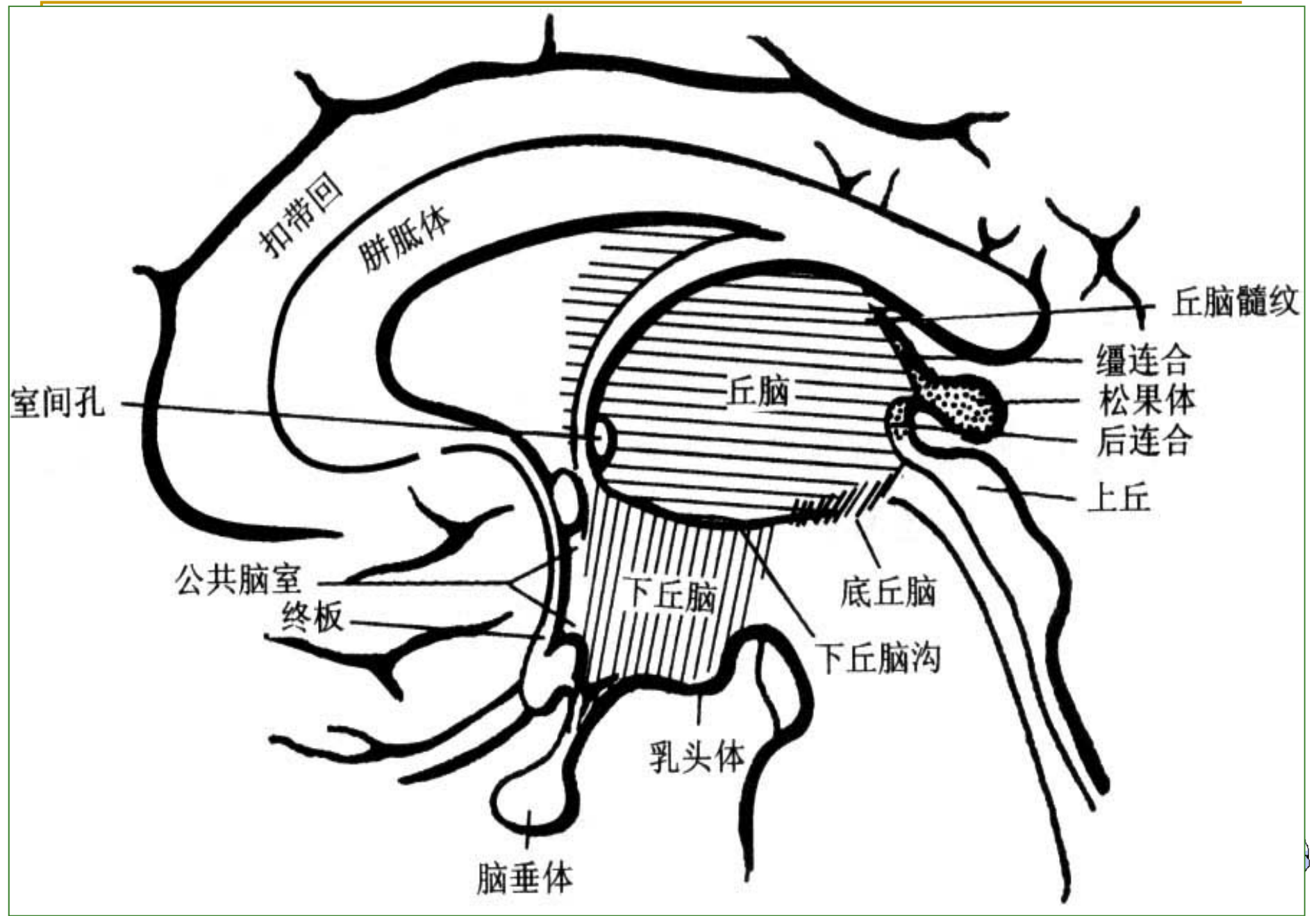
丘脑后部 (后丘脑)

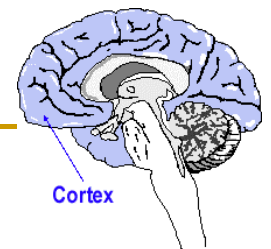
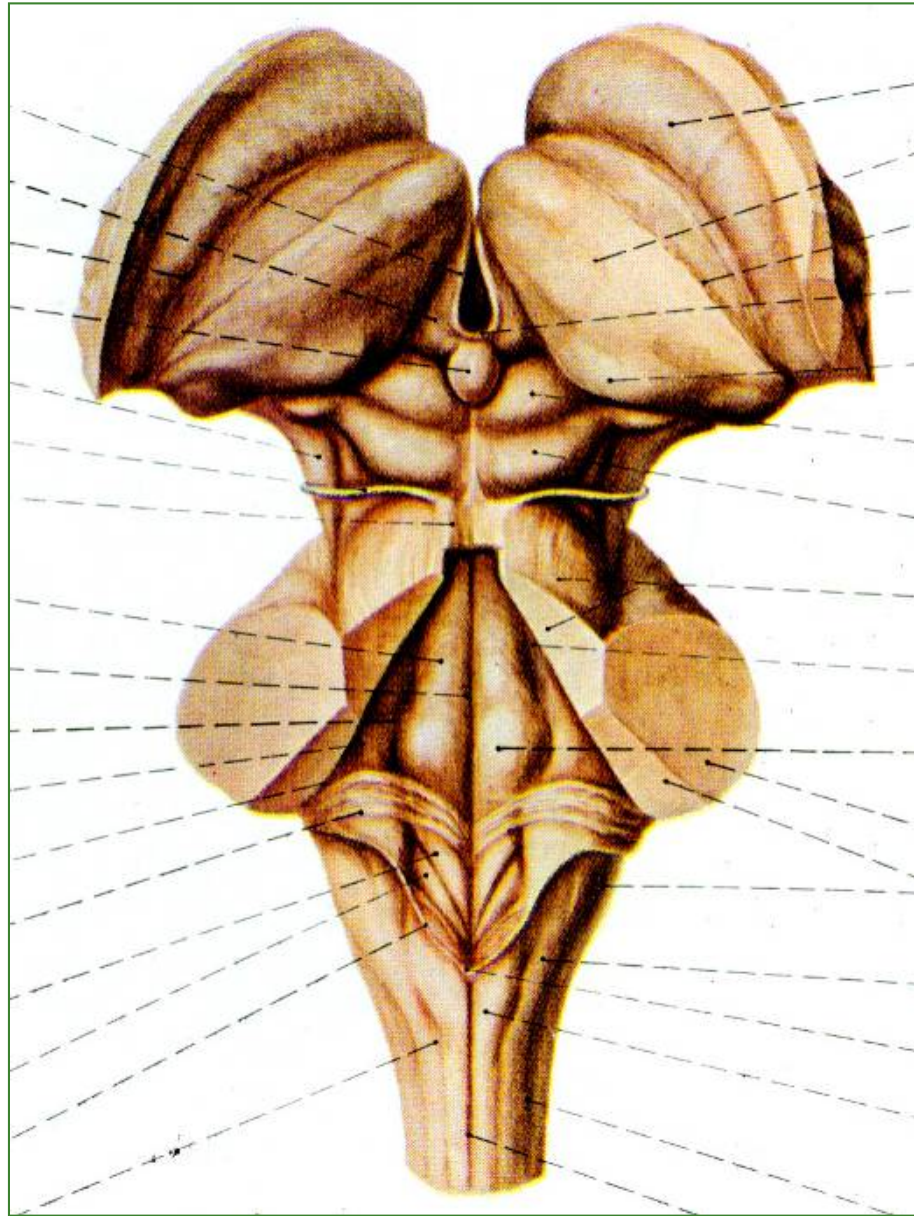
丘脑上部 (上丘脑)

丘脑底部 (底丘脑)

丘脑下部 (下丘脑)

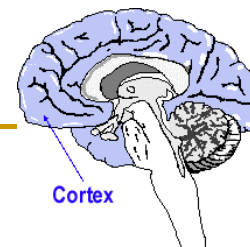






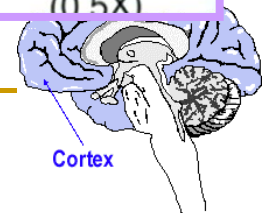
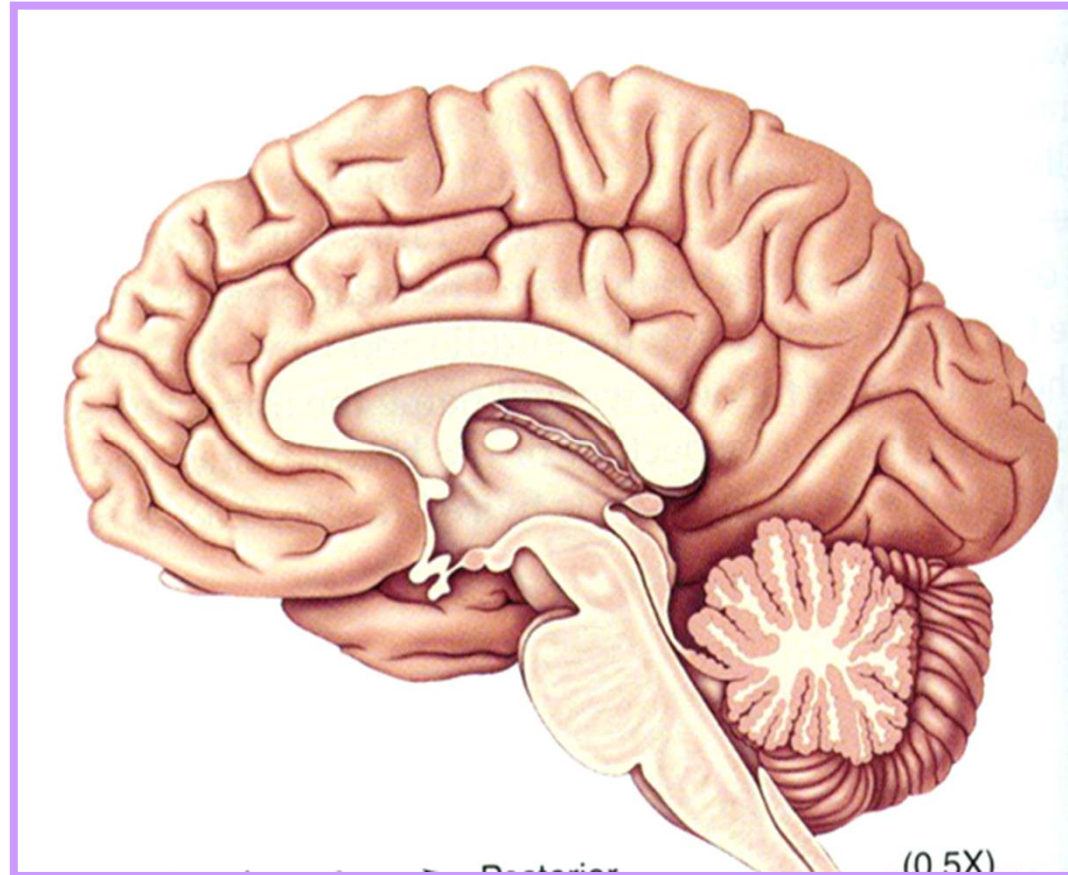
## 间脑外形的特点

1. 包括背侧丘脑、上丘脑、下丘脑、后丘脑和底丘脑五个部分
2. 与其他脑部及其各部之间的分界不明显
3. 从脑表面仅能观察到很少的部分



# 1. 背侧丘脑 (dorsal thalamus)

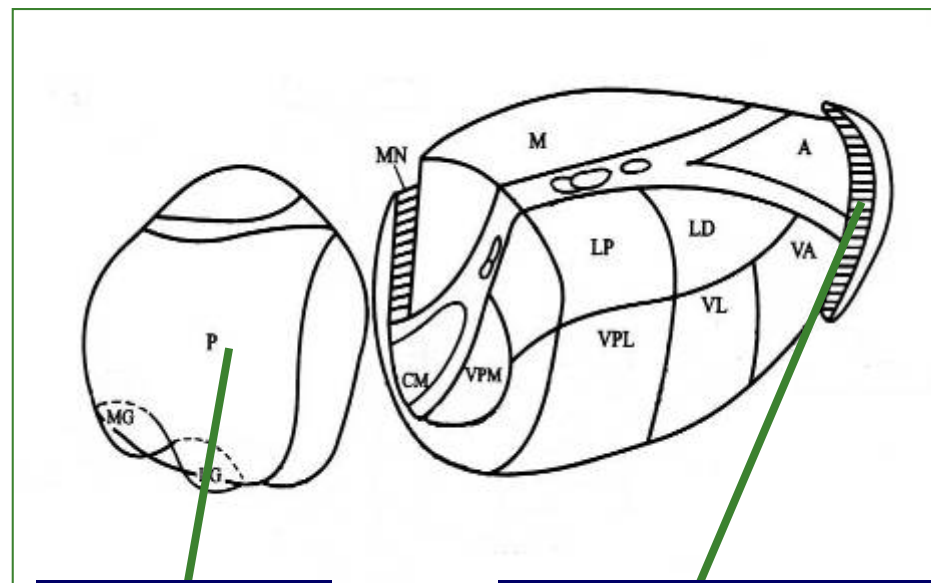
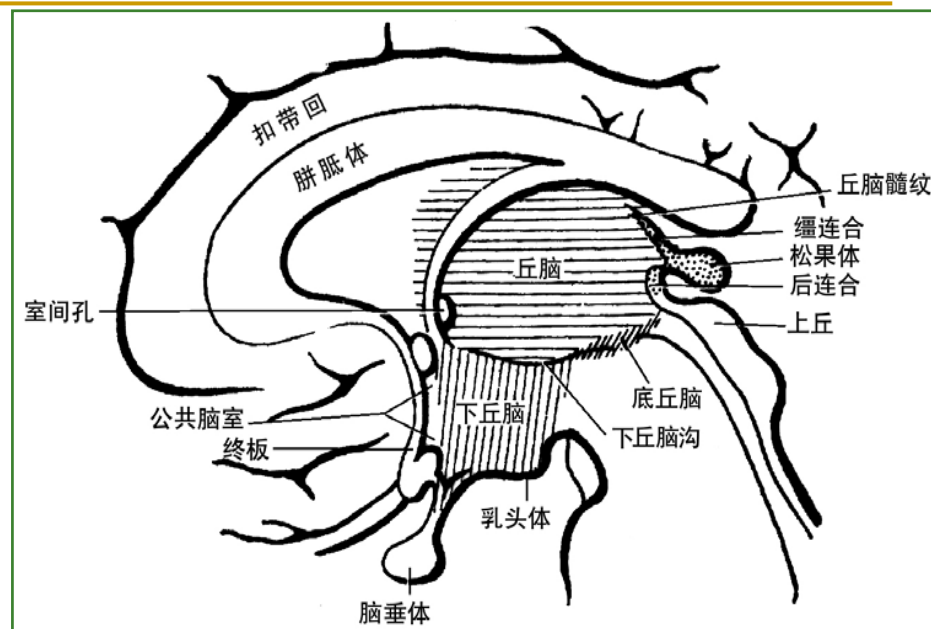
- ♣ 位于间脑的背侧部，下丘脑的后上方，与下丘脑之间以第三脑室侧壁上的下丘脑沟为界
- ♣ 由一对对称的前后径长的椭圆形灰质团块构成



\* 两侧丘脑之间隔以第三脑室，其内侧面构成第三脑室侧壁的上半部

\* 丘脑前结节

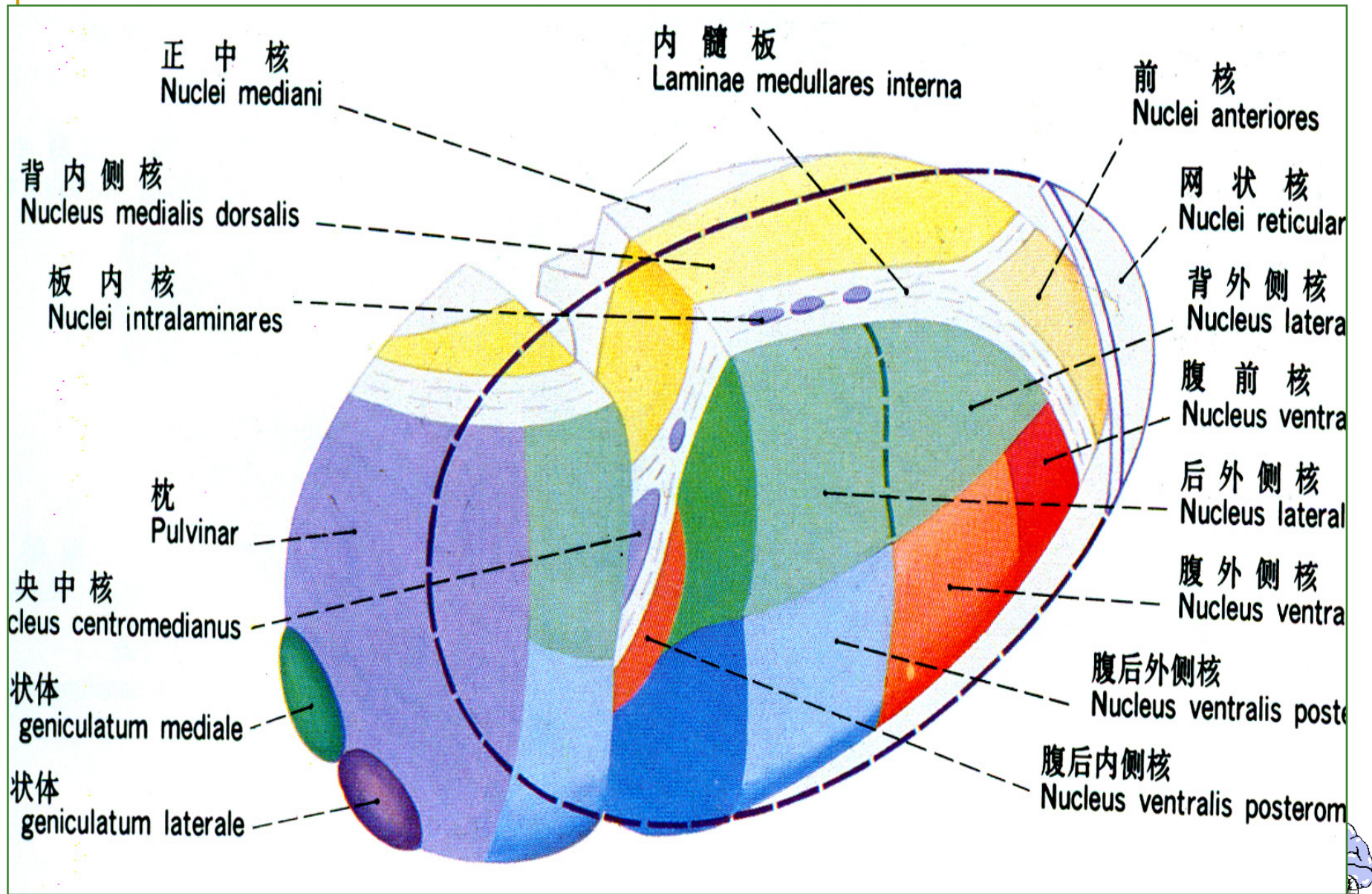
\* 丘脑枕



丘脑枕

丘脑前结节



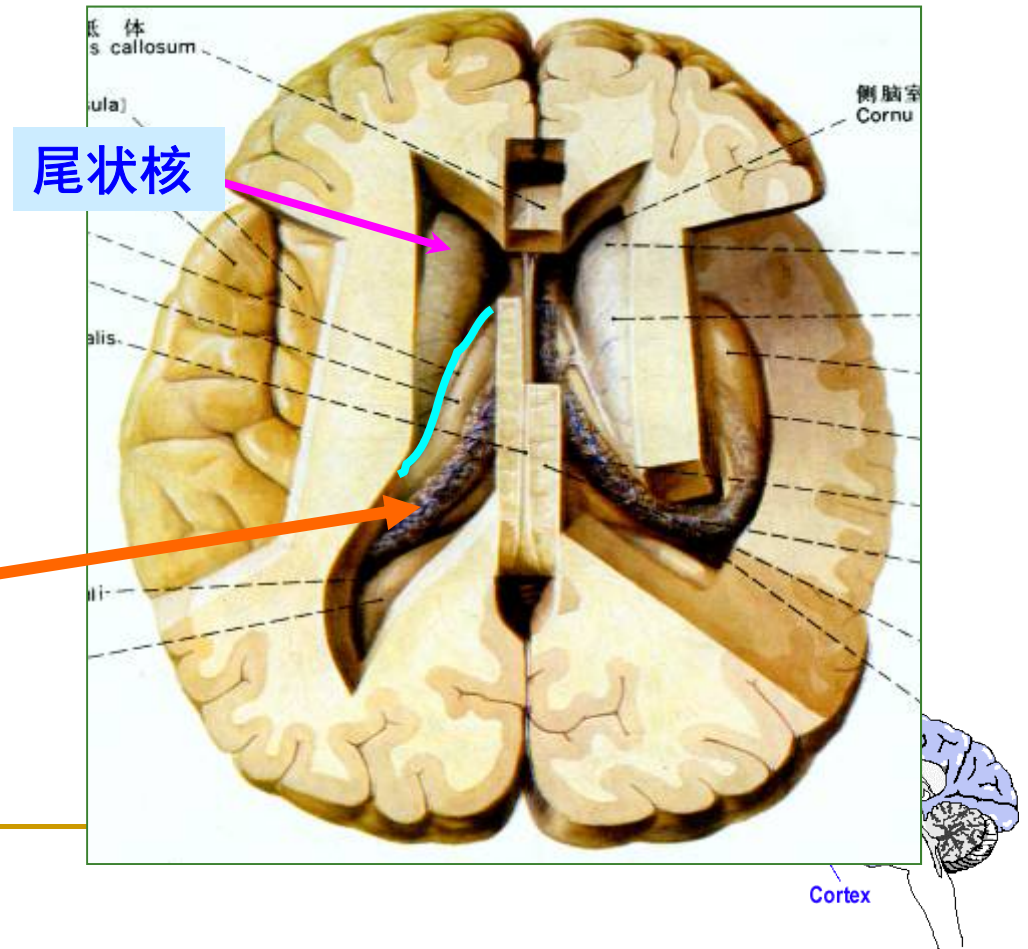


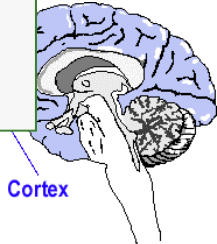
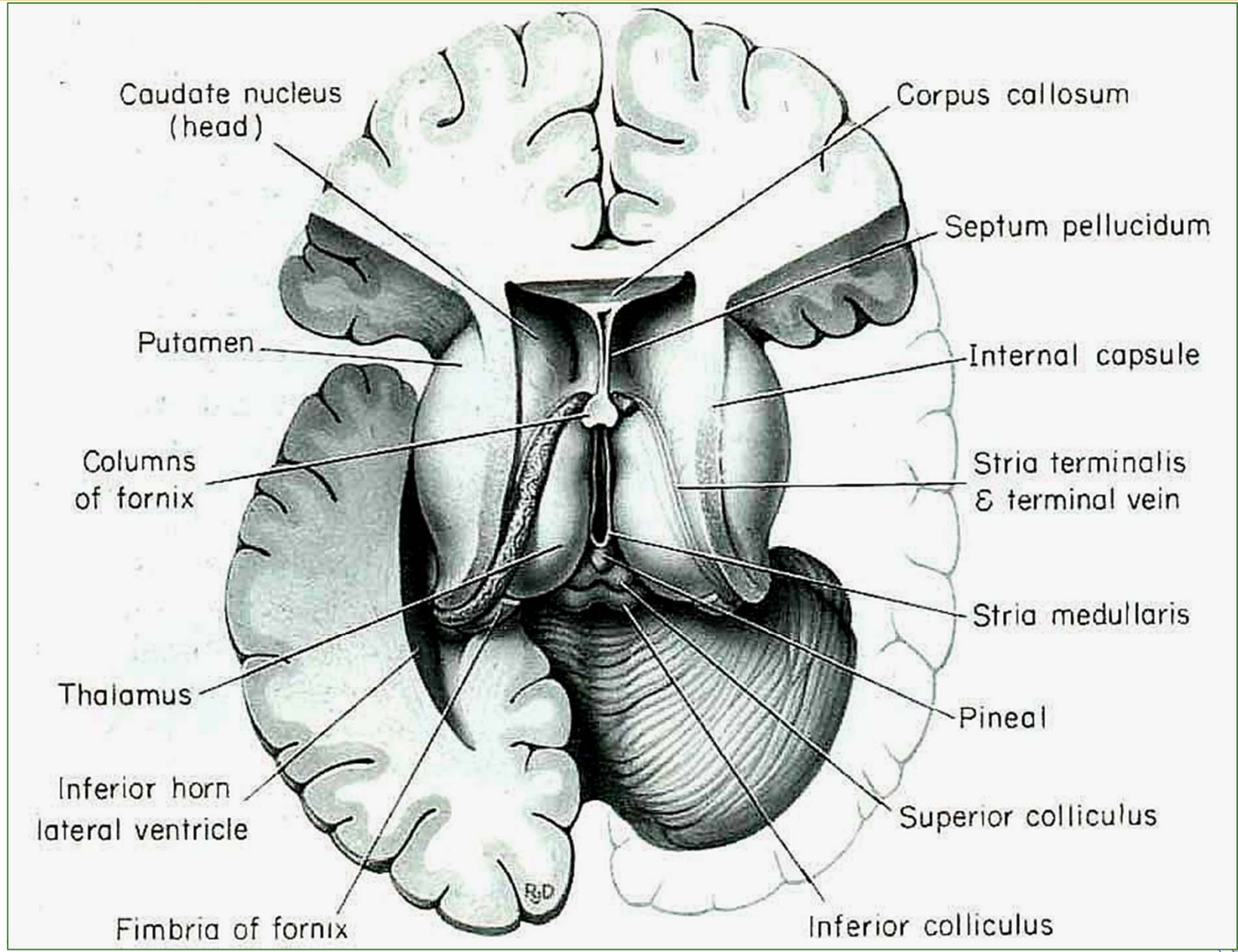
Cortex

\* 丘脑背面暴露于侧脑中，其外侧面以终纹与尾状核为界，尾状核伏在丘脑背面的外侧部。

\* 丘脑背侧面和内侧面的移行缘为丘脑带，是第三脑室脉络组织的附着处。

\* 在背面的中部有前后斜行的浅沟称脉络沟，是侧脑室脉络丛的附着处。





# 丘脑的功能

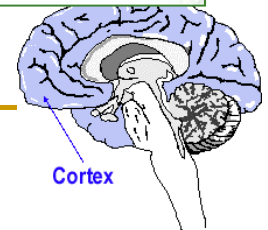
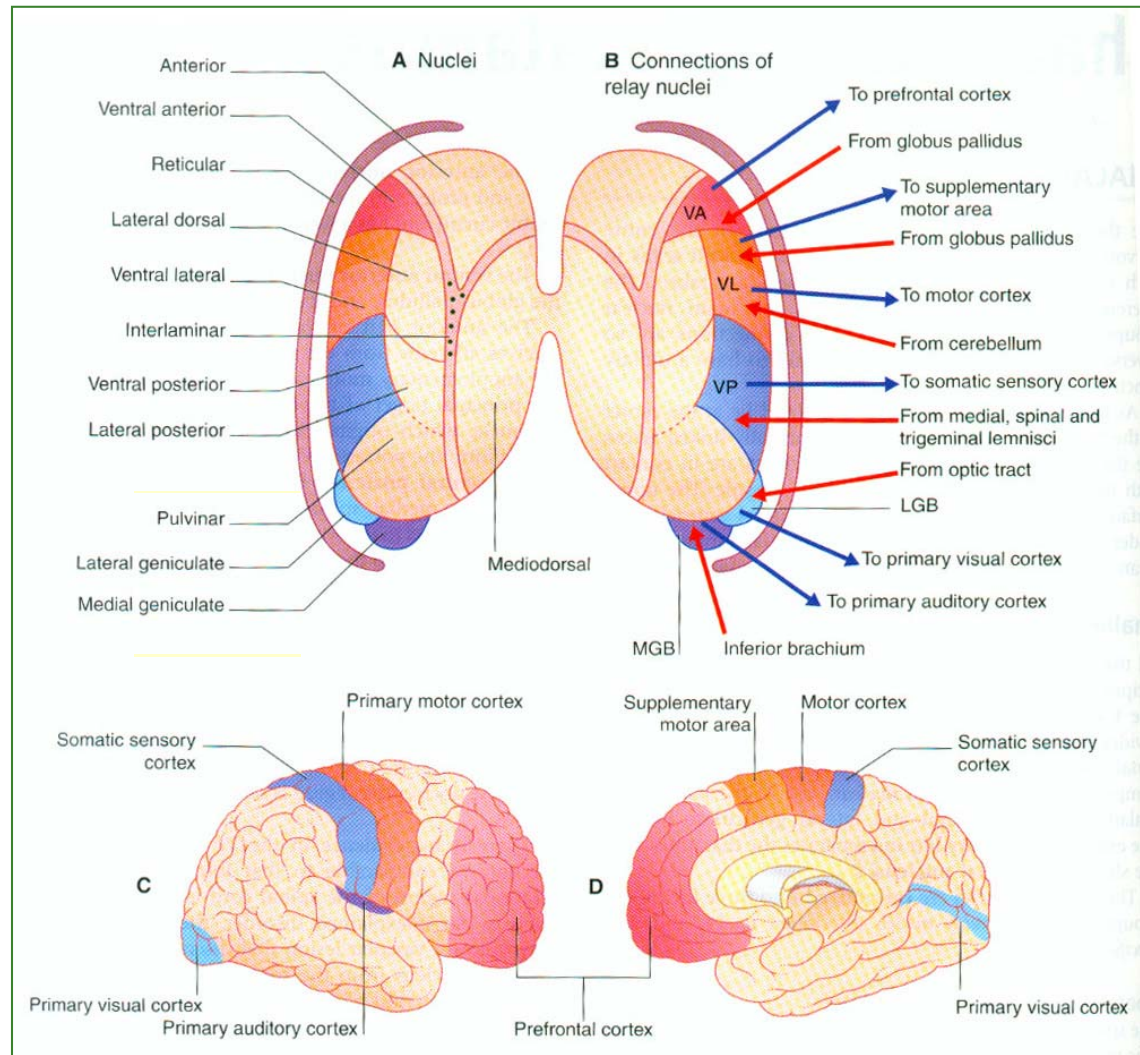
各种传入冲动的  
重要中继和整合  
中枢

Convergence

汇聚

Integration

整合

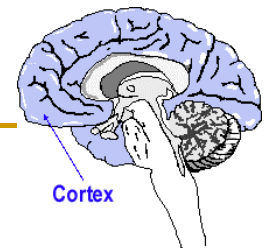
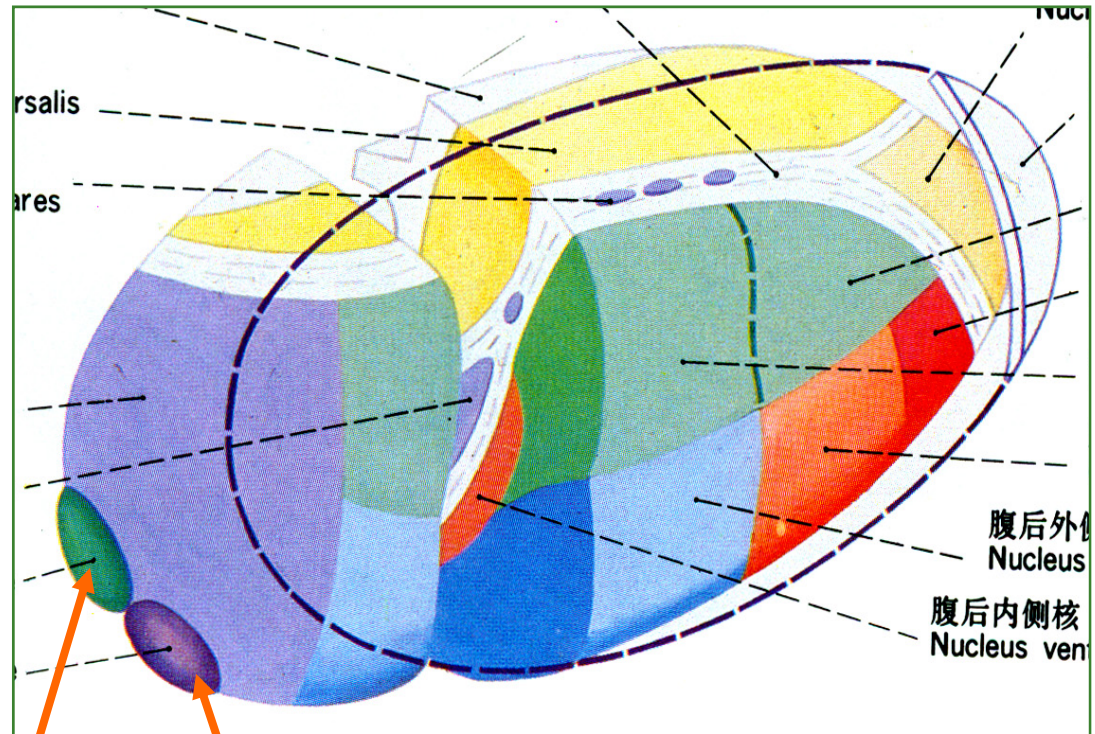


## 2. 后丘脑 (metathalamus)

- \* 位于丘脑后外下方
- \* 包括内侧膝状体和外侧膝状体
- \* 分别是听觉和视觉传导通路的最后中继站

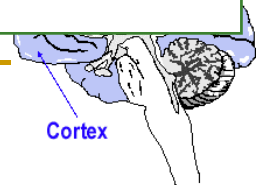
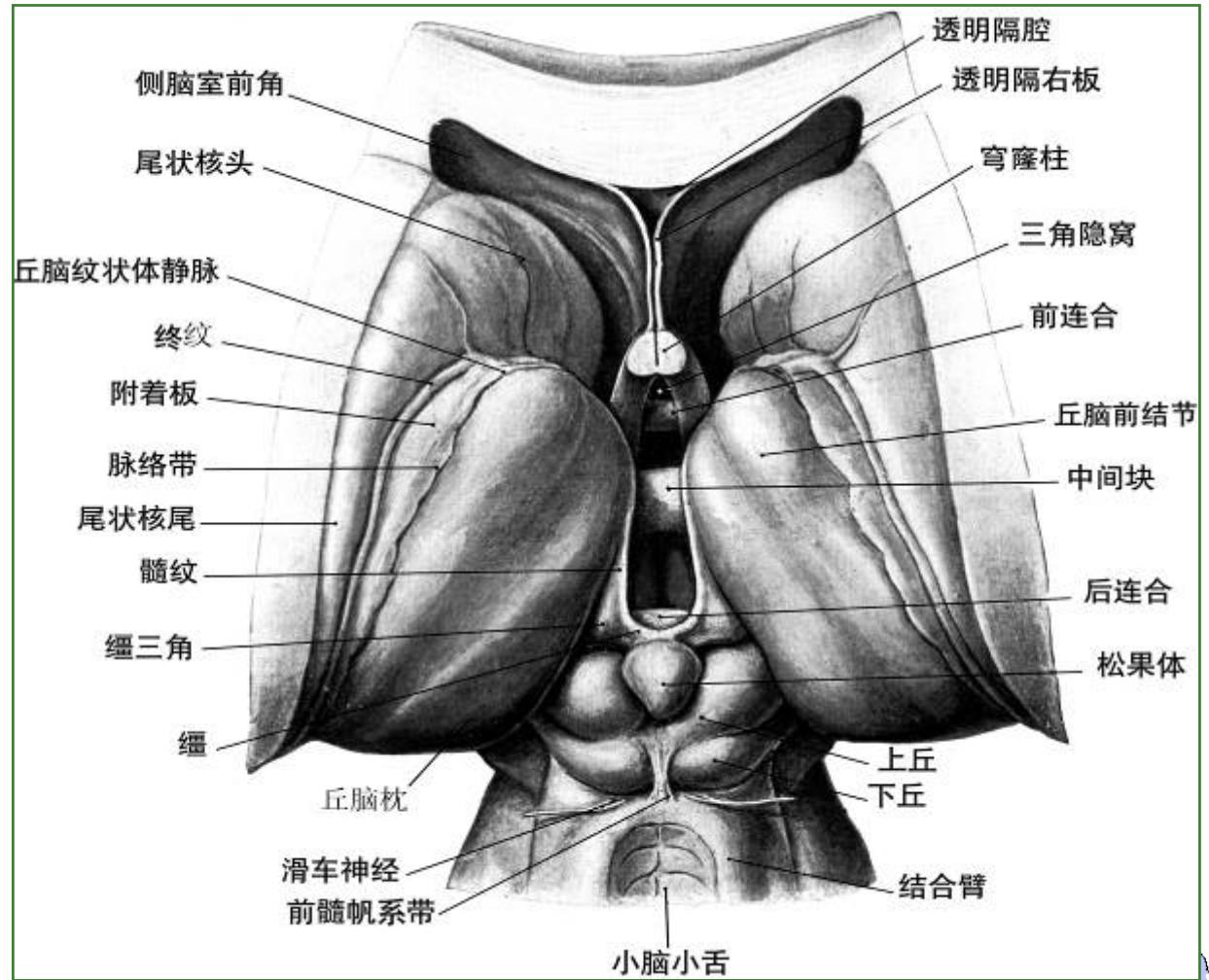
“内听外视”

内、外侧膝状体



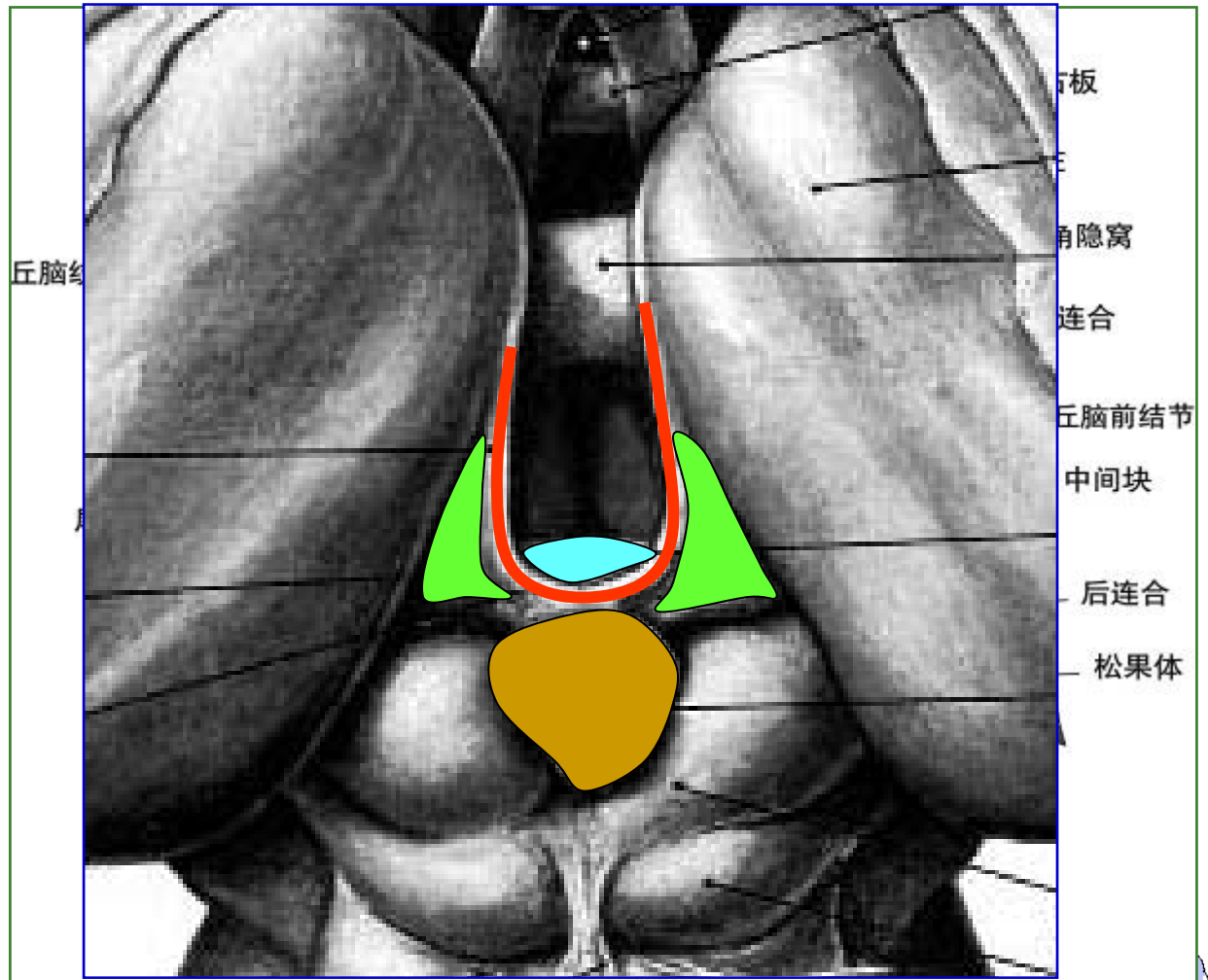
# 3. 上丘脑 (epithalamus)

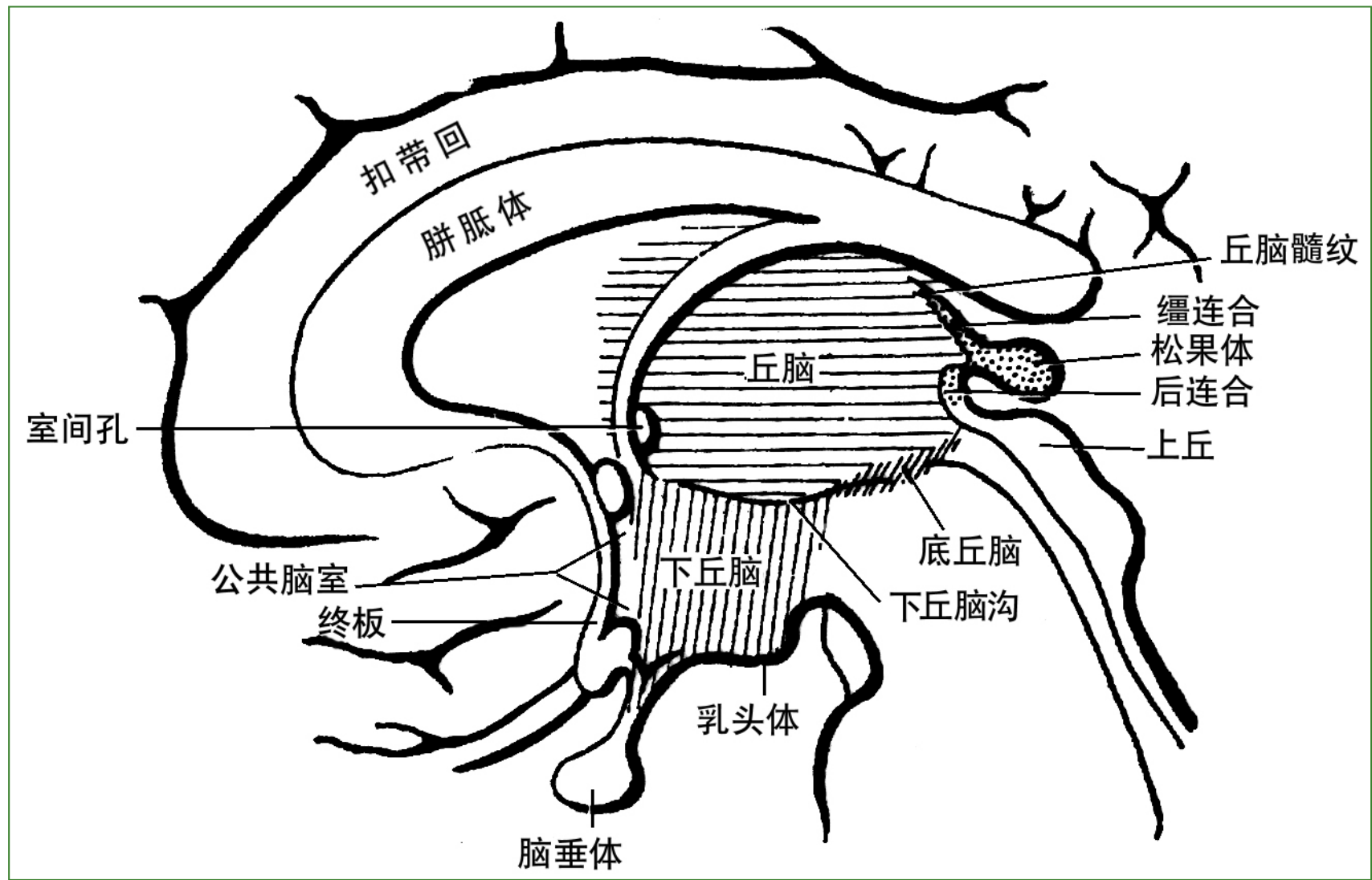
- \* 位于丘脑的背内侧
- \* 由松果体、后连合、缰三角（缰核）和丘脑髓纹组成
- \* 水盐平衡的调节、生长及生物节律；



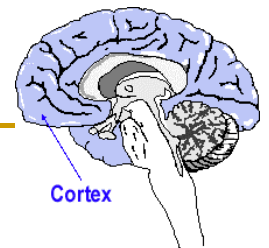
### 3. 上丘脑 (epithalamus)

- \* 位于丘脑的背内侧
- \* 由松果体、后连合、缰三角（缰核）和丘脑髓纹组成
- \* 水盐平衡的调节、生长及生物节律；





## 上丘脑的位置

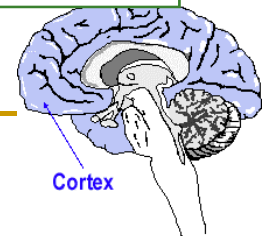
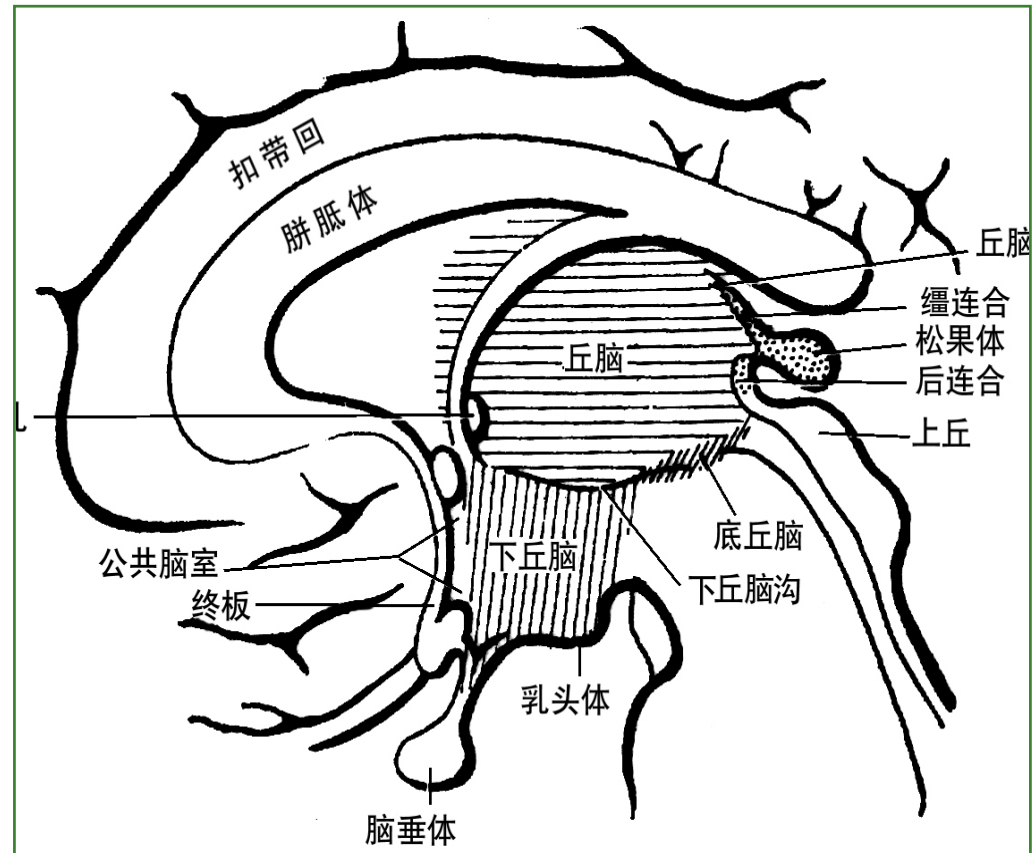




## 4. 底丘脑 (subthalamus)

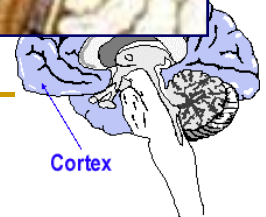
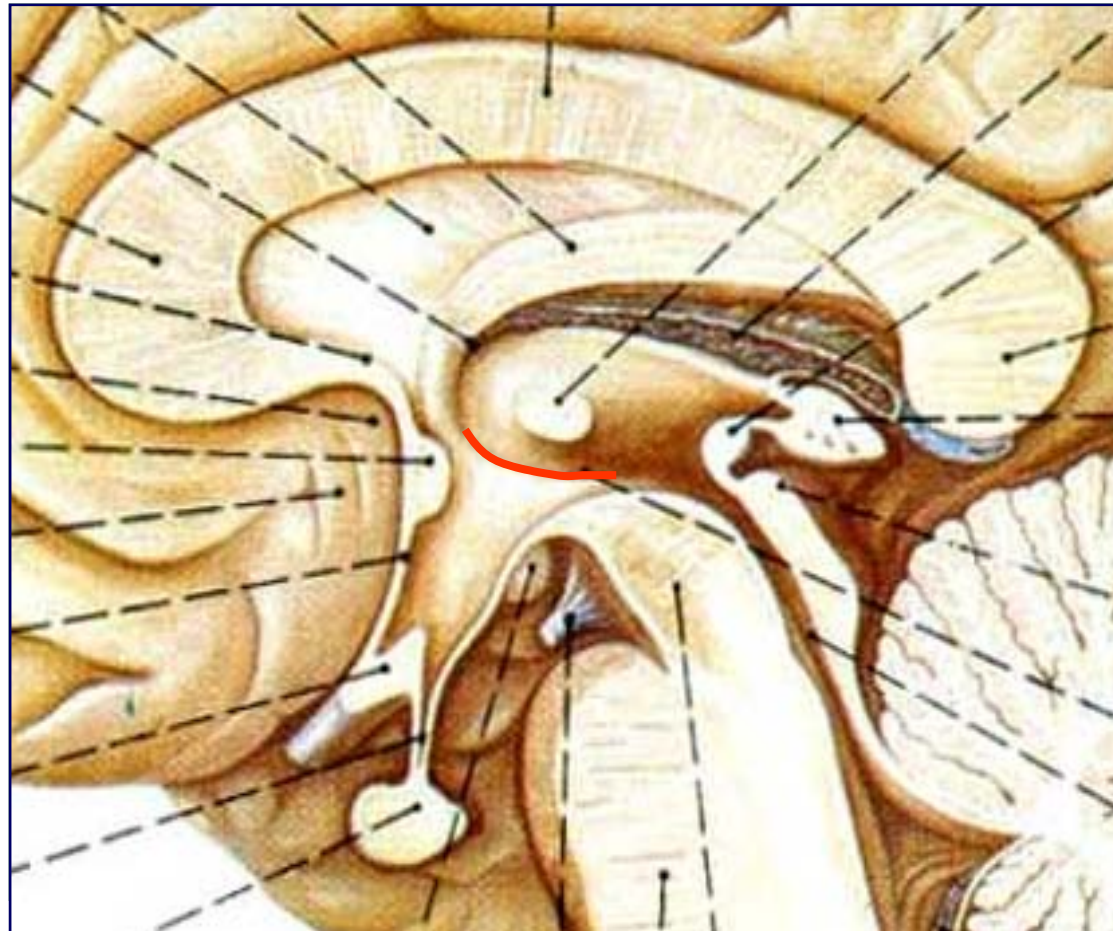
\* 腹侧丘脑，是丘脑向中脑的过渡区域

\* 主要由底丘脑核 (Luys体)构成，是锥体外系的重要结构，参与对运动的调节



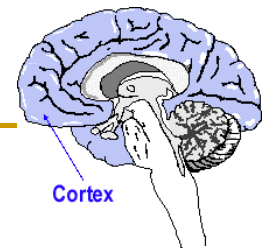
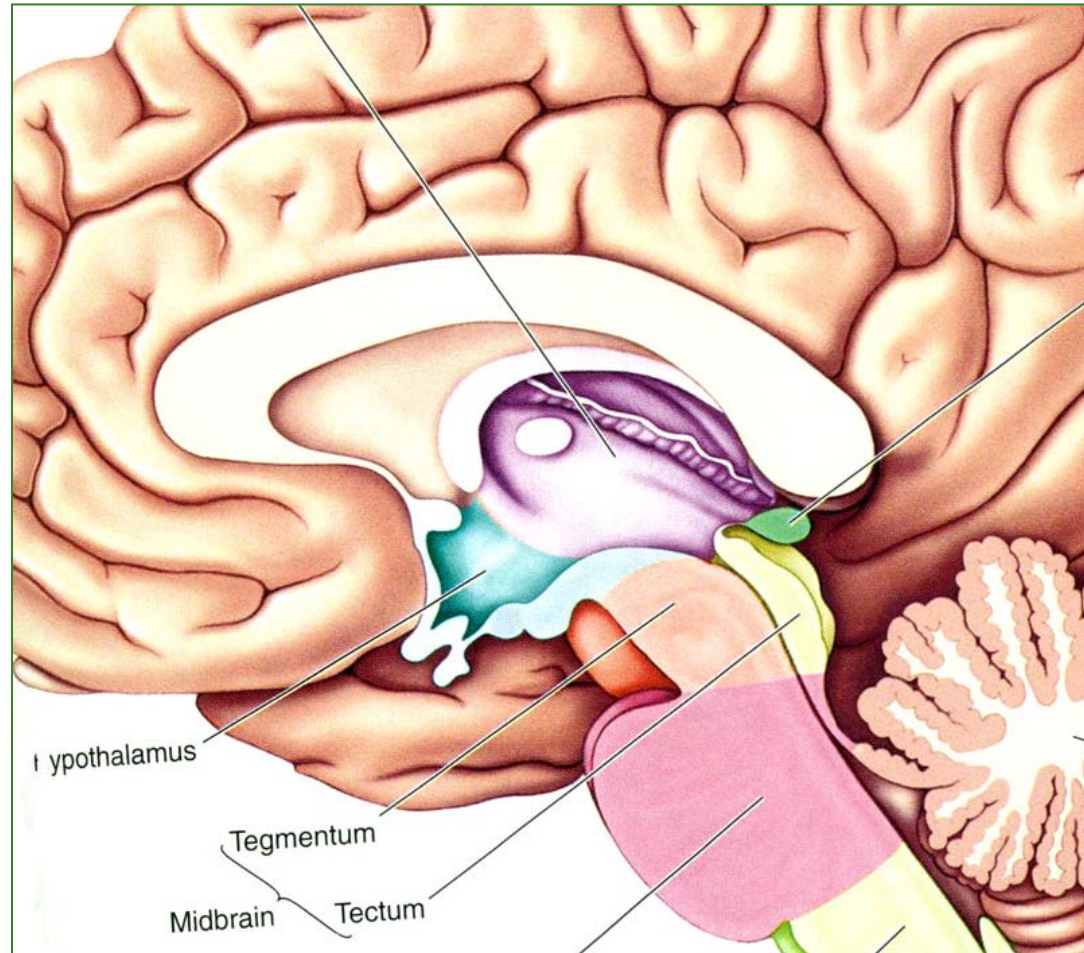
## 5. 下丘脑 (hypothalamus)

- \* 丘脑下部  
下丘脑沟
- \* 前界为终板和视交叉, 尾侧  
与中脑被盖相  
续



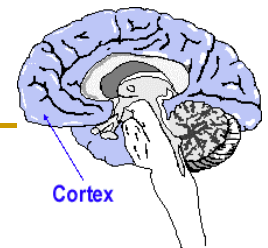
\* 下丘脑的内侧面  
形成第三脑室侧  
壁的下部

\* 下丘脑底面露于  
脑底，在脑表面  
由前向后可以看  
到视交叉、漏斗、  
灰结节和乳头体  
等结构

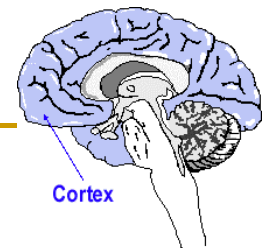


# 下丘脑的主要功能

- 1) 对各种内分泌的调控
- 2) 体温的调节
- 3) 水平衡的调节
- 4) 摄食的调节
- 5) 生物钟的调节



# 大 脑 ( cerebrum )



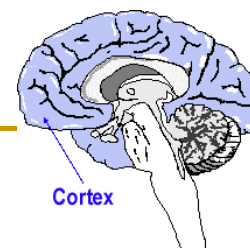
# 大脑形态



核桃



大脑



端脑，由两侧大脑半球藉胼胝体连接而成，是脑的高级中枢。

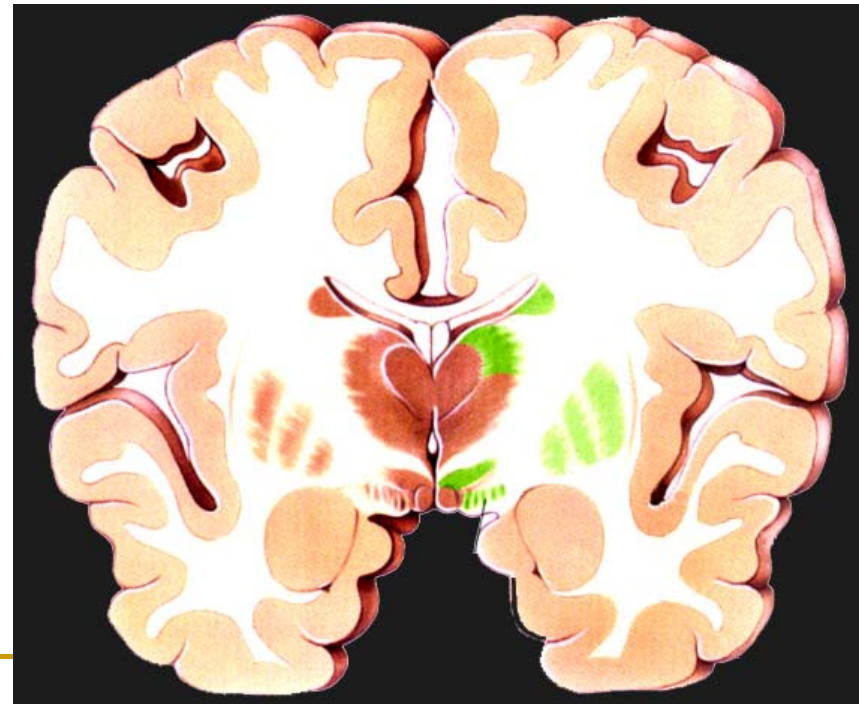
端  
脑

大脑皮质(大脑皮层)

大脑白质(大脑髓质)

基底核

侧脑室

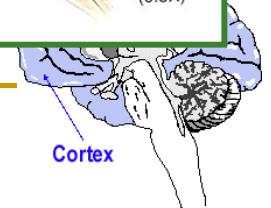
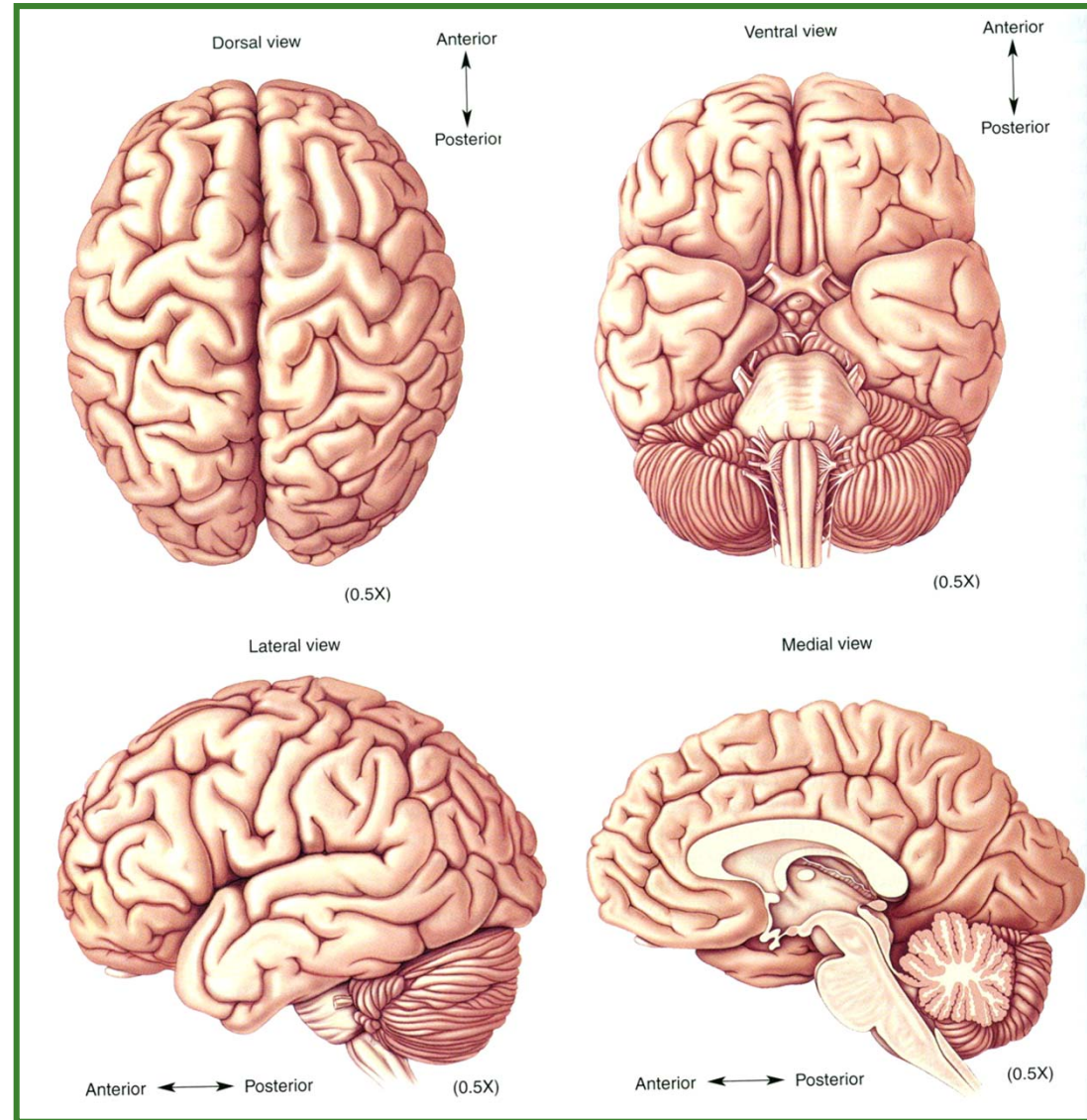


Cortex



# 1. 外部特征

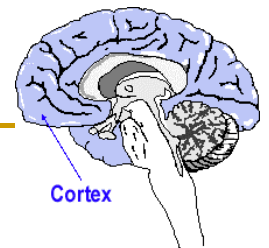
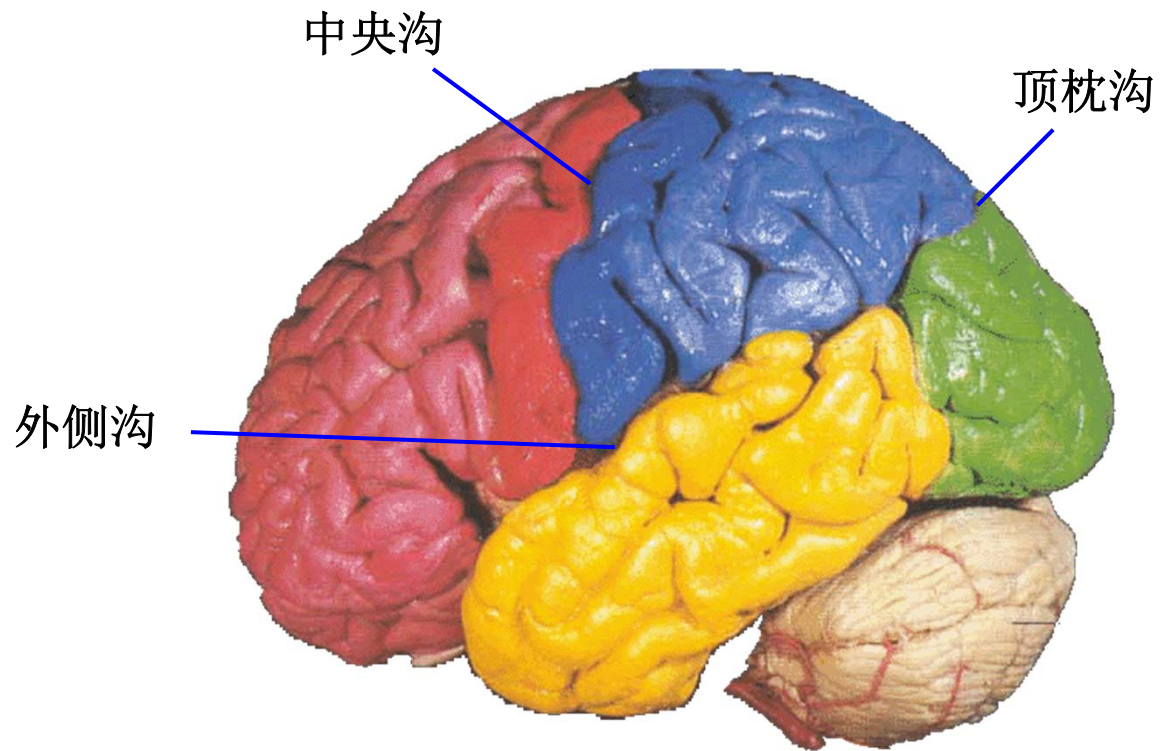
- 大脑纵裂
- 大脑横裂
- 三个面  
上外侧面  
内侧面  
底面





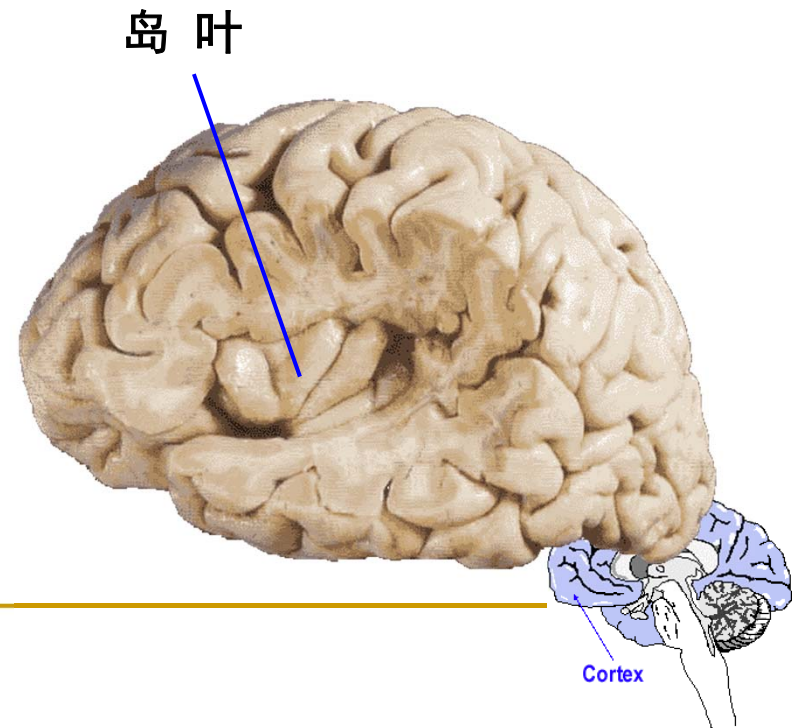
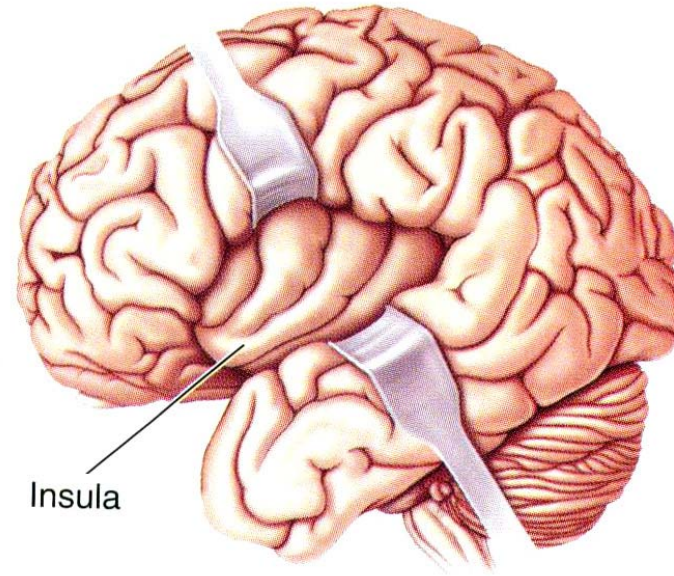
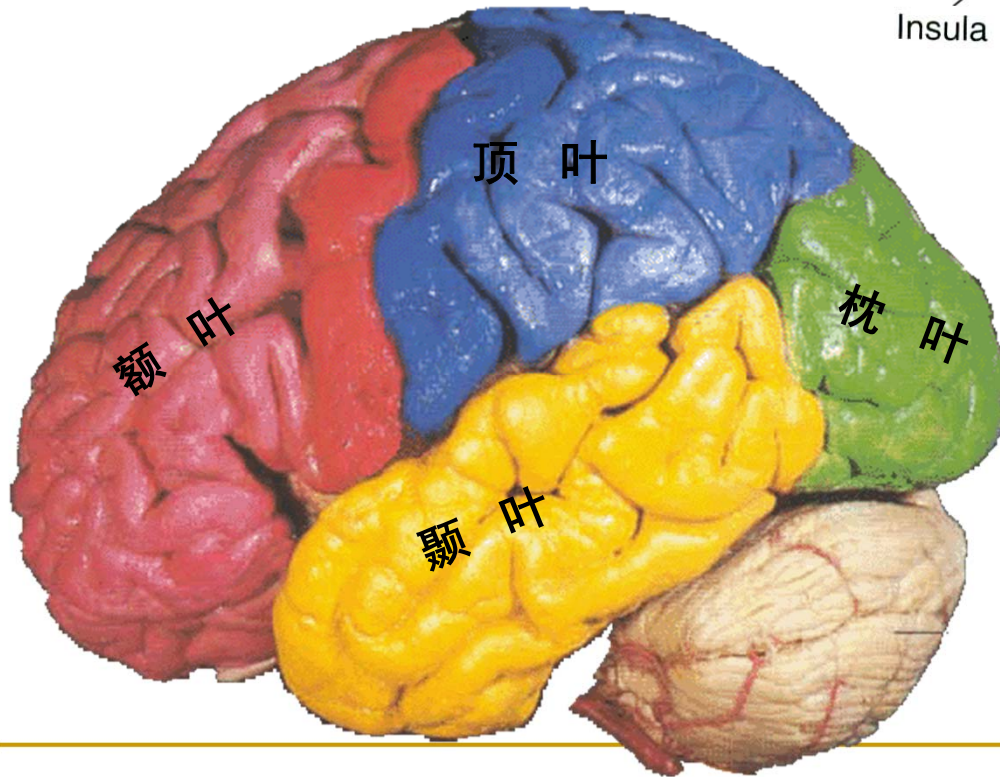
## 三个主要脑沟

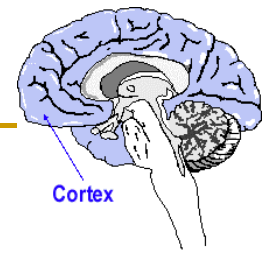
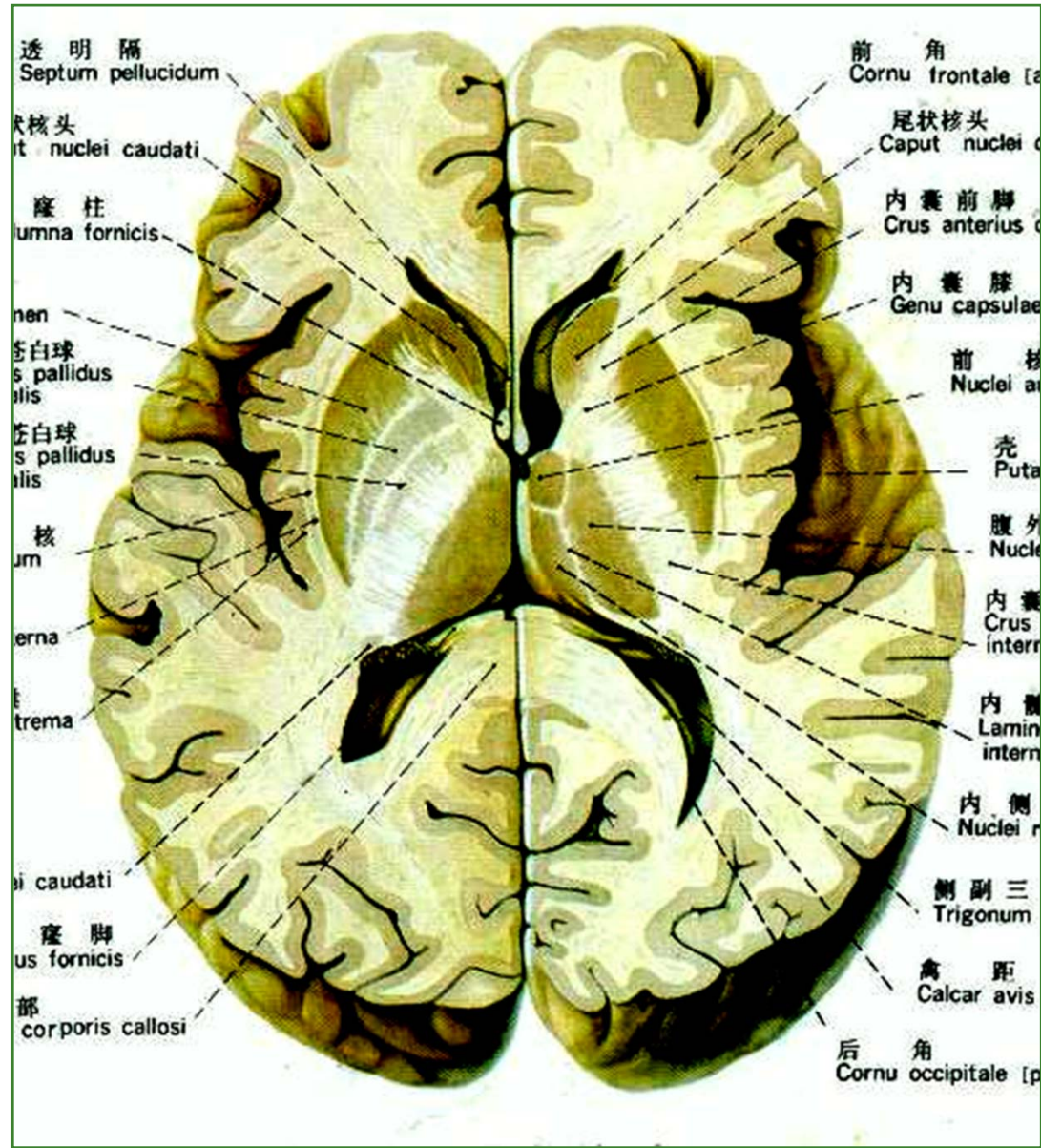
- 中央沟
- 外侧沟
- 顶枕沟



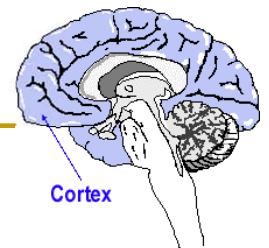
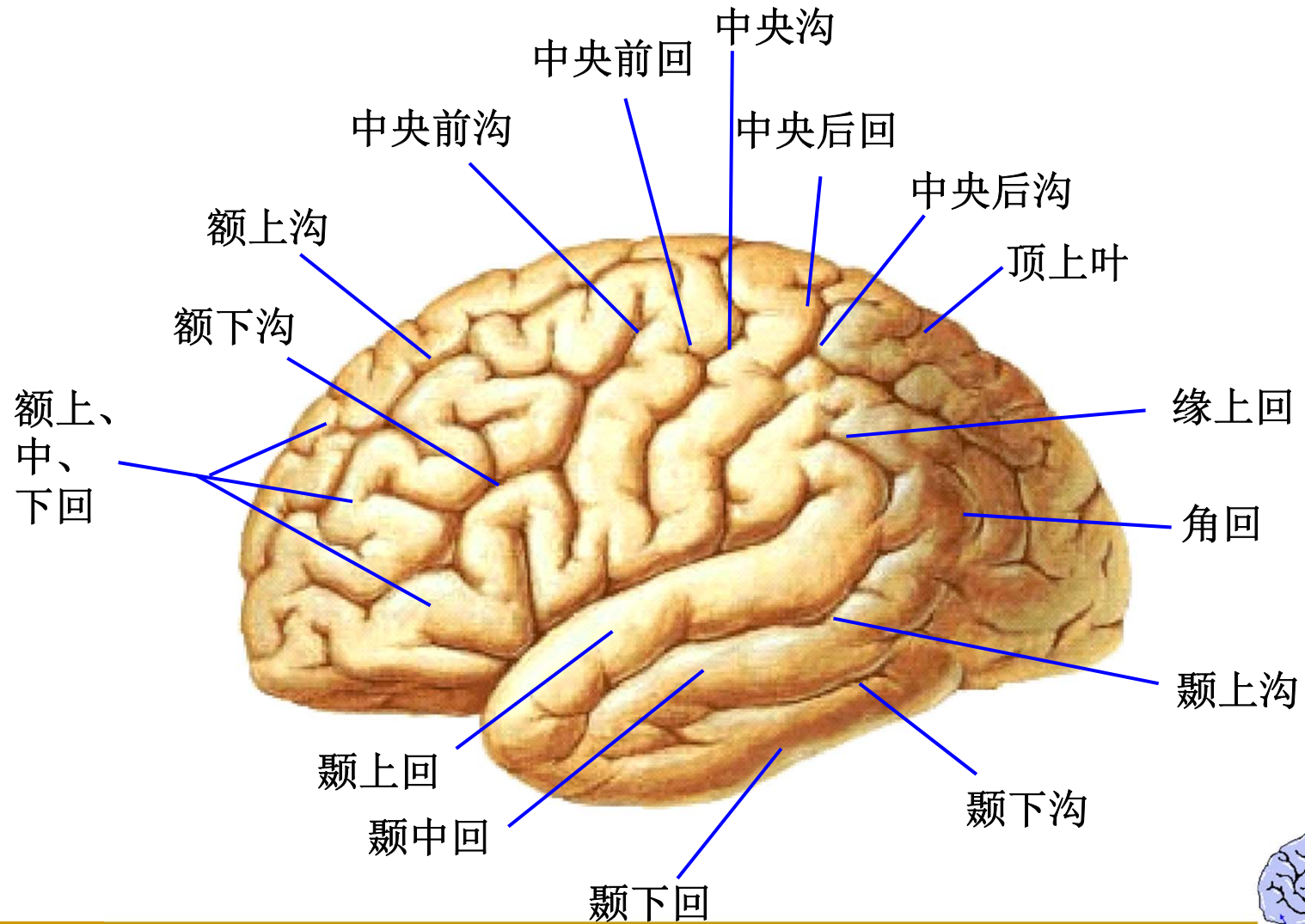
# 脑的分叶

- 额叶
- 顶叶
- 颞叶
- 枕叶
- 岛叶

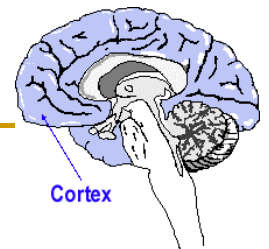
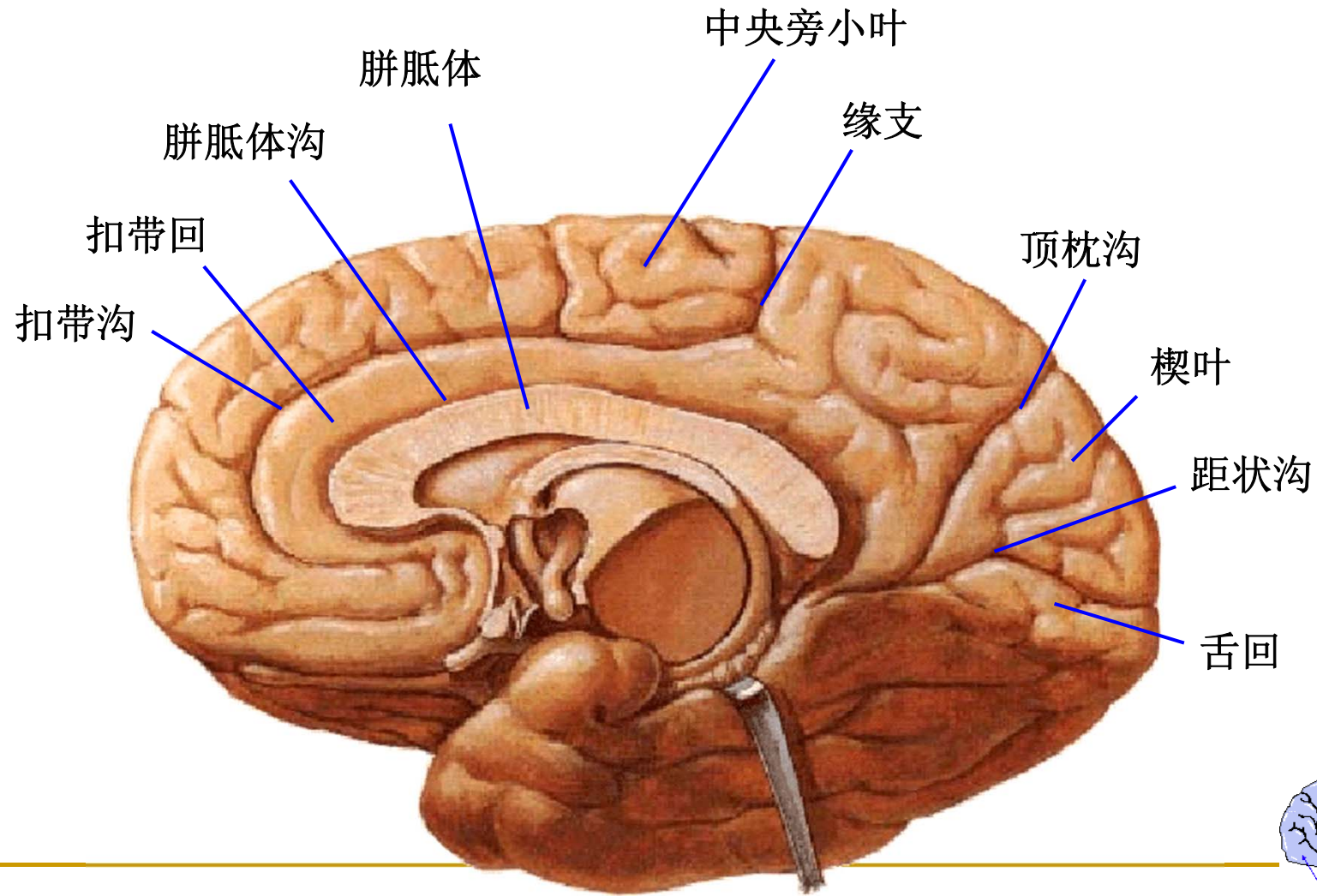




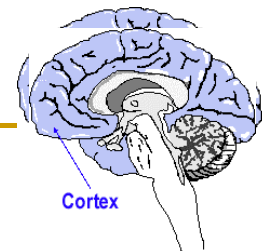
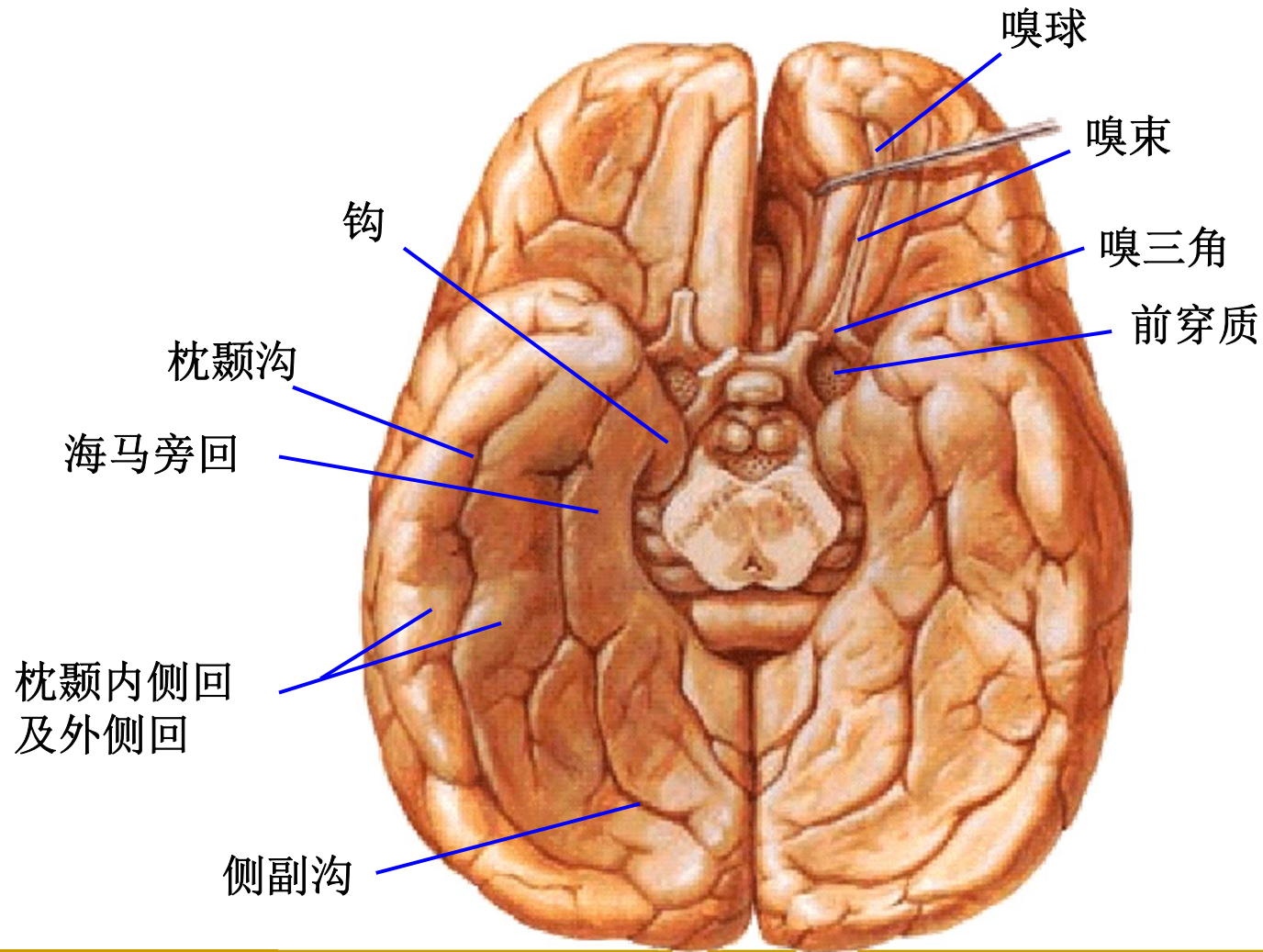
# 大脑半球外侧面的沟回



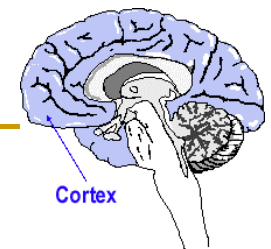
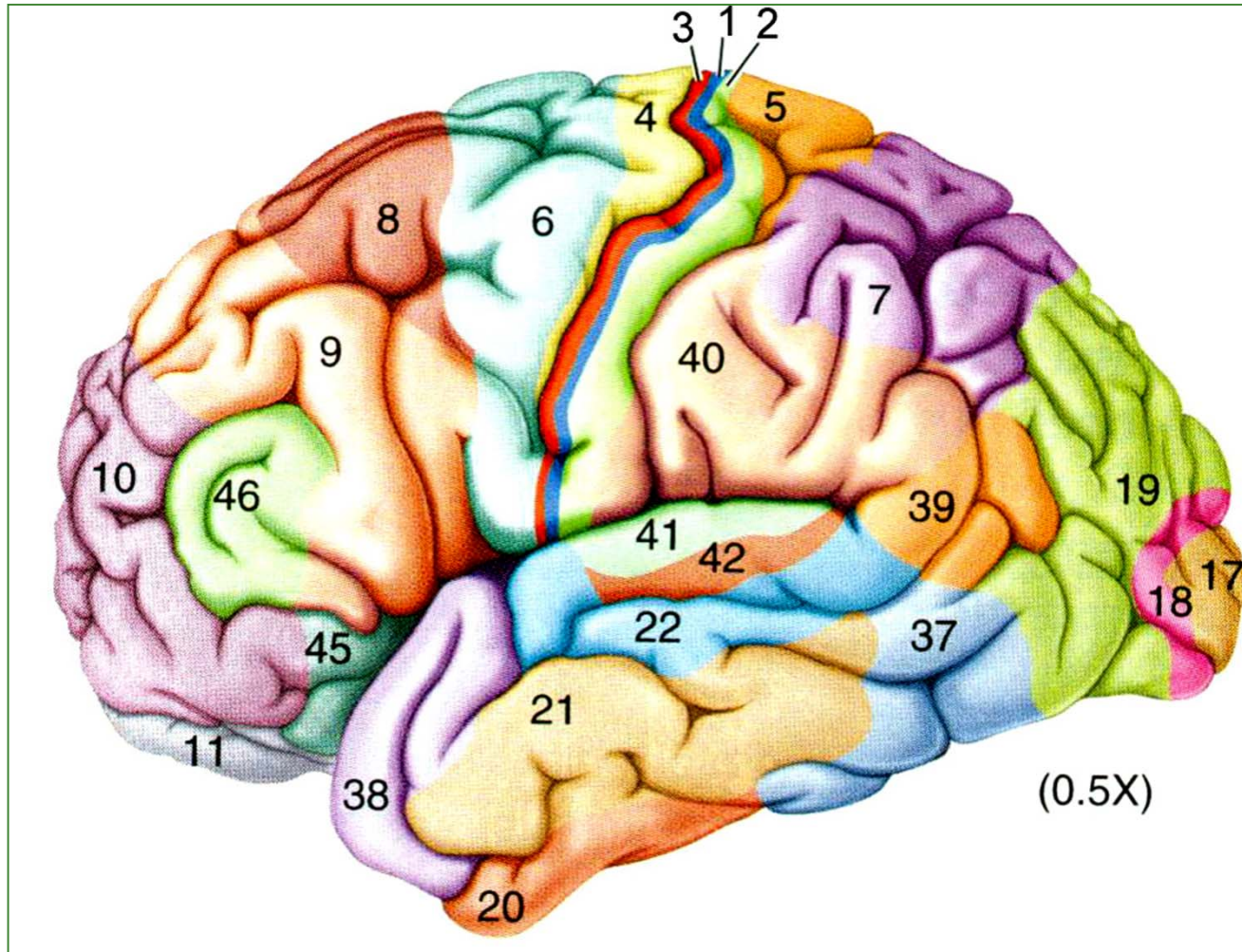
# 大脑半球内侧面的沟回



# 大脑半球底面的沟回



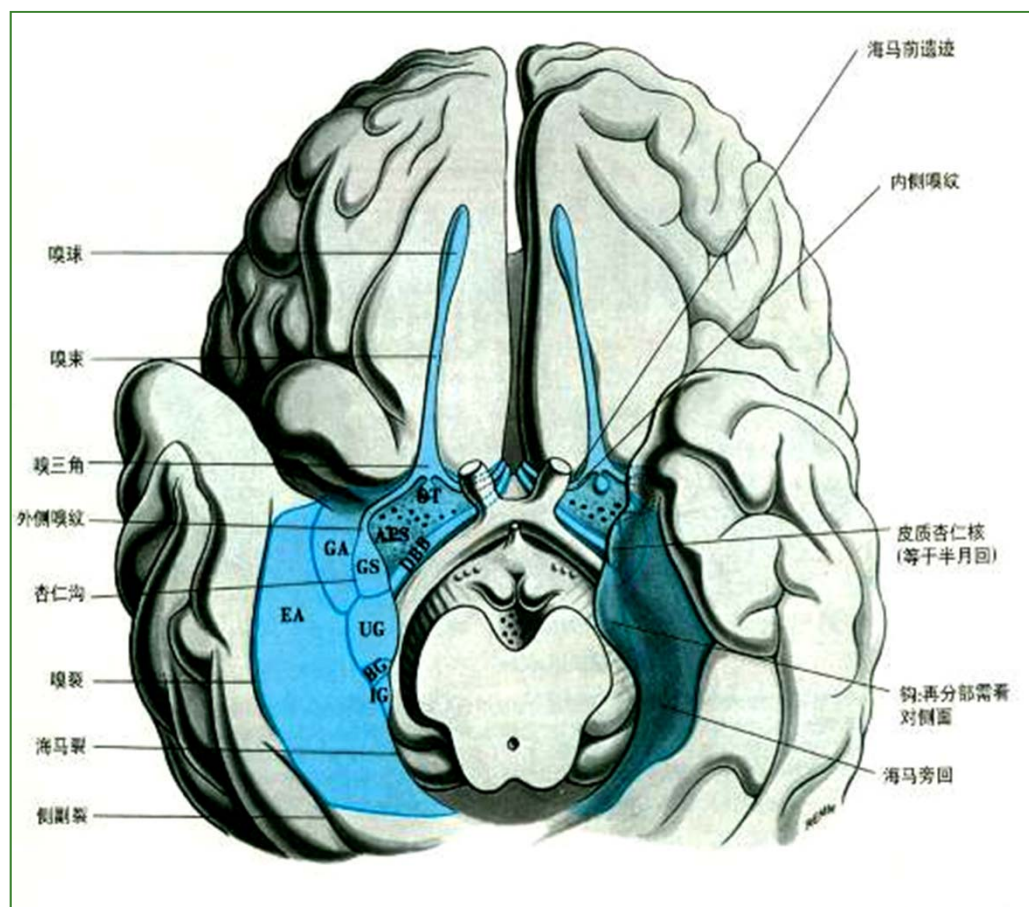
# 大脑皮质的功能分区



# 嗅脑

大脑半球与嗅觉有关的部分统称为嗅脑

嗅球  
嗅束  
嗅三角  
嗅纹  
前嗅核  
嗅结节  
部分杏仁核  
部分前梨状皮质



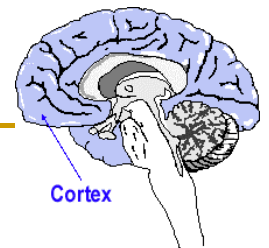
Cortex



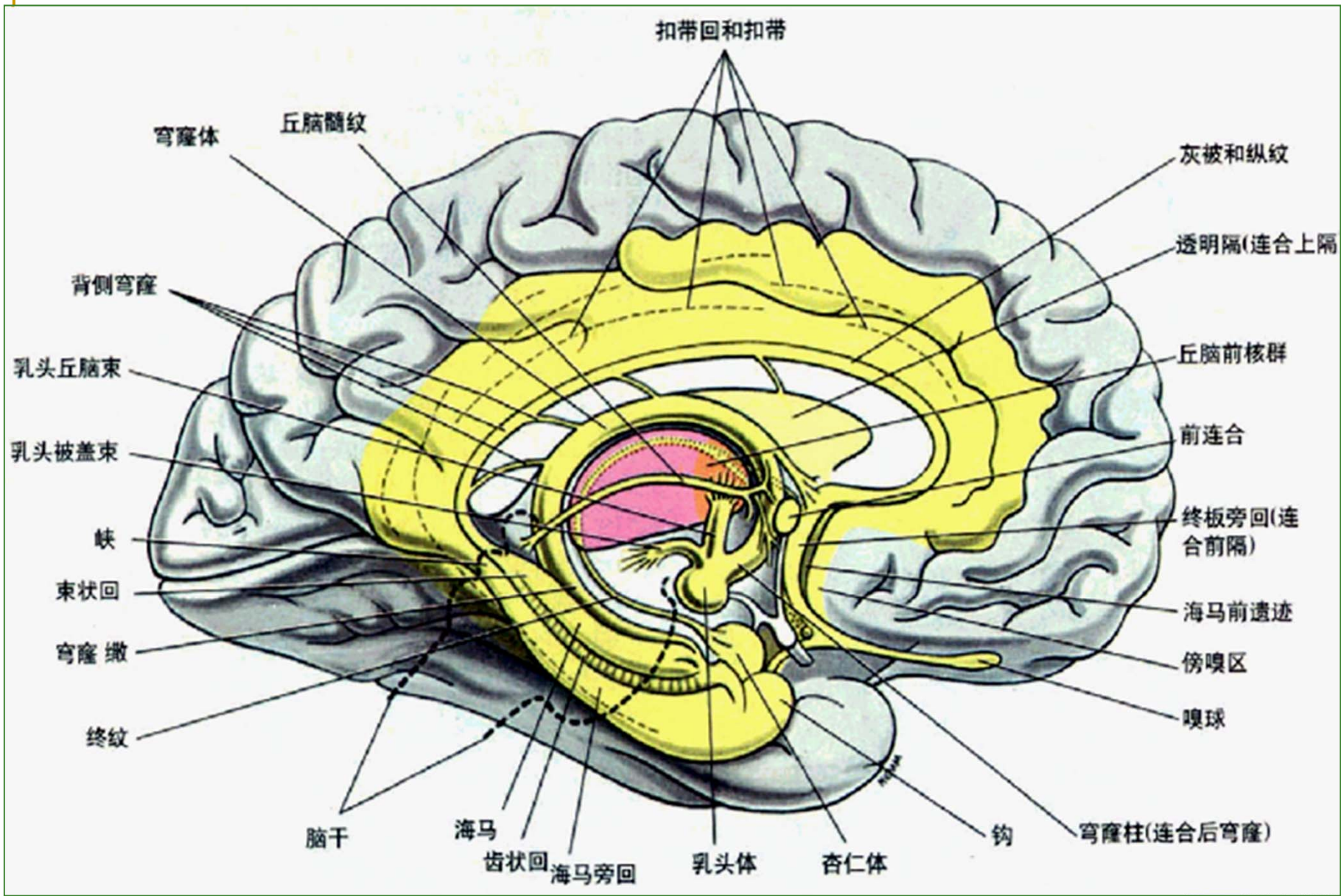
# 边缘系

**边缘叶：**在大脑半球内侧面，扣带回和海马旁回等呈环形围绕胼胝体，它们和露于侧脑室下角内的海马和齿状回等共同组成边缘叶。

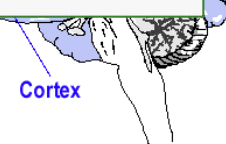
**边缘系：**边缘叶以及与它联系密切的皮质下结构，如杏仁体、隔核、下丘脑、背侧丘脑的前核群等共同组成边缘系，也称内脏脑。







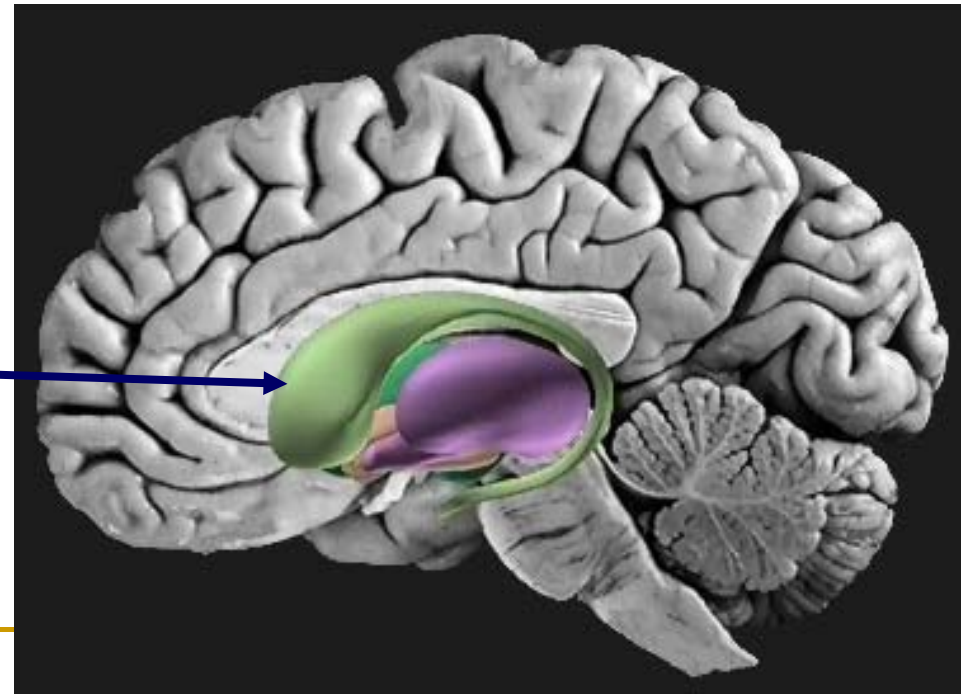
Cortex



## 2. 基底核 (basal nuclei)

又称基底神经节(basal ganglion)，是位于大脑半球白质的中央靠近脑底处的较大的神经核簇。是重要的运动调节中枢。

基底核



# 基底神经节

尾状核  
(Caudate nucleus)

豆状核  
(Lentiform nucleus)

屏状核  
(Clustrum nucleus)

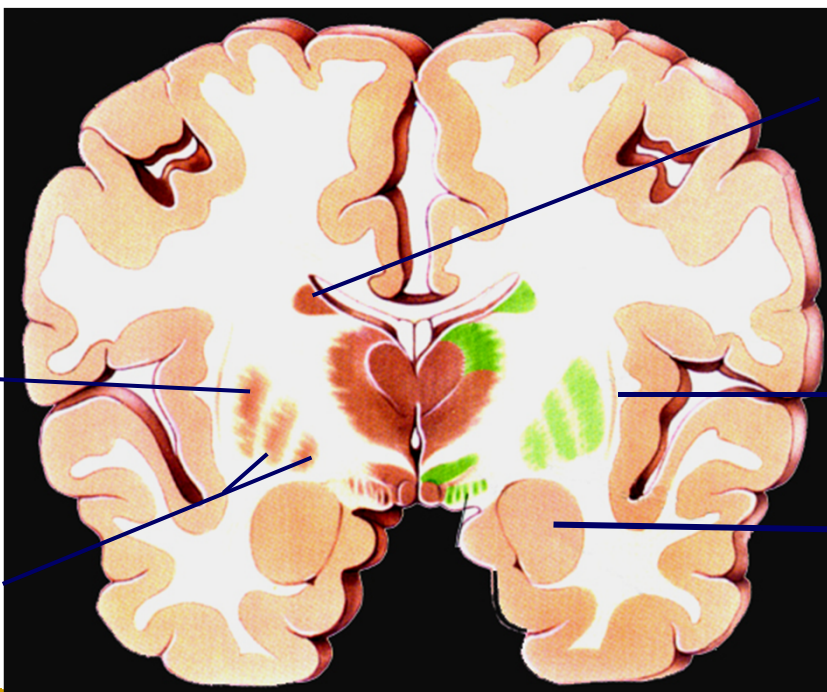
杏仁核  
(Amygdloid nucleus)

壳  
(Putamen)

苍白球 (Globus pallidus) — 旧纹状体

(新)纹状体 (Striatum)

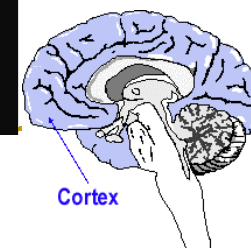
壳  
苍白球

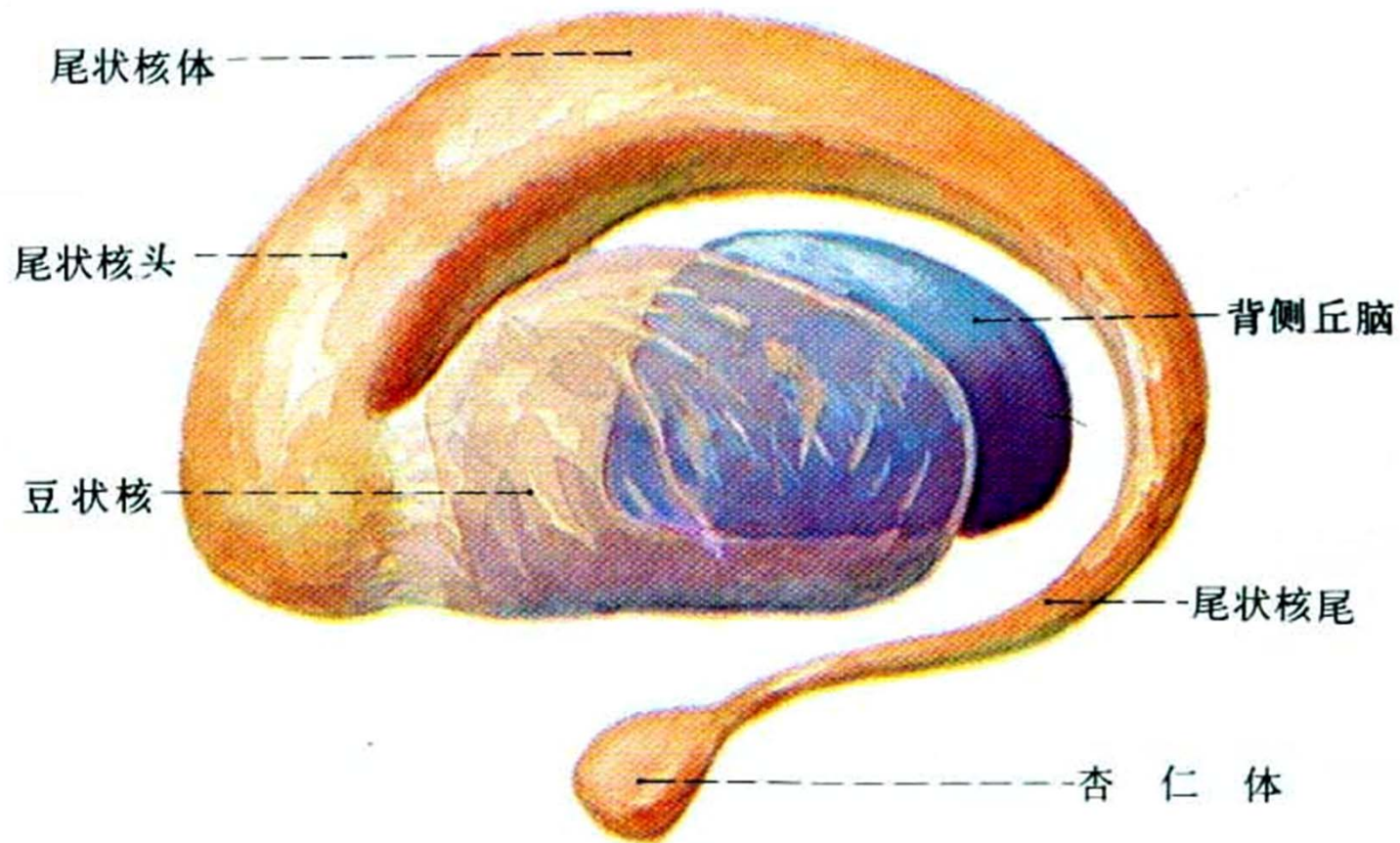


尾状核

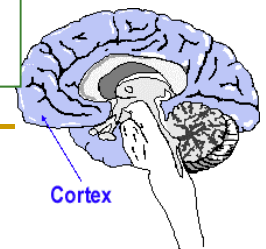
屏状核

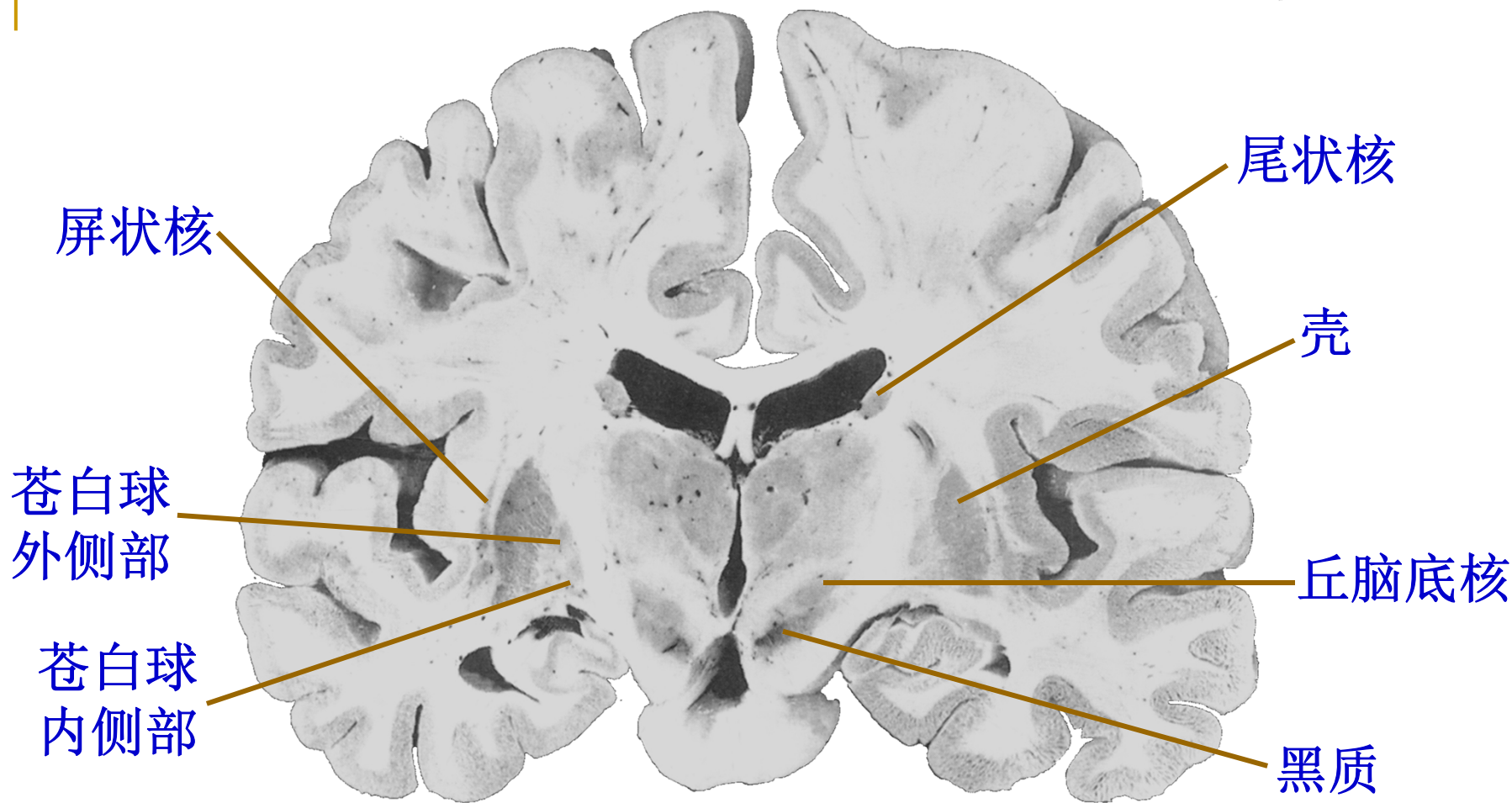
杏仁核



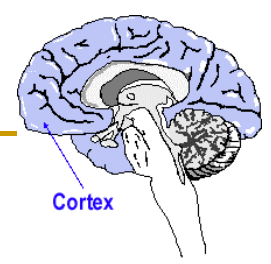


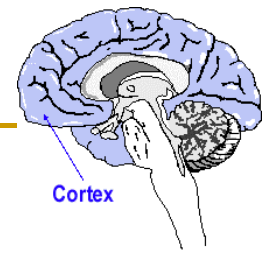
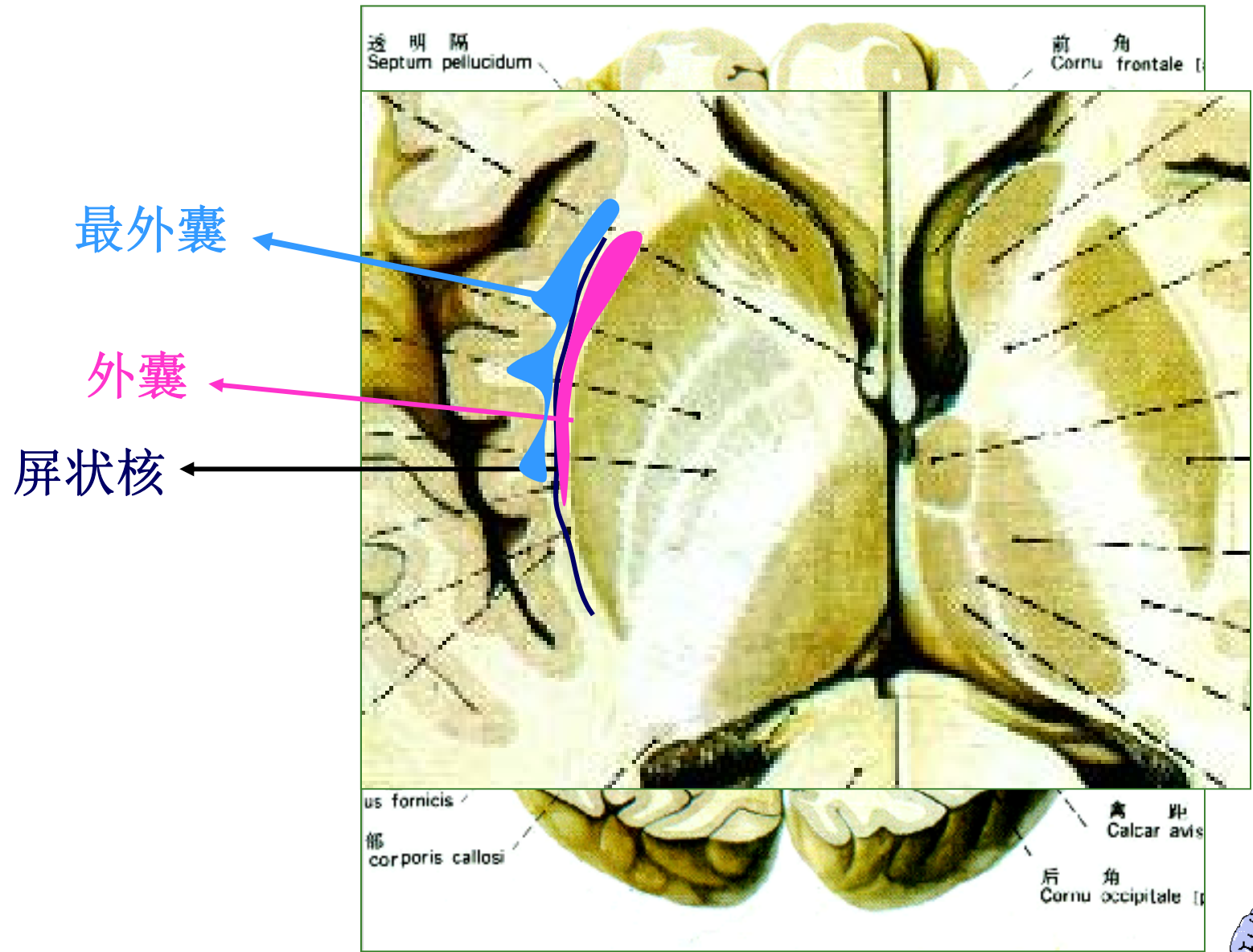
基底核  
The basal nuclei





人脑冠状切面

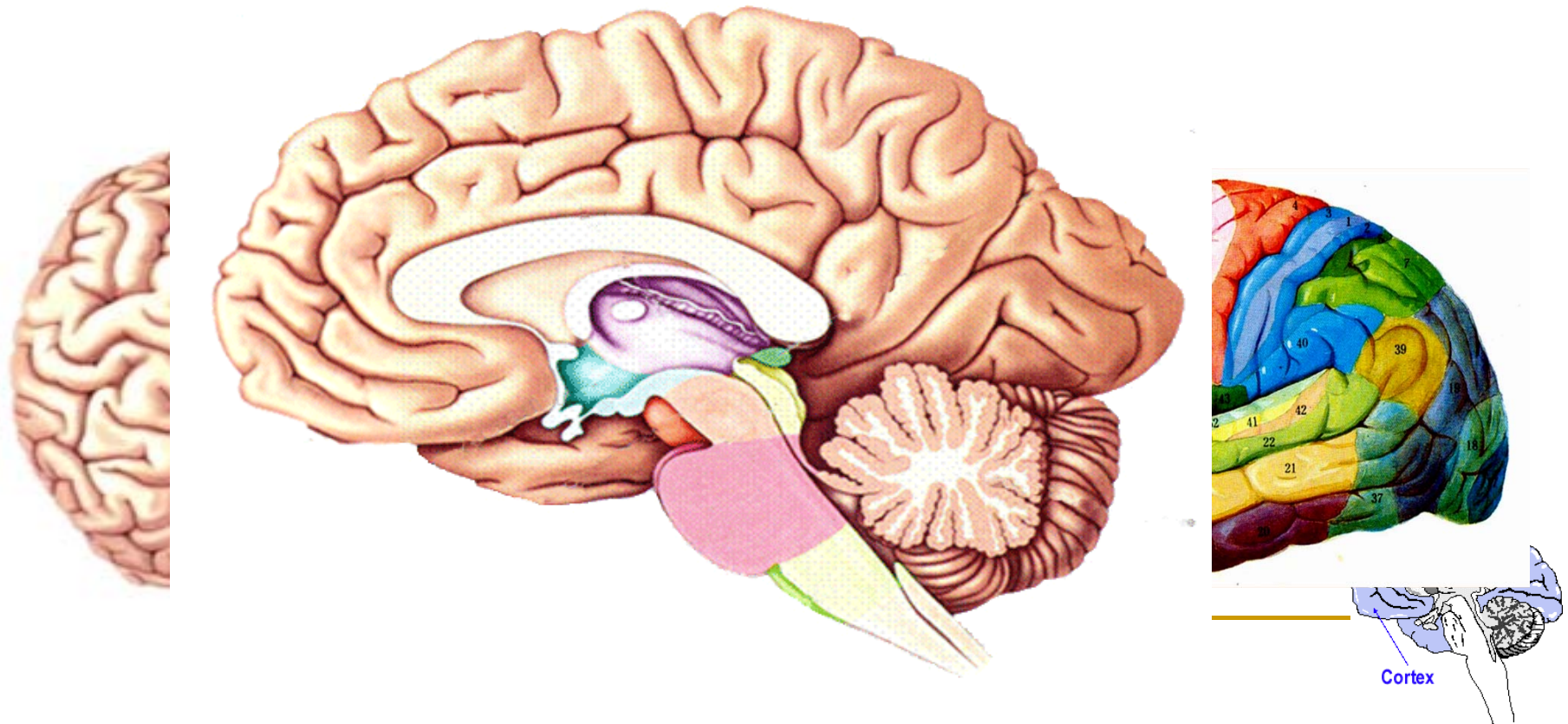






# 授课小结

## 3. 大脑的外形、构造及功能功能



# 复习思考题

1. 解释：边缘系统、基底核、纹状体。
2. 简述小脑的结构和功能。
3. 画图显示背侧丘脑的构成。
4. 简述下丘脑的位置和下丘脑的主要功能？
5. 基底核有哪些结构？其功能如何？

