

وسهلا

أهلا



الأستاذ الدكتور يوسف حسين

أستاذ التشريح وعلم الأجنة - كلية الطب - جامعة الزقازيق - مصر

رئيس قسم التشريح و الأنسجة و الأجنة - كلية الطب - جامعة مؤتة - الأردن

دكتورة من جامعة كولونيا المانيا

Dr. Youssef Hussein Anatomy اليوتيوب

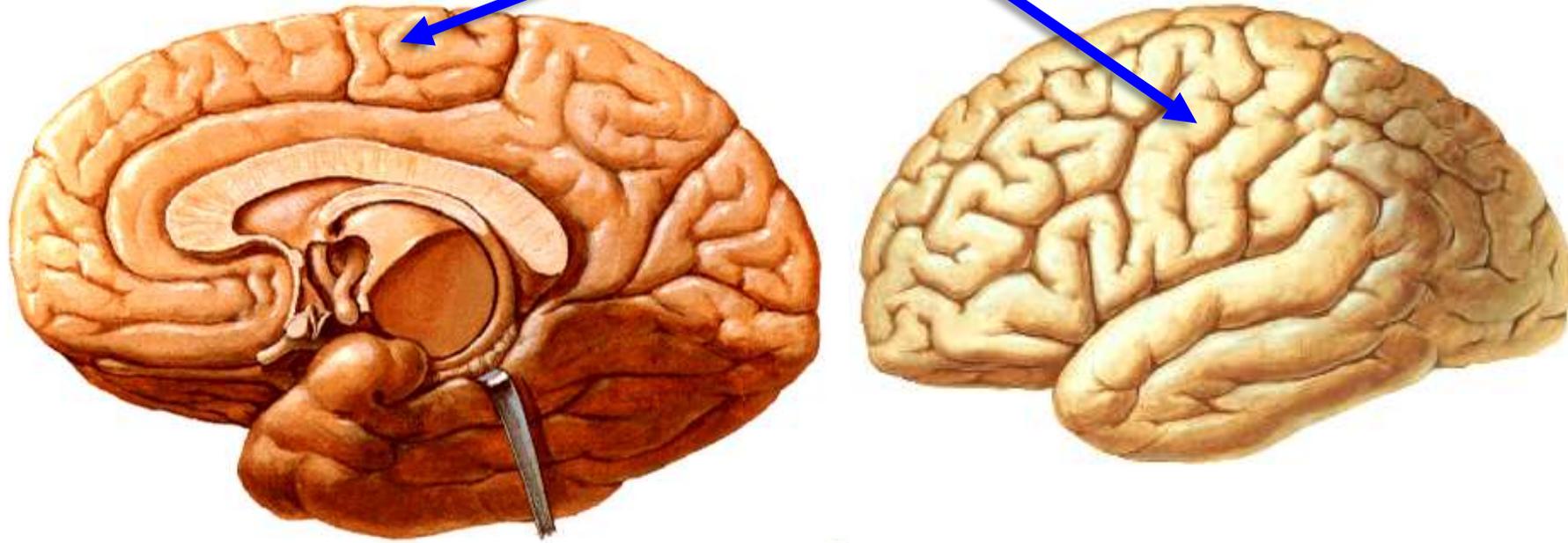
جروب الفيس د. يوسف حسين (استاذ التشريح)



**Functional
areas of the
Superolateral
surface**

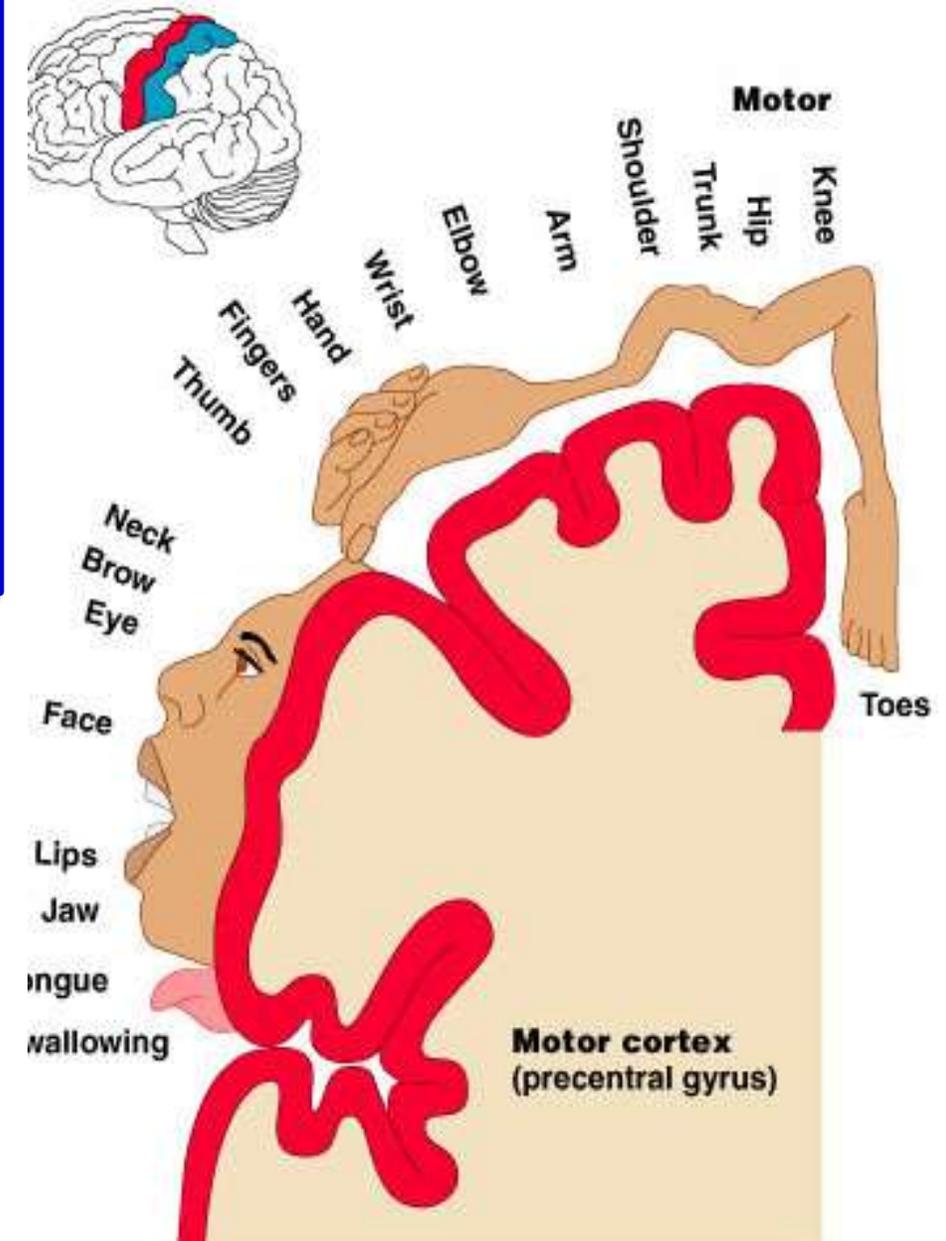
Motor area 4

dr_youssefhussein@yahoo.com



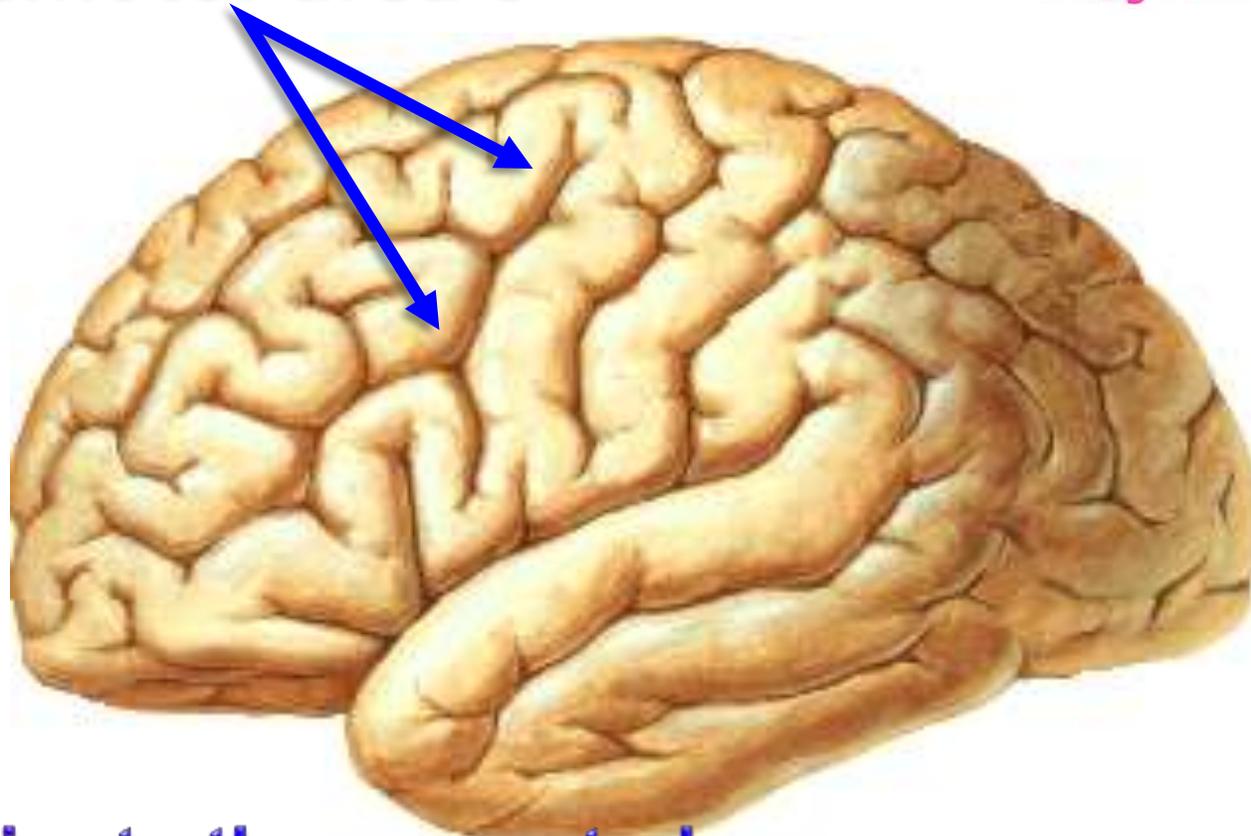
- **Primary motor area** corresponds to the precentral gyrus (area 4), anterior part of the paracentral lobule **Controls motor functions**

- A body represented in upside down.
- Head represented in lower part of precentral gyrus, leg and foot, represented on medial surface of hemisphere in paracentral lobule, size depends on skill
- **Lesion** of the area 4 results in contra-lateral hemiplegia (**UMNL**).



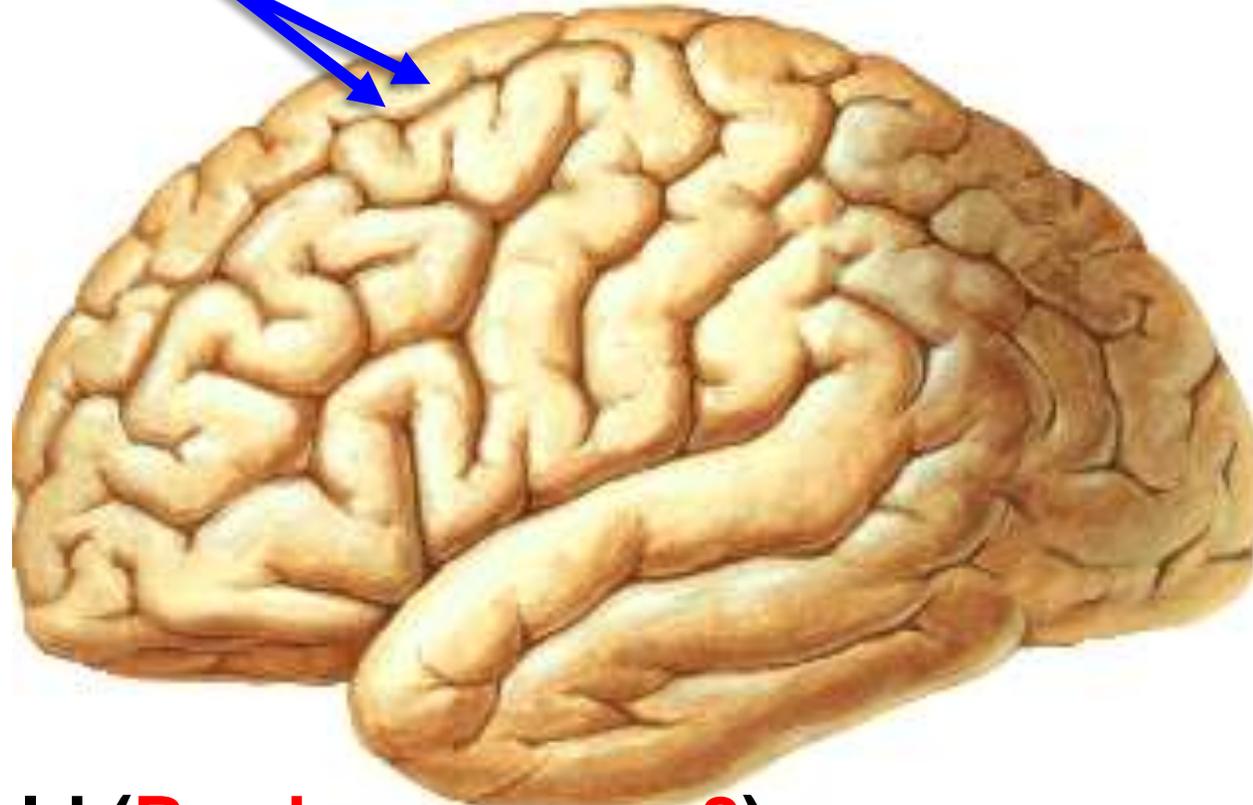
Premotor area 6

dr_youssefhussein@yahoo.com



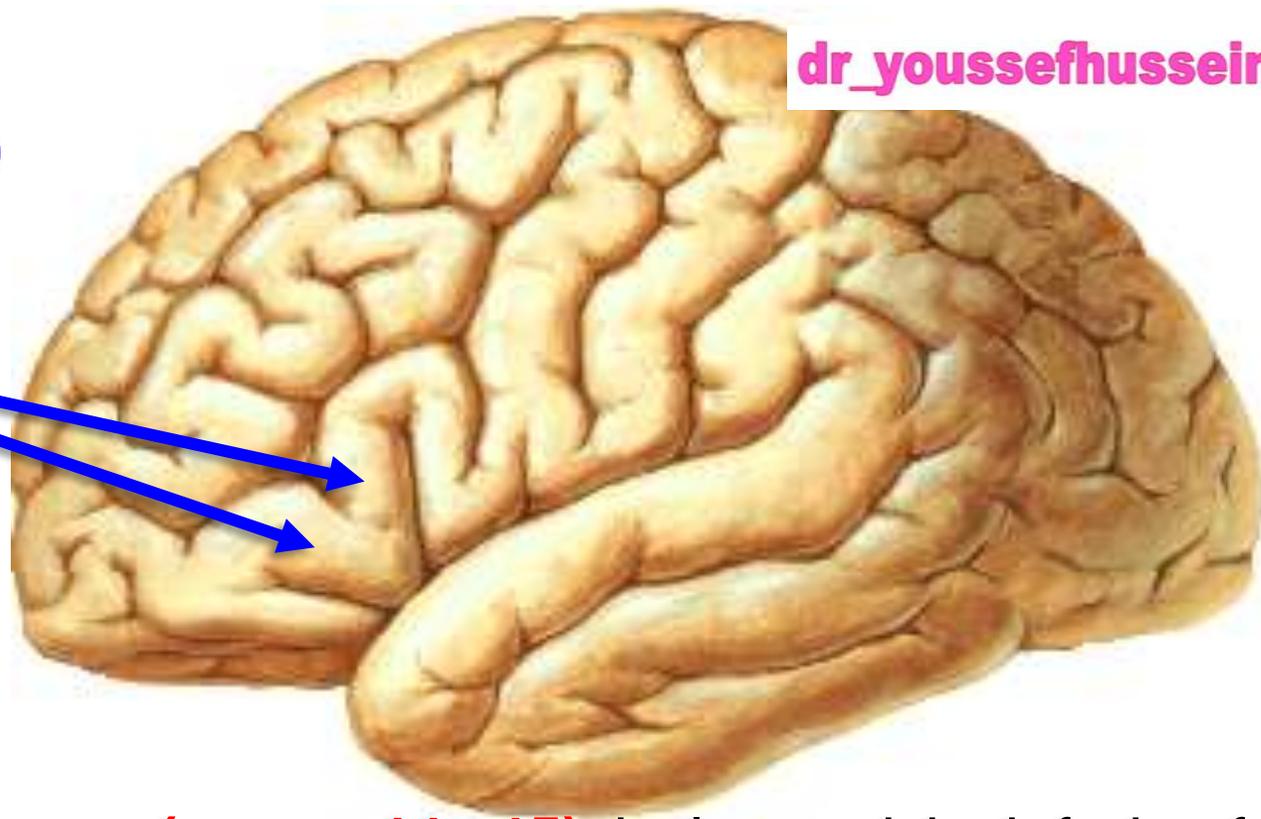
- **Located anterior to the precentral gyrus**
- **It is the origin of extrapyramidal fibers**
- **Controls more complex movements**
- **Involved in the *planning of movements* and storage of the learned movements to bring them later on.**

Frontal eye field area 8



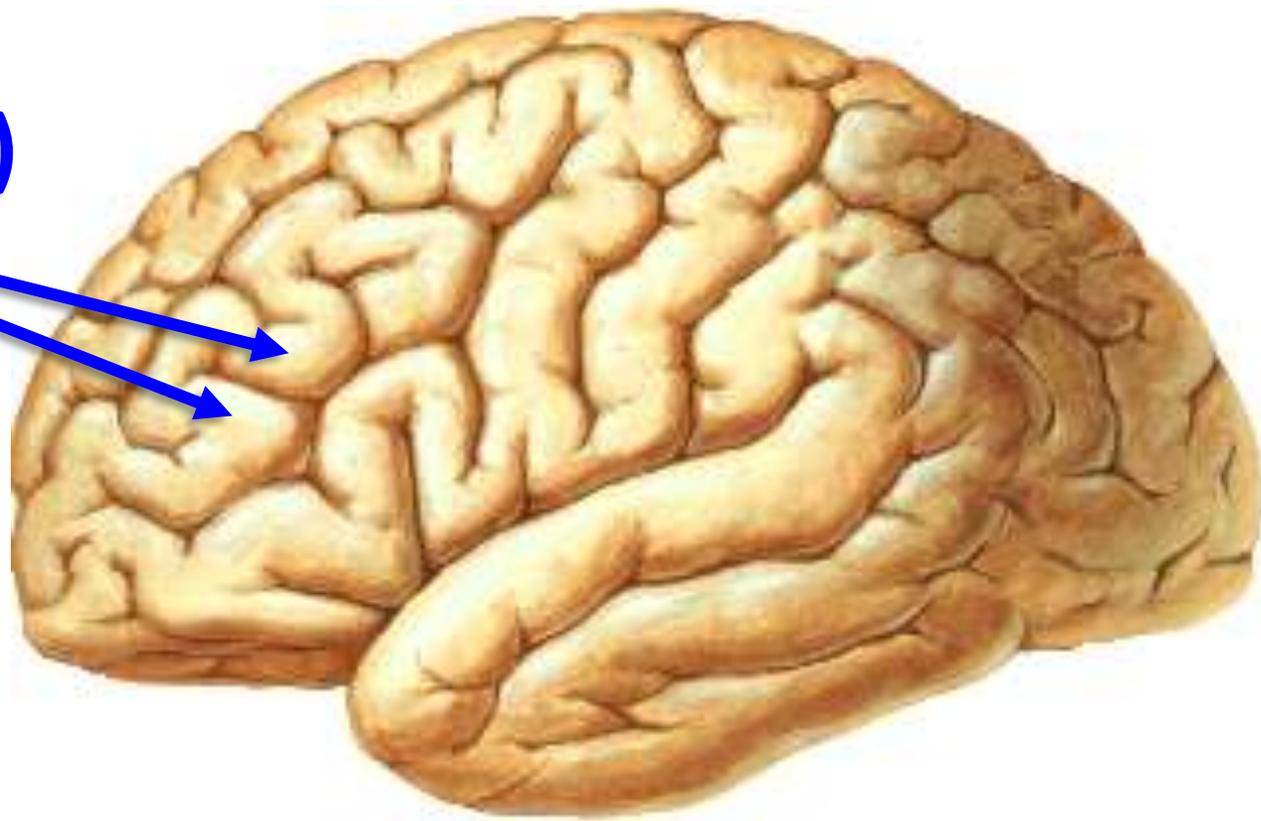
- **Frontal eye field (Brodmann area 8):**
 - It lies anterior to the premotor cortex in the superior frontal gyrus
 - **It controls movements of the eyes when eyes follow a moving target.**

(Broca's area)
44, 45



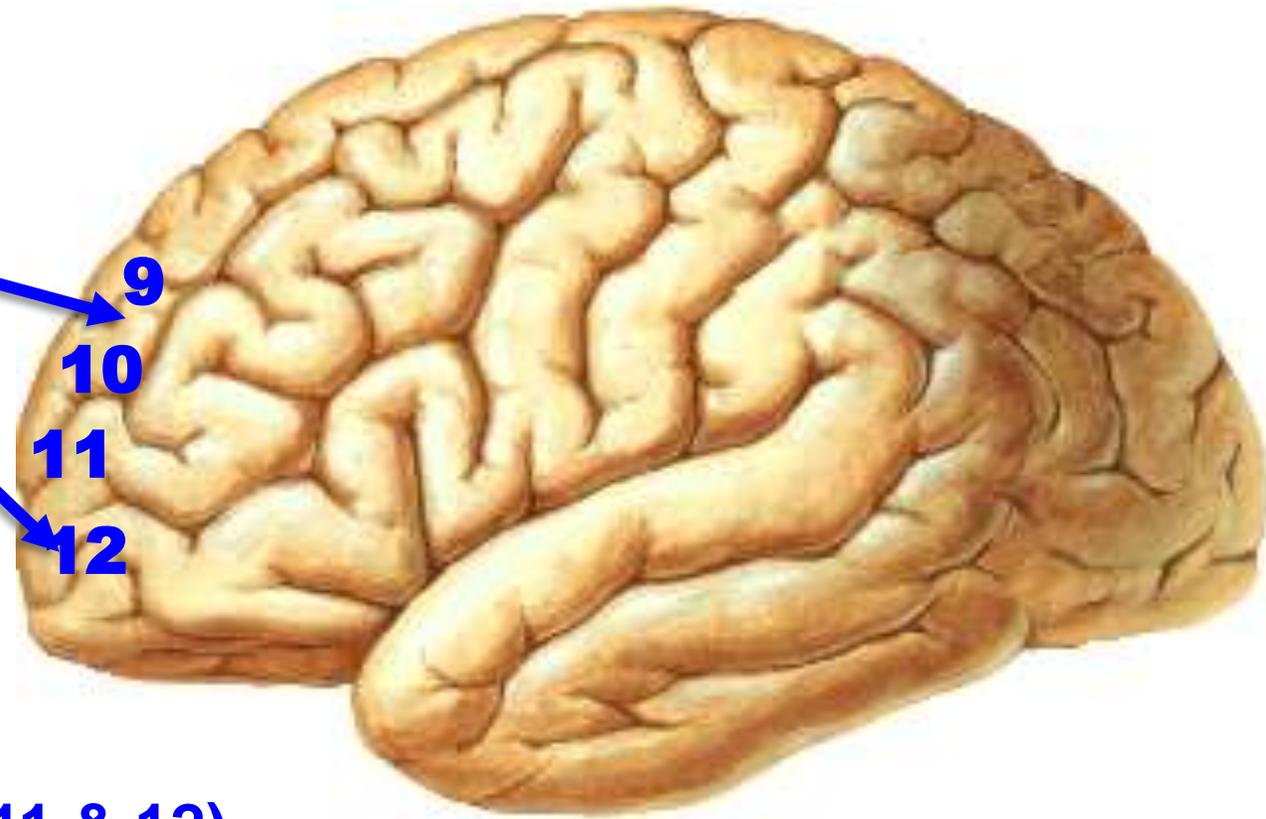
- **Motor speech (Broca's) area (areas 44, 45)** is located in inferior frontal gyrus between the anterior and ascending rami (triangular area) of the lateral sulcus of the dominant hemisphere (95%).
- It brings about the formation of words by its connections with the adjacent primary motor areas; the muscles of the speech.
- Lesion in this area produces **motor aphasia** (loss of speech).

(Writing area)



- **Writing area (Exner's area);**
 - It lies in the middle frontal gyrus.
 - The person able to express himself in written words
 - Lesion leading to **Agraphia** (loss of ability to write)

Prefrontal areas



Prefrontal area (areas 9,10,11,& 12)

- It lies in the most anterior part of the frontal lobe.

- **It is responsible for:**

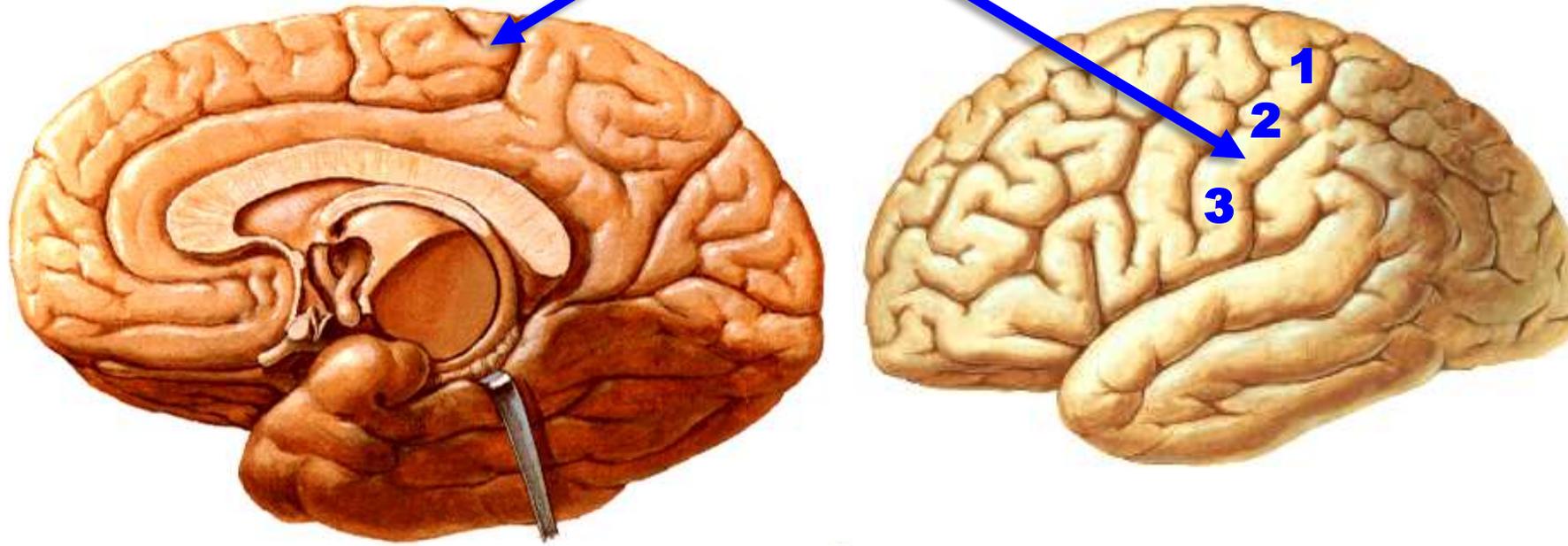
A- Planning, thinking, remember and problem solving

B- Motivating, emotions, good & sinful behavior, mood, psychological activities.

C- Telling of lies and truth

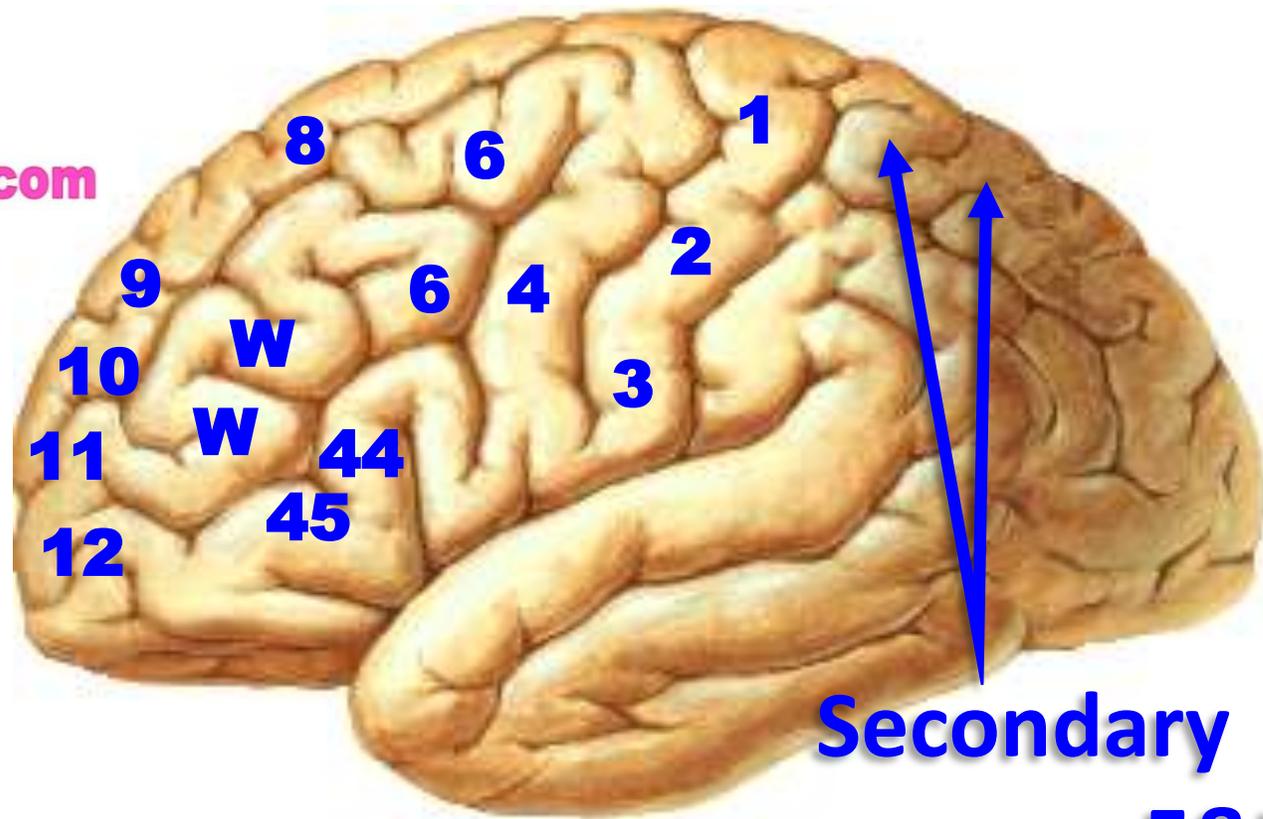
Somatosensory area 1,2,3

dr_youssefhussein@yahoo.com



- Somatosensory (**Primary sensory**) cortex corresponds to postcentral gyrus (**areas 1,2,3**), posterior part of paracentral lobule
- It receives sensations from opposite side of body.
- The body represented upside down
- Lesion in this area leads to **loss of sensation** in opposite side of the body.

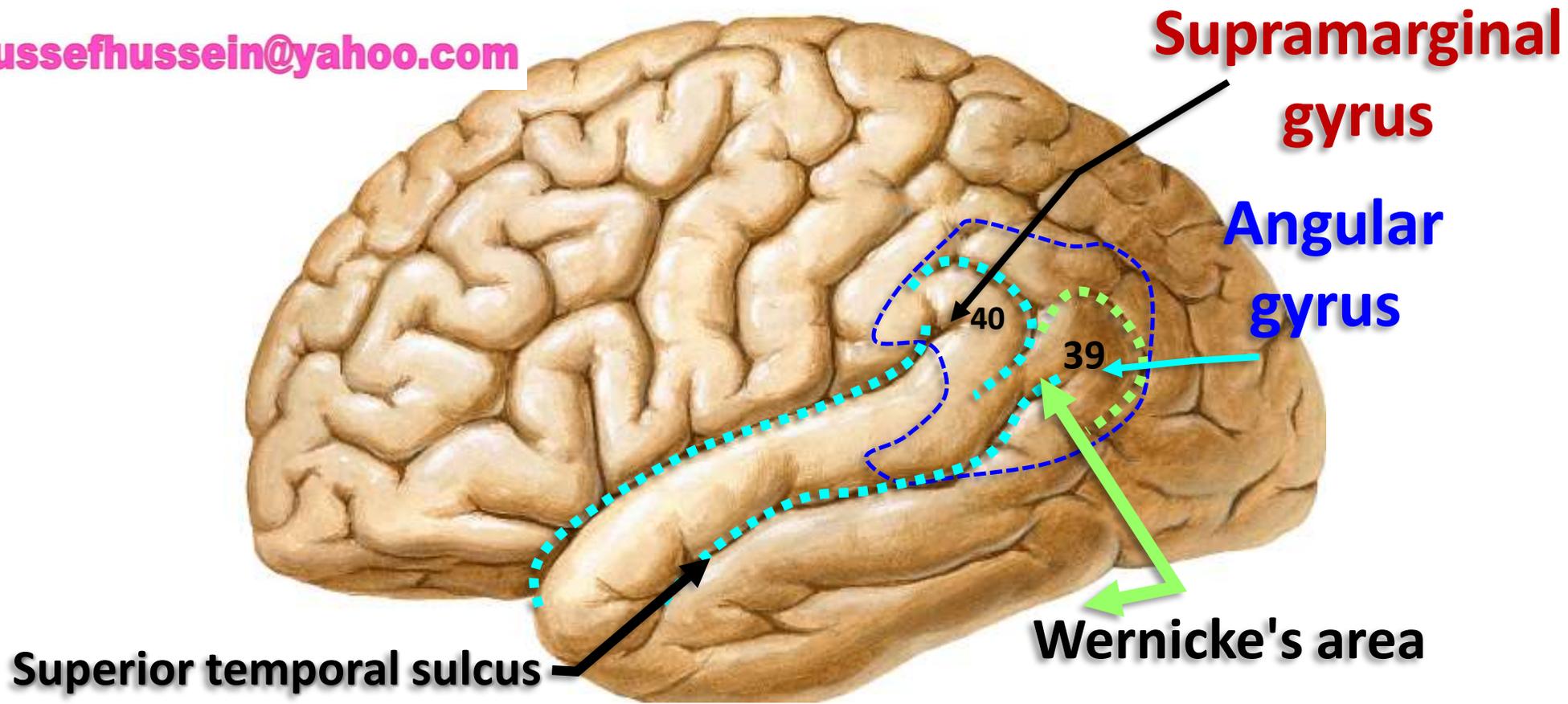
dr_youssefhussein@yahoo.com



Secondary
sensory 5&7

Secondary (Association) sensory area (area 5, 7);

- It occupies the superior parietal gyrus.
- Function, **stereognosis** (ability to identify the familiar objective manually in the absence of visual and auditory information) **shape, roughness, size of objects**
- Lesion results in **asteriognosis**

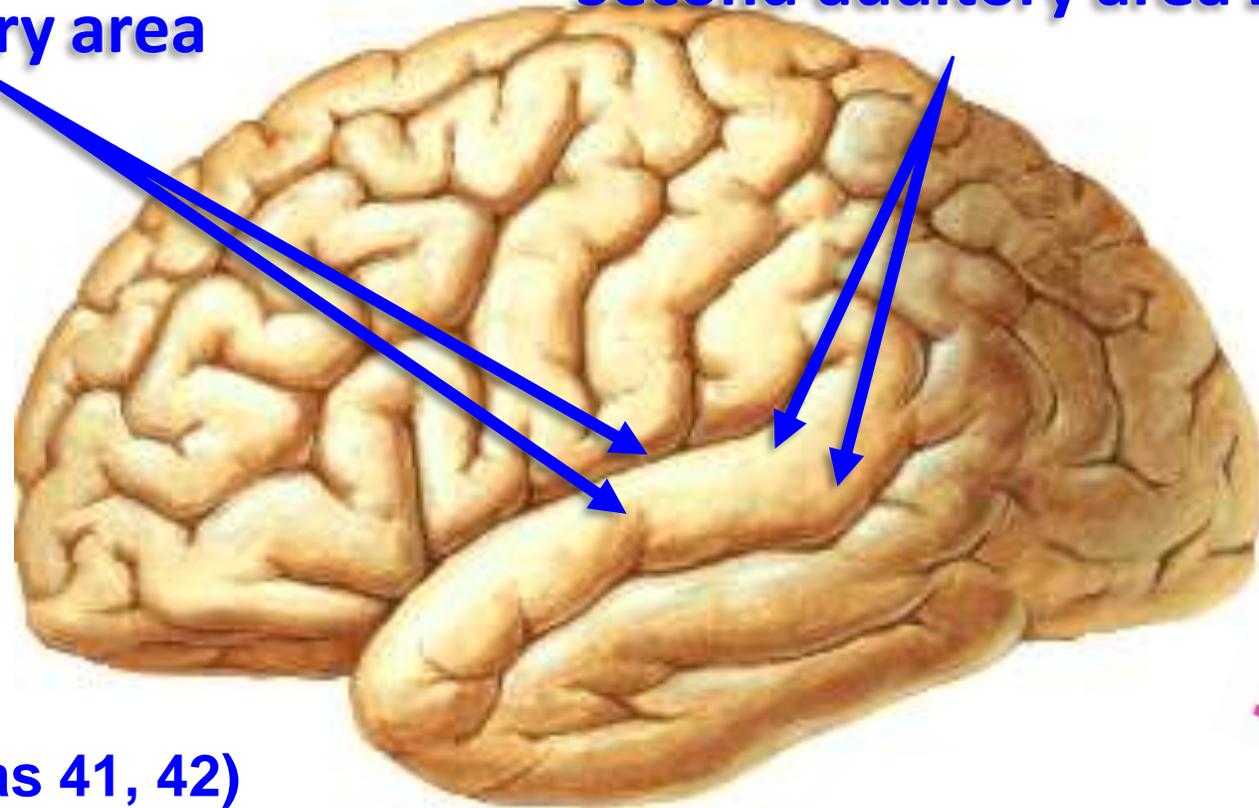


- **Sensory speech area (Wernicke's- area 39, 40).**

- It lies in inferior parietal gyrus extending to superior temporal gyrus, angular and marginal gyri.
- It is connected to motor speech area, auditory area and visual area.
- It is responsible for understanding spoken and written words.
- Lesion in this area produces **sensory aphasia** (can not understanding spoken and written words.).

**Primary auditory area
41&42**

Second auditory area 22

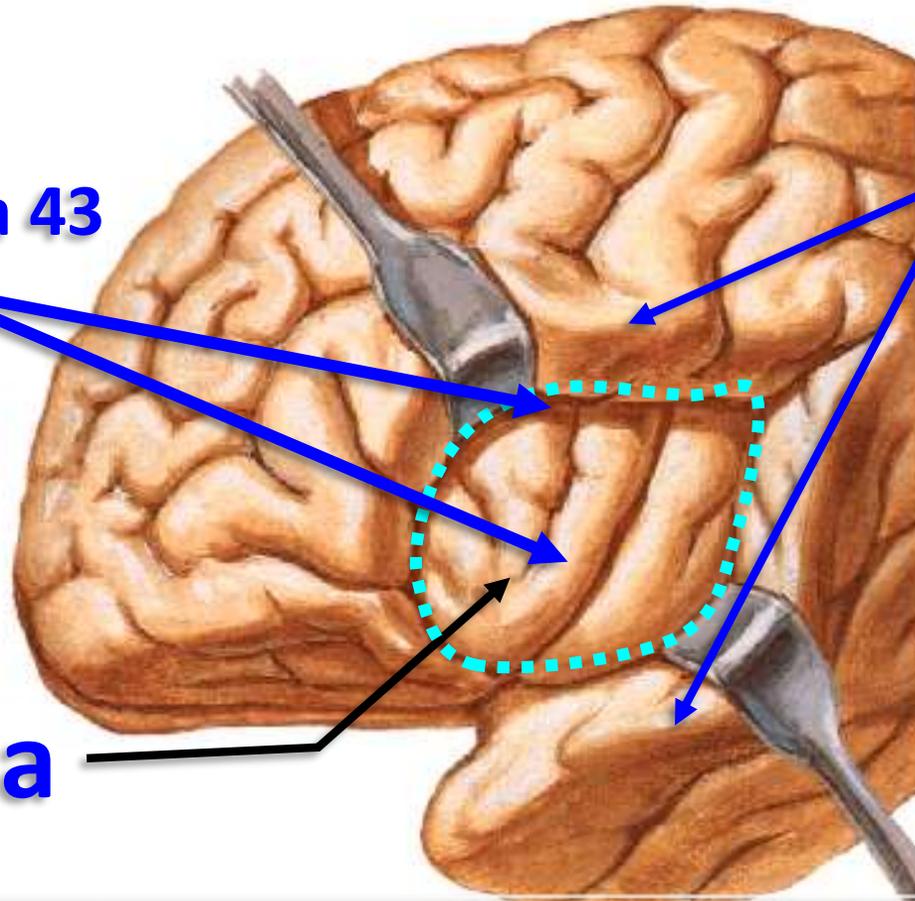


dr_youssefhussein@yahoo.com

- **Primary auditory area (areas 41, 42)**
 - It is present in the floor of the posterior ramus of the lateral sulcus and the middle part of the superior temporal gyrus (**Heschl's gyrus**).
 - It receives auditory radiation from the medial geniculate body (MGB).
 - Lesion of this area leads to **diminished hearing**.
- **Auditory association area (Secondary) (area 22):** behind the primary auditory area.
 - It is responsible for recognition and interpretation of the sounds.

Gustatory area 43

Insula

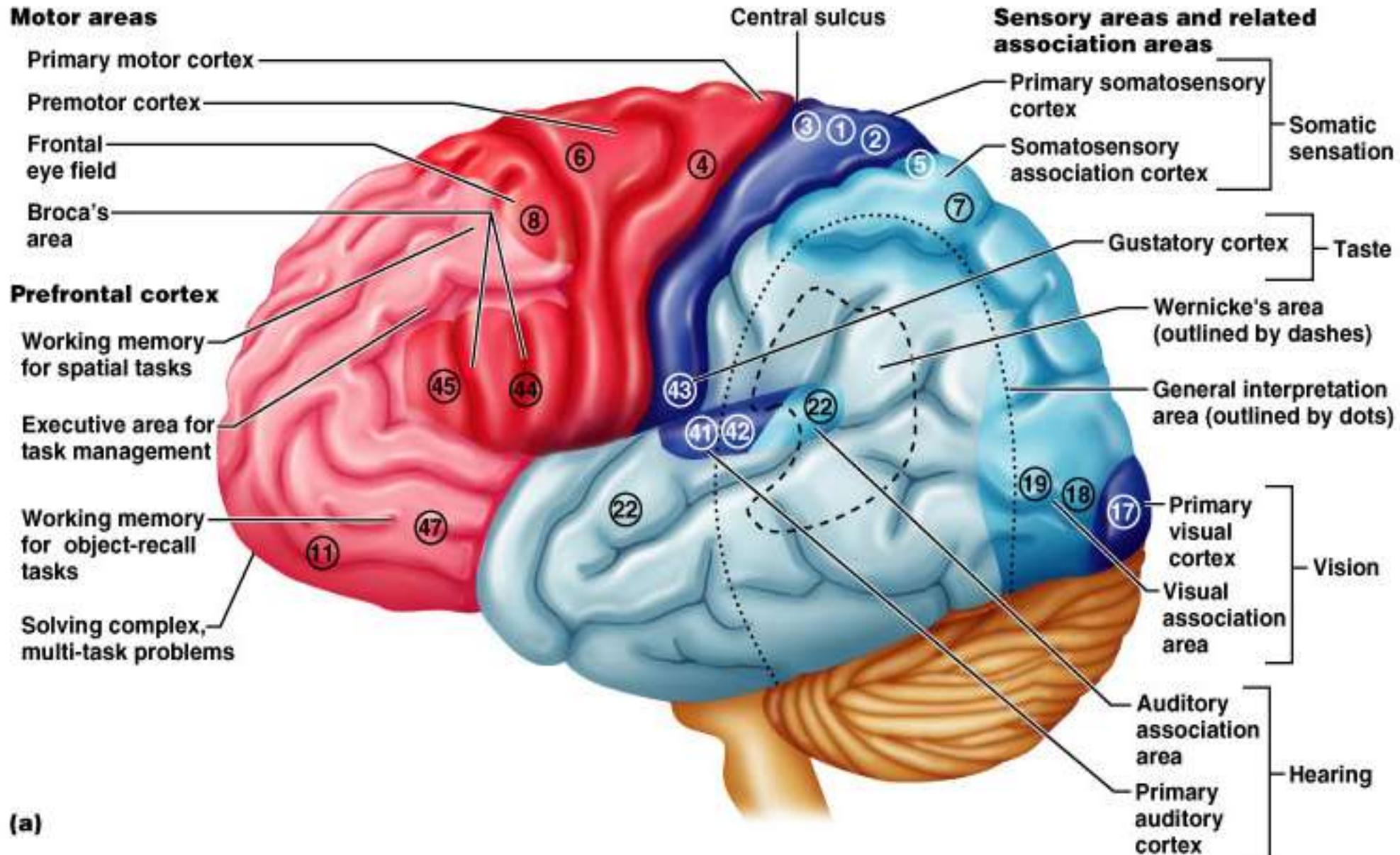


the lips of the
lateral sulcus
are
separated

dr_youssefhussein@yahoo.com

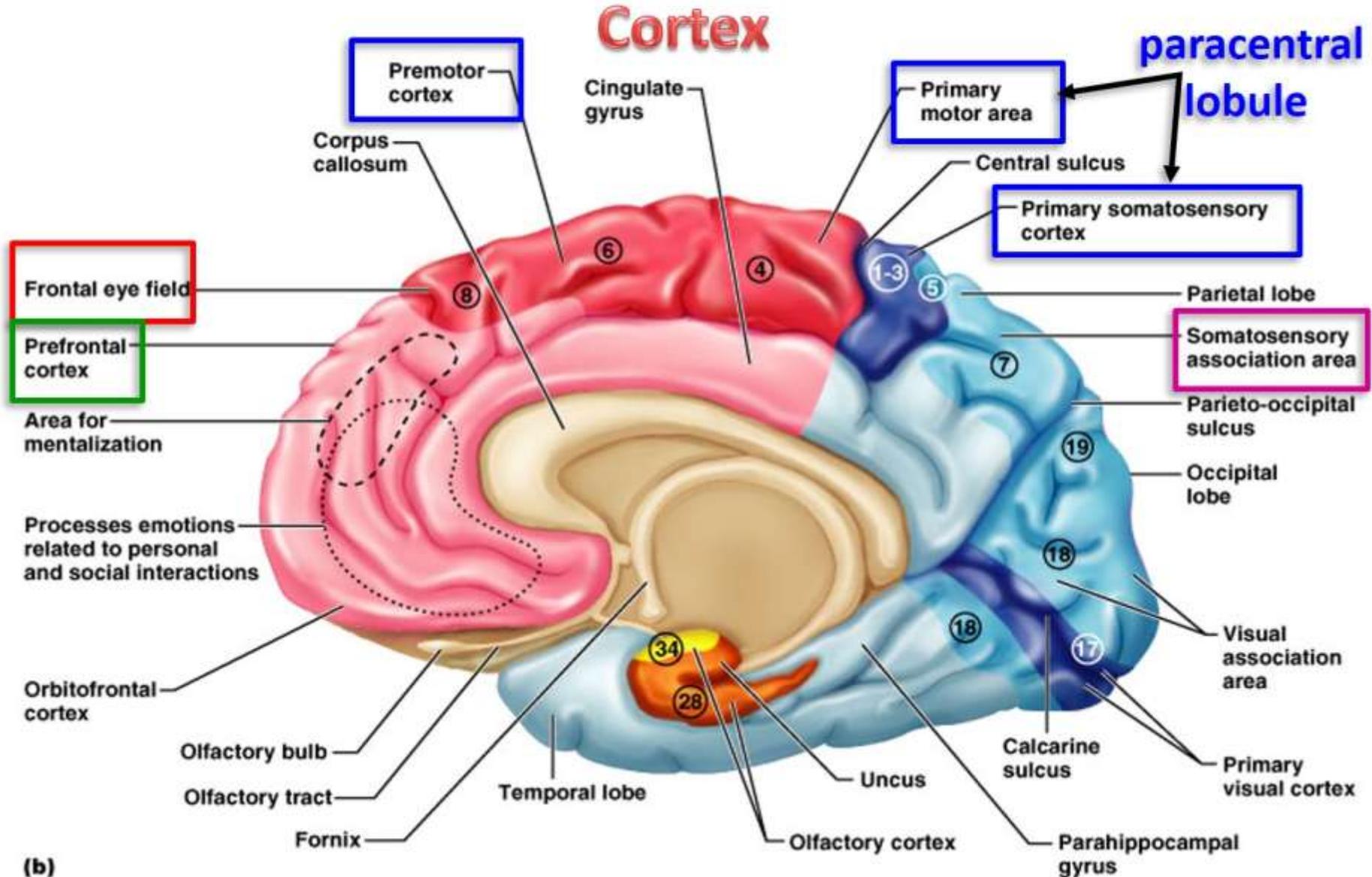
- **Gustatory area** (area 43): lies in the insula .
- It is concerned with the recognition of the taste sensation.
- **Insula** lies at the bottom of the deep lateral sulcus and cannot be seen from the surface unless the lips of the sulcus are separated.

Functional and Structural Areas of the



(a)

Functional and Structural Areas of the Cerebral Cortex



dr_youssefhussein@yahoo.com

