

Social cognition

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Introduction

The perceptual and cognitive functions which supports:

- Relationship and social bounding
- Recall the relevant aspects
- tune the recalled aspects
- processing social aspects of the environments

Social Brain Hypothesis

- Evolution of human brain is largely due to social cognitive factors
- Brain is most expensive tissues which weights 2 % of body weights and consume 20% of energy.(Difficult to justify)
- If having a large brain were all that advantageous, it seems that every animal would have one.
- The brain of our closest living cousin, the chimpanzee, is less than a third the volume of ours, even though chimps weigh almost as much as humans.

Social Brain Hypothesis

- **Encephalization quotient** measure of brain size relative to body size
- Big body does not mean big brain

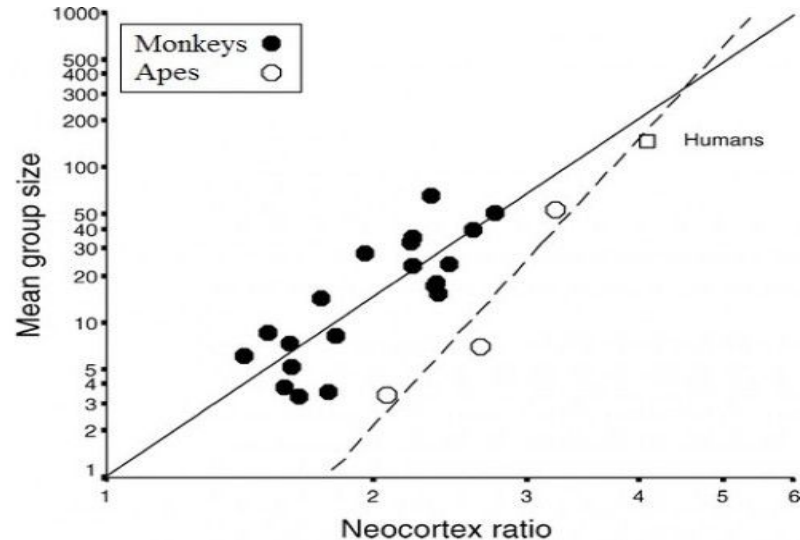
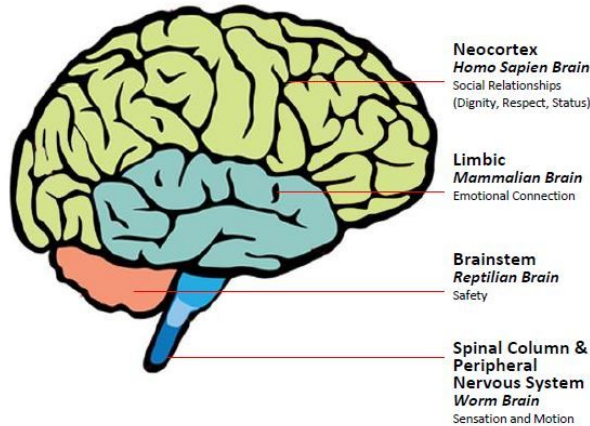
<u>Species</u>	<u>EQ</u>
Human	7.44
Bottlenose dolphin	5.31
Elephant	5.25
Capuchin monkey	3.85
Chimpanzee	2.48
Dog	1.17
Cat	1.00
Horse	0.86
Sheep	0.81
Mouse	0.50

Social Brain Hypothesis

- Late 1980 hypothesis offered for big brains
 - driven by our increasingly complex social relationships
 - greater neural processing power so that we could keep track of who was doing what to whom

Social Brain Hypothesis

- Evolutionary studies suggests the size of neocortex helps to explain the number and depth of social interactions and pair bonding.

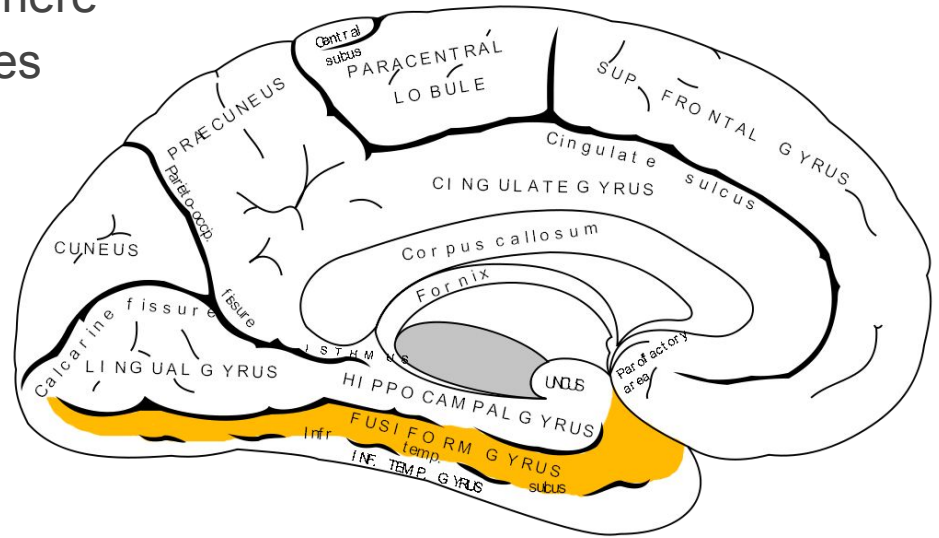


Social Cognition

- Importance of the social interactions is explained by growth of neocortex
- But they don't explain what type of skills it is that make smooth and effortless social interactions
- Different brain mechanisms and parts make possible to detect grained social cues

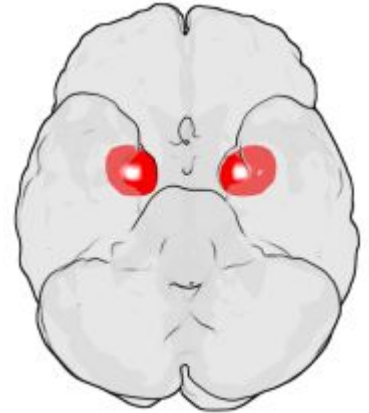
Fusiform Gyrus

- having a spindle-like shape that is wide in the middle and tapers at both ends
- located bilaterally in inferior hemisphere
- between occipital and temporal lobes
- Face specific responses observed



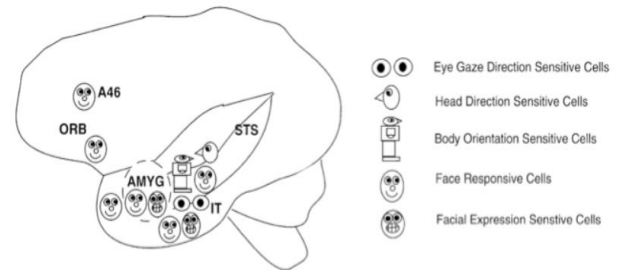
Amygdala

- are two almond-shaped groups of nuclei located deep and medially within temporal lobes
- Responsible for decision making, memory and emotional reaction
- Process the facial emotional expression briefly
- Helps in prejudice
- Play key role in regulation of personal space



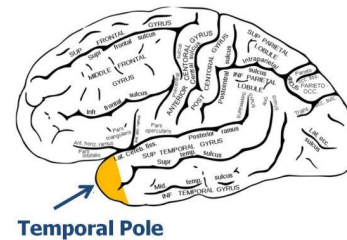
Gaze direction

- Superior temporal sulcus, amygdala and orbitofrontal cortex are important for gaze direction.
- Removal of superior temporal sulcus result to failure of gaze detection.
- Right hemisphere is relevant for the automatic orientation of gaze detection.



Temporal Poles

- Helps to build rich store of knowledge
- Damage to temporal pole impair to use knowledge
- It helps to use the knowledge to the situation confront to us.
- We can learn more by observing moment to moment changes in expression and behaviour in the person we are interaction. This is does by Mirror system.

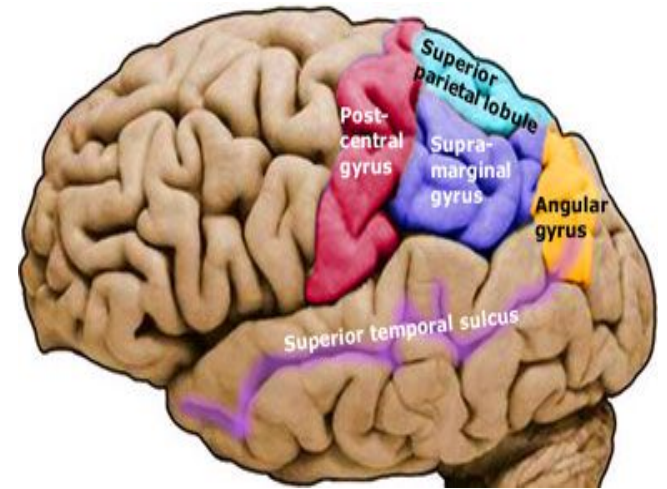


Brain Mirror System

- Bayesian to mentalizing
- Mirror emotions and actions
- contagion: a first step of mentalizing

Posterior superior temporal sulcus

- Prediction movement of trajectories
- Perspective taking



Thank you!!!