Lecture 4

Brain is very costly to maintain. Lots of energy is spent on maintaining it.

Children are a huge investment. Lots of resources, time, money, etc.

Humans have self awareness. We can critically think

Movement of arm = sensory activity in the brain

Some people with no arms, can still feel their arm based off of contingencies. The missing arm is still moving around

A phantom limb that moves and feels. A person was unable to unclench their hand. Method requires visual feedback so subject can see the motion.

Case Study: Damaged brain made a guy completely different

Certain regions of the brain govern other regions. Damage to the brain can lead to an altered lifestyle or personality.

Case Study: Impostor syndrome –

Man checks out to be fine. Working memory is fine, he can carry out a conversation, etc. However, when a family member visits he seems agitated because he does not recognize them. Everyone who is important to him he does not believe that they are his family. He thinks they are doubles. But over the phone the victim is likely to believe his father is an imposte

Theories: 1. This is a recognition problem. 2. Emotional signifance: Care, don’t care, anger, etc.

There is a disconnect in the visual pathway and visual processing. Neurons in the FFG respond to faces. Information from FFG travels to amygdala. Amygdala asses the emotional signifance of a stimulus.

Capgras’ Delusion and the temporal lobes

1. Recognition without emotion
2. Delusion does not occur with auditory stimuli
3. Brain creates a running narrative to explain stimuli and events

Hemi-spatial neglect: Ignoring half the world

A condition where the person ignores the left side of the world. They’ll shave half their face, or groom half, etc. They will only eat the right side of the plate when eating a meal. Damage to the right parietal lobe. Act surprised when they miss the other side. Even their memories are based toward the right side of the world. Subjects can explain the right side easily but not the left side.

Hemispatial neglect typically follows damage to the right parietal lobe only.

Left hemisphere attends to right side

Right hemisphere attends to both sides

In hemispatial neglect, the right hemisphere is damaged and only the left parietal lobe is working

Mirror neurons respond to the actions of others. You can watch someone eating cake and know what it is like to eat that cake. First seen in monkeys. A monkey saw a researcher walk into a room with a fruit and was able to feel the sensation of eating the same fruit.

Observational learning and human culture: You can benefit from someone elses discoveries

Seen in the sally and ann experiment.

Empathy: Understanding the emotions of others: You can understand how a person feels based off of facial cues. And if you’re very empathetic you will fire the same neurons as the other person

Training For Spacewalk: David Williams. Spacewalk is very dangerous. You must do the spacewalk exactly as designed. Even a minor mistake can kill you. Big part of training was going through the steps in his mind. Go through it exactly as planned.