

## The 'Reptilian Brain' and Post Trauma Disorder

This illustration shows specific brain functions. We know that Post Trauma Disorder takes place in the oldest part of the brain, or the 'Reptilian' brain. The 'fright and flight' response takes place here when danger is present. Whenever there is severe trauma this part of the brain replays the events as if they were happening in the present. Advanced drug-free technology restores balance to the central nervous system & relieves the most severe symptoms of Post Trauma Disorder.

**The human brain** weighs less than 3 pounds and looks like a mushroom or helmet.

- There are between 100-200 billion brain cells called gray matter. These cells are miniature information storage facilities.
- The brain can store more information than all the libraries in the world.
- There are 10-15 billion nerve cells in 6 sub-layers called white matter, which receive and send information.
- Each nerve cell has 100-1,000 fibers.
- When fibers from different nerve cells meet it's called a synapse. (See Appendix C)
- A synapse is space through which electrical energy and chemicals move.
- There are 20 trillion synapses firing electrical energy and producing chemicals every moment.
- The higher the brain section is located in the brain, the more evolved it is - about 50,000 years old.
- The deeper the brain section is, the more ancient it is - about 100 million years old.
- In human brain, when the cerebrum enlarged and grew over the top of the rest of the brain, it greatly increased the complexity of the neural networks, which allows us greater flexibility and the ability to adapt to our environment.

**Frontal Lobe**

- Motor control of voluntary muscles
- Personality
- Concentration
- Organization
- Problem-solving

**Broca's Area**

- Motor control of speech

**Motor Cortex**

All motor functions:

- Voluntary muscles
- Arms and legs
- Walking, running, handgrip, etc.

**Sensory Cortex**

- Spatial awareness
- Sensations, touch

**Parietal Lobe**

- Sensory area of pain & temp.
- Understanding language
- Expressing thoughts

**Occipital Lobe**

- Visual
- Focus

**Wernicke's Area**

- Interpreting Language

**Meninges**

- 3 layers of membrane surround the brain.
- They go from thick and tough to thin and spidery
- Cerebral-spinal fluid is clear & colorless and runs between two layers.
- It acts as a shock absorber and brings nutrients to the brain.

**Temporal Lobe**

- Hearing
- Memory of hearing and vision

**Brain Stem (Medulla Oblongata)**

- Links the brain to the spinal cord

**Regulates involuntary muscle movements**

- Heart rate
- Breathing rate
- Blood circulation
- Blood pressure
- Body temperature
- Hunger & thirst

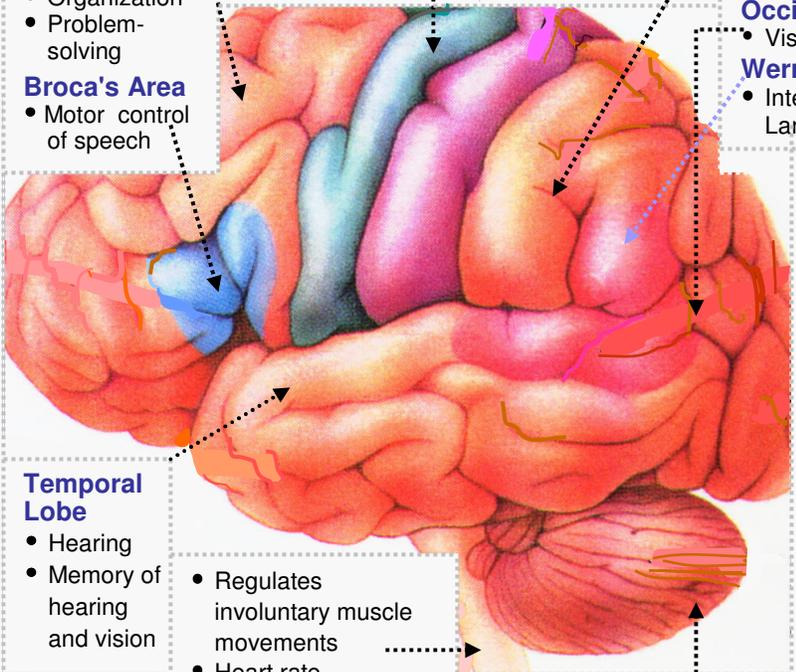
**Elementary forms of seeing and hearing**

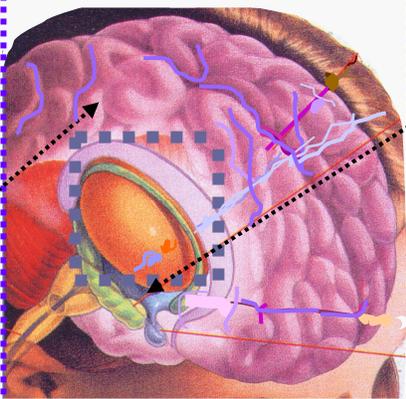
**Cerebellum (back brain)**

- Balance & motor coordination.

**Cerebral Cortex (top brain)**

- Largest portion of the brain
- Deeply wrinkled outer layer consisting of left & right hemispheres
- Newest parts of the brain
- Highest thinking functions ~ integrating & processing information, planning & organizing, decisions
- All voluntary motor functions
- Touch • Sound • Memory
- Smell • Taste • Sight
- Reptilian, or oldest, part of the brain





**'Reptilian Brain' & Post Trauma Disorder**

- The human brain is highly evolved, yet at the same time it retains the instinct-driven brain of our reptilian ancestors.
- The limbic system is part of what's called the 'reptilian brain', or the oldest part of the brain. It regulates basic emotions, drives and instincts, such as the 'fright and flight' response when danger is present.
- The central nervous system is highly vulnerable to stress and can be severely damaged. When this happens a condition develops called Post Trauma Disorder (PTD).
- Raw emotions and instinctual reactions create intense anxiety, depression and sleep disorders.
- This part of the brain lacks logical thought or any awareness of consequences. Symptoms of Post Trauma Disorder can disrupt every area of life.

- 'The 'reptilian brain' stores and retrieves memories of trauma deep in the unconscious and has relatively inflexible and fixed responses.
- Post Trauma Disorder can last for decades and affect families for generations.