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# Brain Balance and Its Relationship to Movement and Behavior



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Slide  
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## Rules of Neurology

First Rule:

Nerve cells have 2 functions:

- To survive
- To receive and transmit information

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Slide  
3

## What Does a Nerve Cell Need to Survive?

Three things...

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Slide  
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Nerve Cell Survival

- Oxygen
- Fuel (Glucose)
- Stimulation

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Slide  
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Where Does the Stimulation Come From?

The Environment!

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What in the Environment Stimulates Our Brains?

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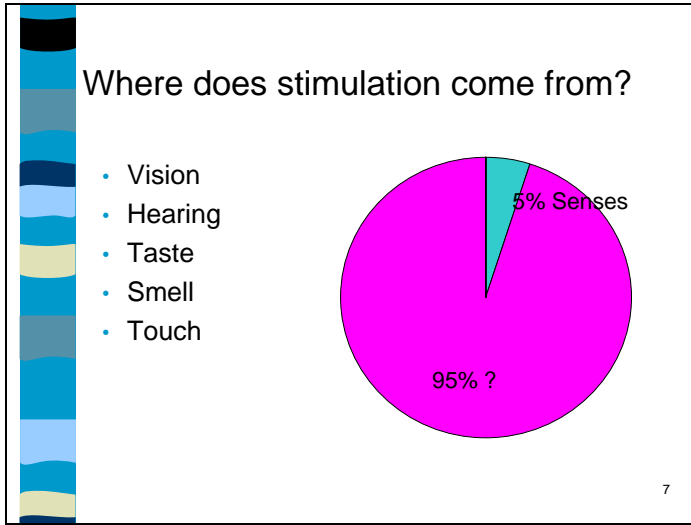
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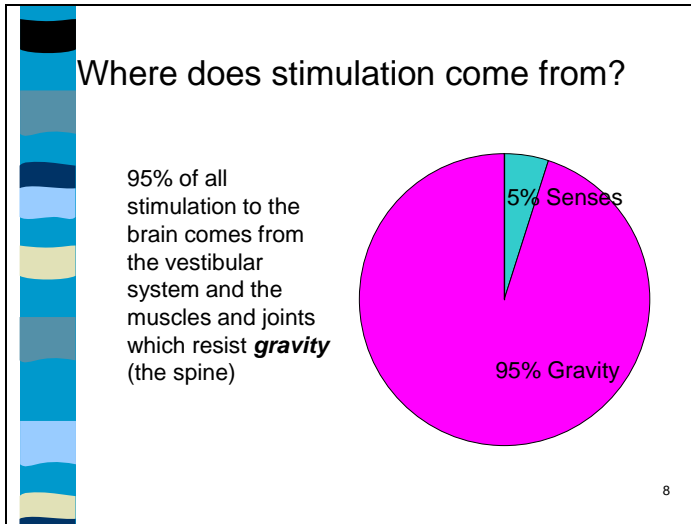
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Slide  
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### Let's Connect

When nerve cells are healthy, they have the ability to grow connections with other brain cells in accordance to the stimulation that they receive. This is known as *neuroplasticity*.

The brain acts much like muscles in that the more we use it, the more we will grow and improves its ability to function more efficiently and for longer periods of time.

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Slide  
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### How does it work?

- When nerve cells are stimulated they make protein.
- Protein is then used by the cells to grow new connections to other nerve cells.
- Protein production increases the cell's ability to produce neurotransmitters (brain chemicals).

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### Rules of Neurology

Second Rule:

- Whatever nerve cells are born on the same day are connected together until the day you die.

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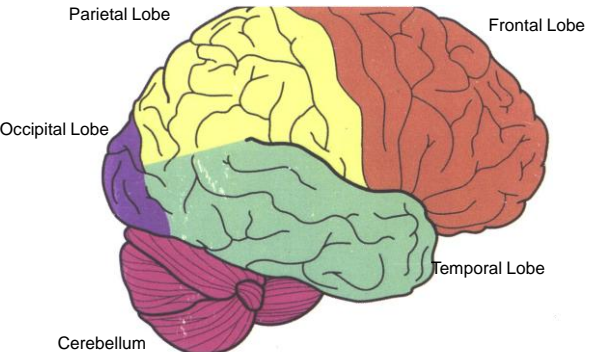

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Parietal Lobe      Frontal Lobe

Occipital Lobe      Temporal Lobe

Cerebellum

**Lateral View**

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Slide  
13

## Does all stimulation promote a healthy brain?

No, stimulation to the brain must be provided in a way that is *not too much or too little*.

Stimulation to the brain must be provided in a way which promotes *symmetrical* brain activity.

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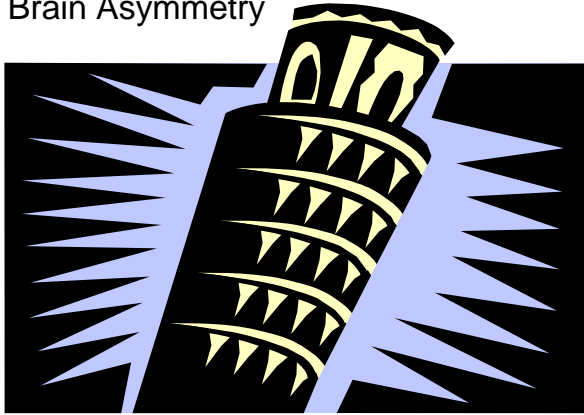
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## Brain Asymmetry



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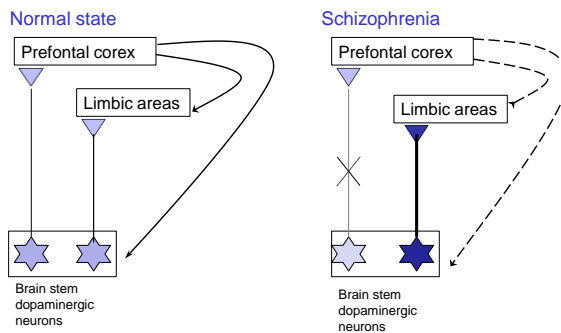
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## Brain Stem: Dopaminergic Neurons



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## The importance of *symmetrical* brain activity

- Most of us use both sides of our brain to perform routine daily activities.
- Many disorders of the body are associated with asymmetrical brain activity.
- Optimal brain activity occurs when it functions in a symmetrical fashion.

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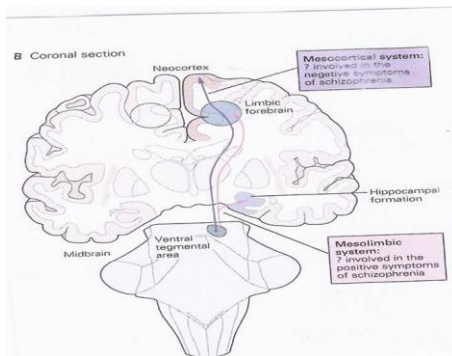
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17

## Neocortex



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18

## Reading

- When we read we use both sides of our brain.
- The left brain moves our eyes across the page.
- The right brain will comprehend what is read.

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Slide  
19



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Slide  
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**Symptoms Believed to be Associated with Deficits of Right Brain Function**

- Difficulty focusing attention (ADD)
- Impulsivity
- Obsessive or repetitive thoughts or actions (OCD)
- Autism
- Poor spatial orientation and memory
- Visual spatial difficulties
- Gets lost easily
- Inappropriate or poor social behavior; does not read or interpret social cues (facial expressions, body language, etc.) accurately
- Tends to draw or write on the right side of the paper

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Slide  
21

**Symptoms Believed to be Associated with Deficits of Right Brain Function cont.**

- ADHD
- Poor geometry skills
- Poor math reasoning skills
- Tends to focus on small details
- Inability to decide or quickly grasp something
- Lack of imagination and pretense of play
- Avoids eye contact
- Does not enjoy reading books
- Poor reading comprehension
- Tourette's Syndrome

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Slide  
22



### Symptoms Believed to be Associated with Deficits of Left Brain Function

- Depression
- Ventricular Heart Disease (rhythm)
- Dyslexia
- Scoliosis
- Bi-polar disorder
- Memory problems
- Auditory processing problems
- Fibromyalgia in women
- Schizophrenia

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Slide  
23



It has been stated that the the way to measure intelligence is based on the amount of connections that are formed, not the amount of cells one is born with.

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Slide  
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### What Does Learning Look Like?

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**Additional Information:**  
[www.PeakChiroNeuro.com](http://www.PeakChiroNeuro.com)  
[www.CarrickInstitute.org](http://www.CarrickInstitute.org)

**Magic Trees Of the Mind**  
Marian Diamond, Ph.D. and Janet Hopson

**The Cerebellum and Cognition**  
Jeremy D. Schmahmann

**Neurophysiological Implications in Learning**  
Frederick Robert Carrick, DC, DACNB

**Brain Asymmetry**  
Richard J. Davidson & Kenneth Hugdahl

**Disconnected Kids**  
Robert Melillo, DC, DACNB

25

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