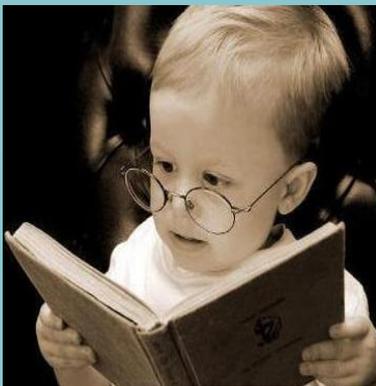
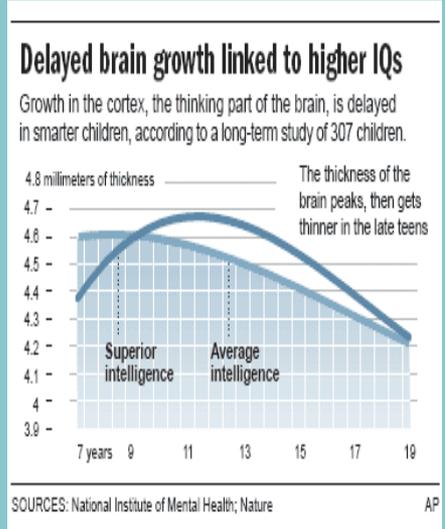


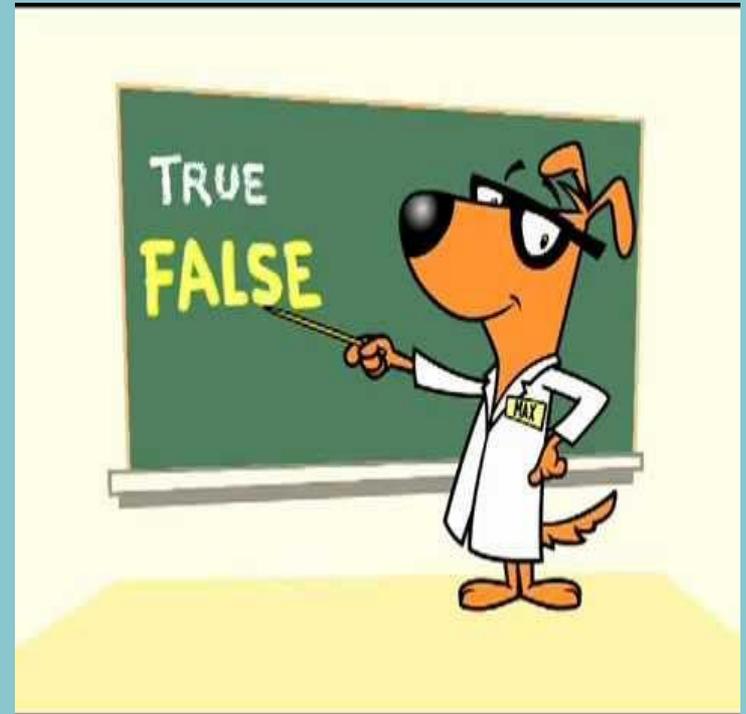
# Mental Health & Substance Abuse Issues with Adult Learners



**Mary-K O'Sullivan LMFT, LADC, LPC**

# Quiz (True/False)

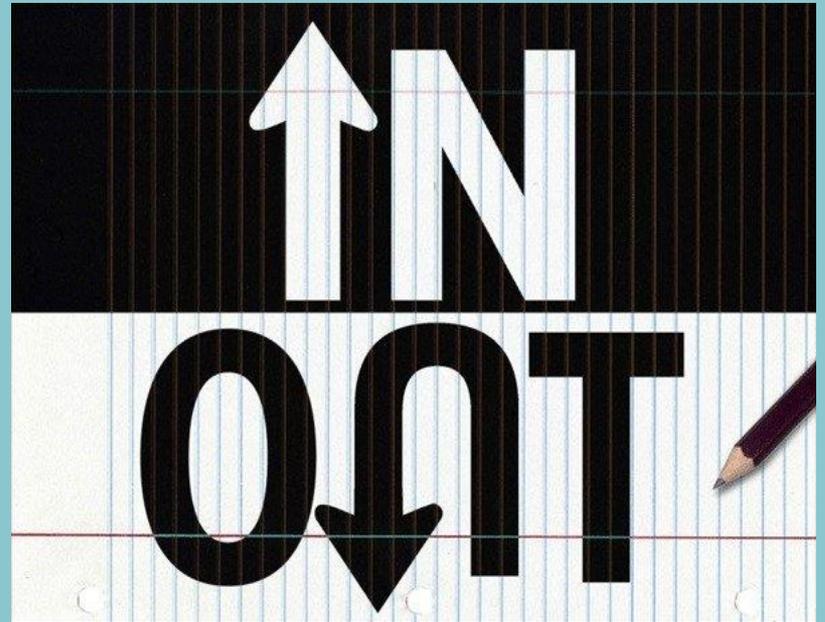
- **Cognitive impairment may be present at birth or can occur at any point in a person's lifespan**
- **Trauma chemistry in the mother can impact aggregation in the fetus in vitro**
- **Maturation of the brain is complete by the mid-20's**
- **All substance induced disorders are temporary**
- **Depletion of neurotransmitters in the brain cannot be replenished**
- **Drugs and medications that cannot be stopped immediately are addictive**
- **Marijuana is the most highly used illegal drug in the United States**
- **Amphetamines used to treat ADHD in children result in them having a higher rate of substance use disorders as adults**
- **Substance use can have brain impacts at all developmental stages throughout life**



# Endogenous vs Exogenous

**Endogenous:**

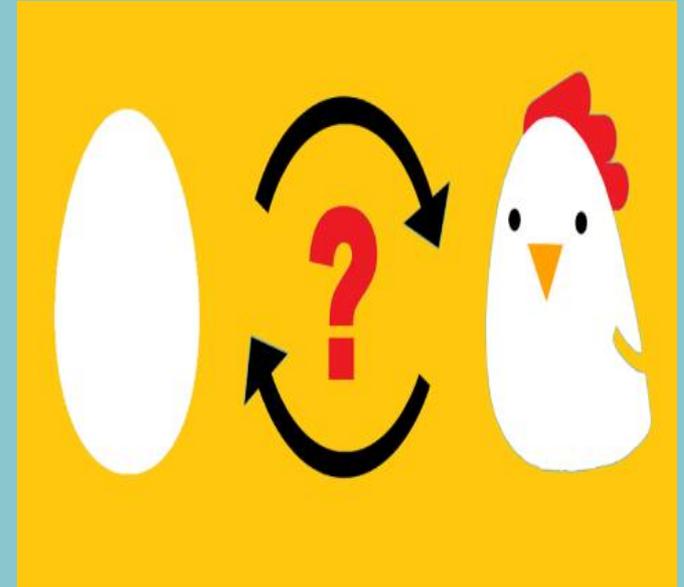
**Exogenous:**



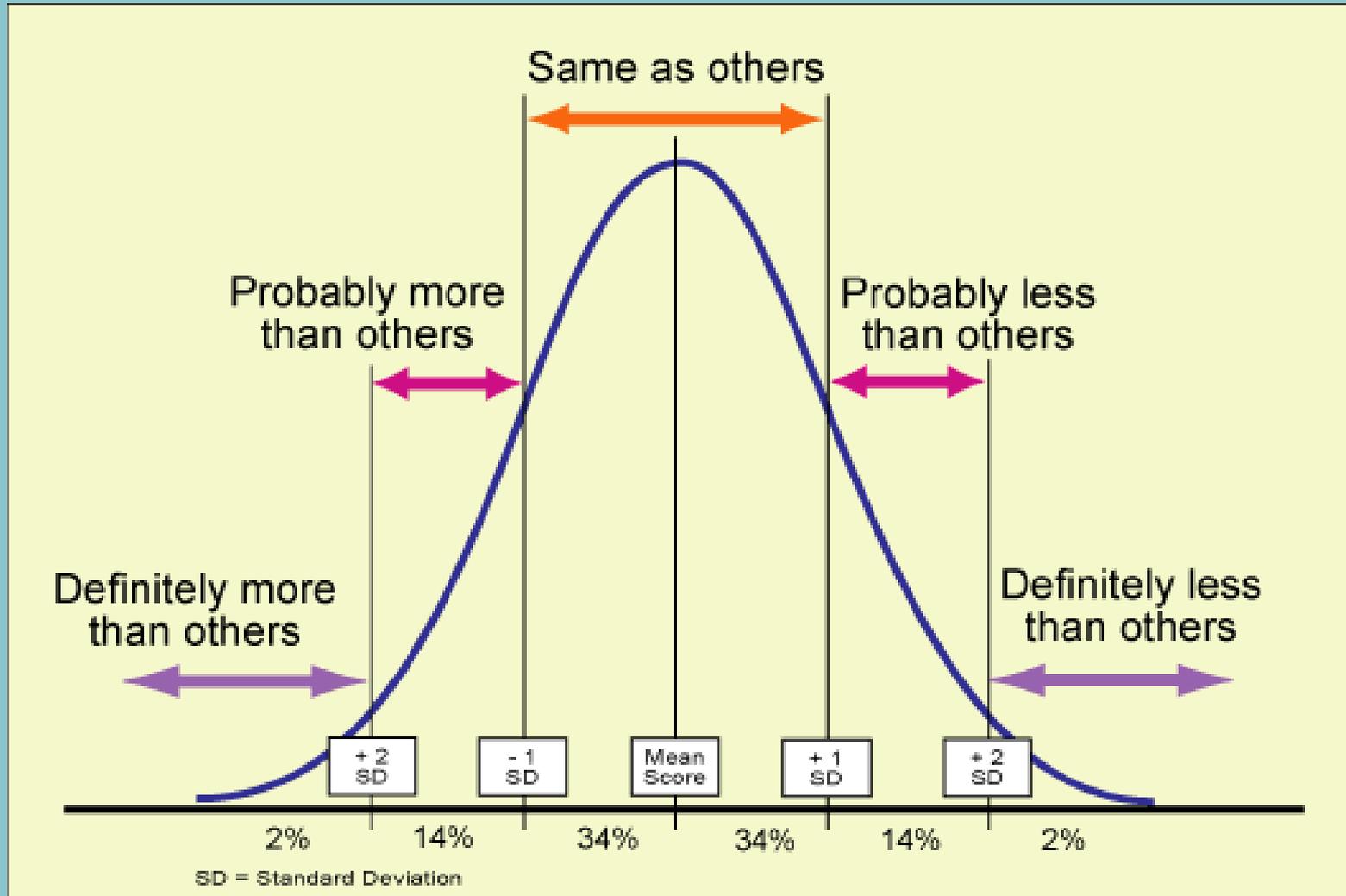
# Cause/Effect Versus Contribution

**Cause & Effect :**

**Contribution:**



# Normal versus Normative



# Learning & The Brain

## Cognition & Perception

**Analysis & Interpretation (Abstract Thinking)**

**Deductive Reasoning (Cause and Effect)**

**Making Connections**

**Long & Short-term Memory**

**Each of these are governed by brain chemistry.**

**Much of this same brain chemistry is disrupted by the use of substances**



# Growing a Grown-up Brain

Scientists have long thought that the human brain was formed in early childhood. But by scanning children's brains with an MRI year after year, they discovered that the brain undergoes radical changes in adolescence. Excess gray matter is pruned out, making brain connections more specialized and efficient. The parts of the brain that control physical movement, vision, and the senses mature first, while the regions in the front that control higher thinking don't finish the pruning process until the early 20s.

**Gray matter:** Nerve cell bodies and fibers that make up the bulk of the brain's computing power.

**Parietal lobe:** Spatial perception

**Occipital lobe:** Vision

**Temporal lobe:** Memory, hearing, language

**Frontal lobe:** Planning, emotional control, problem solving

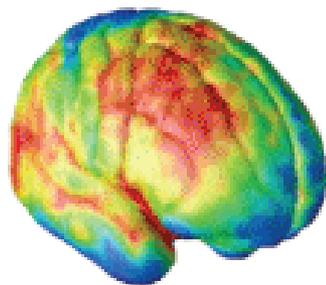
**Gray matter density**

Gray matter becomes less dense as the brain matures.

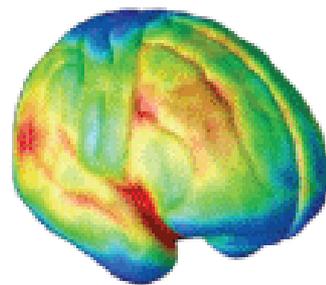


More dense

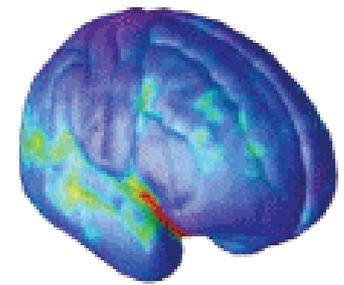
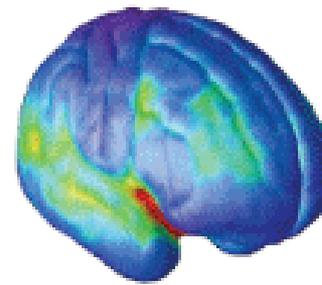
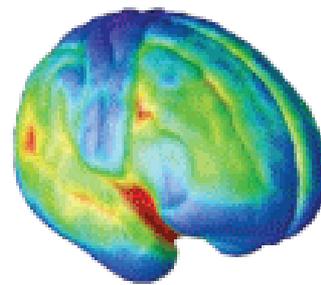
Less dense



Age: 5



Adolescence

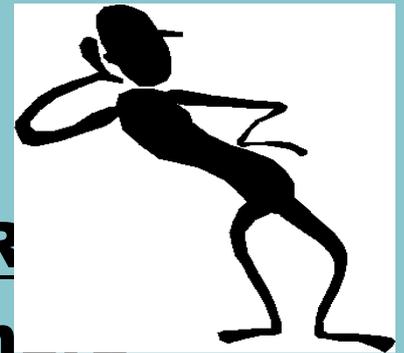


20

Source: "Dynamic mapping of human cortical development during childhood through early adulthood," Nitin Gogtay et al., *Proceedings of the National Academy of Sciences*, May 25, 2004; California Institute of Technology

# ASSUMING NO LEARNING OR MENTAL HEALTH ISSUES, WE LEARN

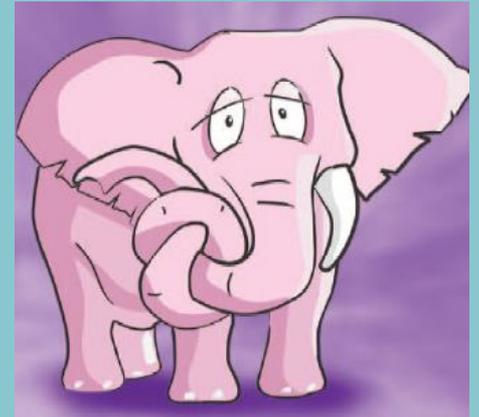
- **10% of what we READ**
- **20% of what we HEAR**
- **30% of what we SEE**
- **50% of what we both SEE and HEAR**
- **70% of what is DISCUSSED with others**
- **80% of what we EXPERIENCE personally**
- **95% of what we TEACH to someone else**



**William Glasser**

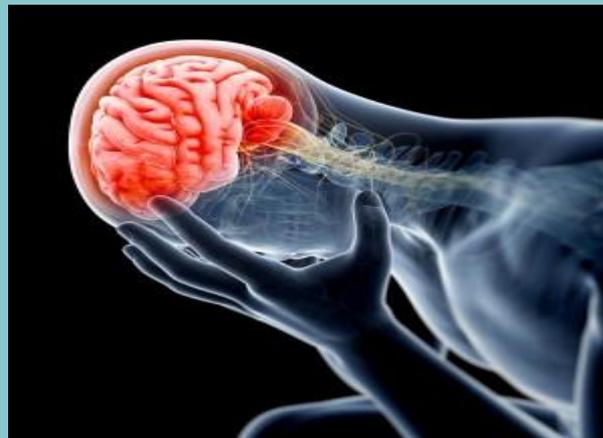
# **IF WE ARE SIMPLY TOLD INFORMATION WE FORGET**

- **41.8% after 20 Minutes**
- **55.8% after 1 Hour**
- **66.3% after 24 Hours**
- **84.6% after 6 Days**
- **98.9% after 1 Month**



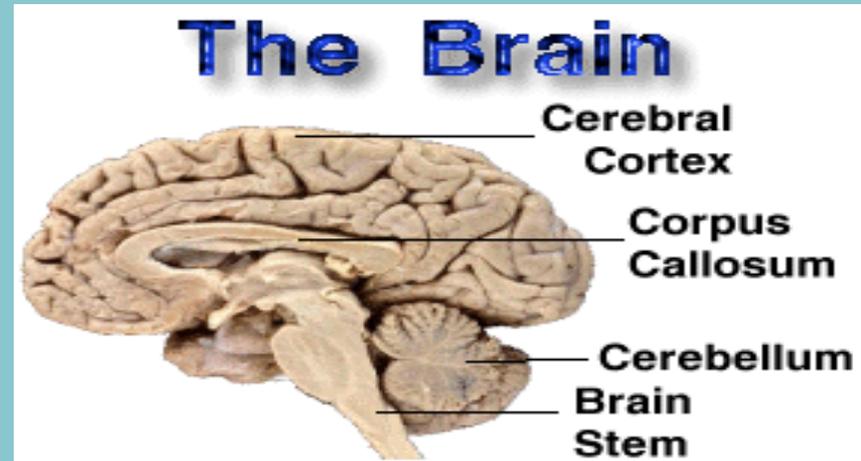
# **Learning & The Brain**

**Learning capabilities are allocated across multiple locations in the brain. Each can be impacted by the intoxication that occurs during substance abuse**



# Cerebral Cortex

- **Thought**
- **Voluntary movement**
- **Language**
- **Reasoning**
- **Perception**

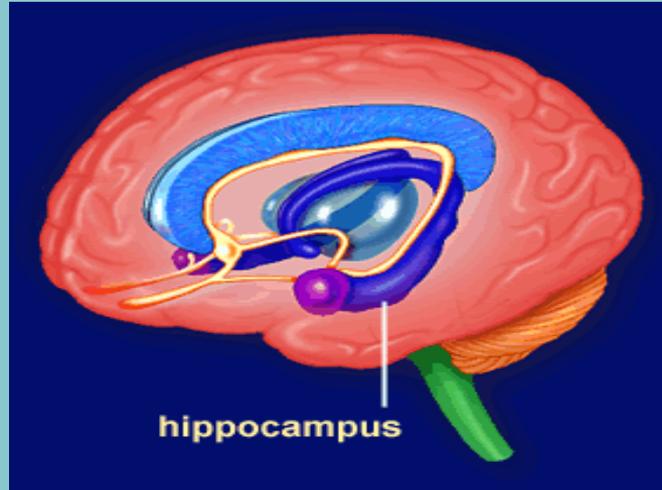


**The word "cortex" comes from the Latin word for "bark" (of a tree). This is because the cortex is a sheet of tissue that makes up the outer layer of the brain.**

**The thickness of the cerebral cortex varies from 2 to 6 mm. The right and left sides of the cerebral cortex are connected by a thick band of nerve fibers called the "corpus callosum."**

# Hippocampus

- **Learning**
- **Long-term Memory**
- **Sensory Perception**



**The hippocampus is one part of the limbic system that is important for memory and learning**

# Limbic System



It supports a variety of functions, including emotion, behavior, motivation, **long-term memory**, and olfaction. It appears to be primarily responsible for our emotional life, and has a great deal to do with the formation of memories

# The Amygdala Contributes to:

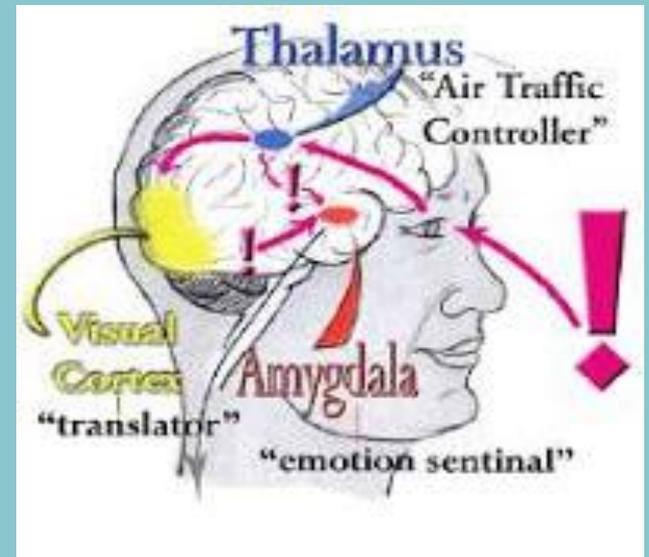
**Impulsive Behavior**

**Inappropriate Behavior**

**Missed Social & Emotional  
Cues**

**Miscommunication**

**Contributes to Rapid &  
Highly Emotional  
Responses**

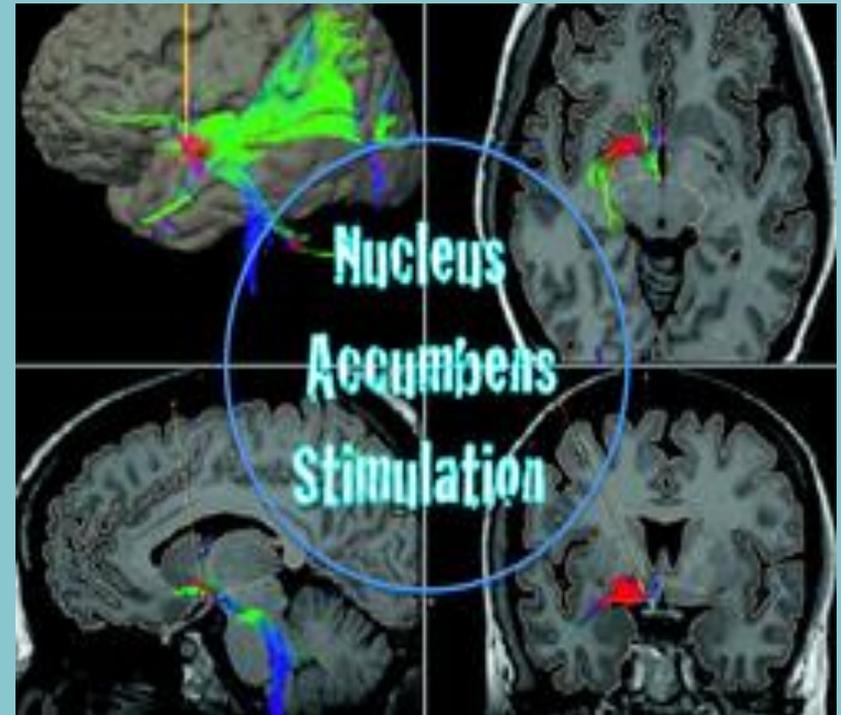


**Nucleus  
Accumbens  
promotes the  
drive for new  
experiences**

**Seeks activities  
with low effort for  
high yield**

**Enhances Maturity**

**Pushes Away from  
Family to Outside  
World**

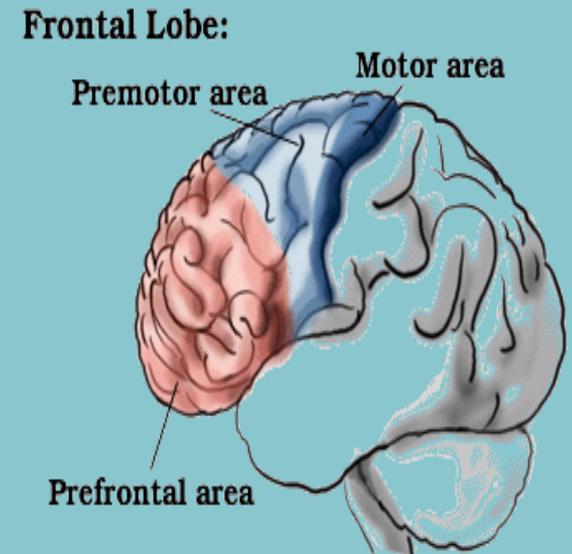


**The Summit  
is Music**

# Frontal Lobe of the Brain

The frontal lobe is engaged in the chief thinking functions of the brain, **such as critical and analytical reasoning**, and judgment (the ability to identify future consequences of current actions). **Cognition, memory, language skills, and a person's emotional traits are also stored in the frontal lobe**

- **Personality**
- **Arousal and motivation skills**
- **Awareness of self**
- **Responses to environment and self**
- **Consciousness of environment**
- **Emotional stability and reaction**
- **Memory of motor activity or habits**
- **Use of language**
- **Meanings and associations of words**





# **COGNITIVE & LEARNING CHALLENGES**

**Cognitive impairment occurs when problems with thought processes occur. It can include loss of higher reasoning, forgetfulness, learning disabilities, concentration difficulties, decreased intelligence, and other reductions in mental functions. Cognitive impairment may be present at birth or can occur at any point in a person's lifespan**



# The Effective Brain

**GROWTH:**  
**Potential for**  
**Learning**

**PRUNING:**  
**Efficiency**

**MYELINATION:**  
**Speed**



# Substance Use & the Brain



# Neurotransmitters

## ACETYLCHOLINE

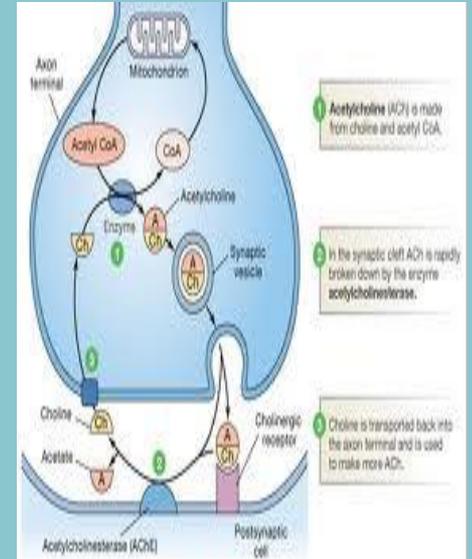
**Excitatory**

**Transmits Sensory Information  
To The Brain**

**Alertness – Learning – Memory**

**Connects the Nervous  
System to the Muscles**

**REM Sleep**



# Neurotransmitters

## DOPAMINE

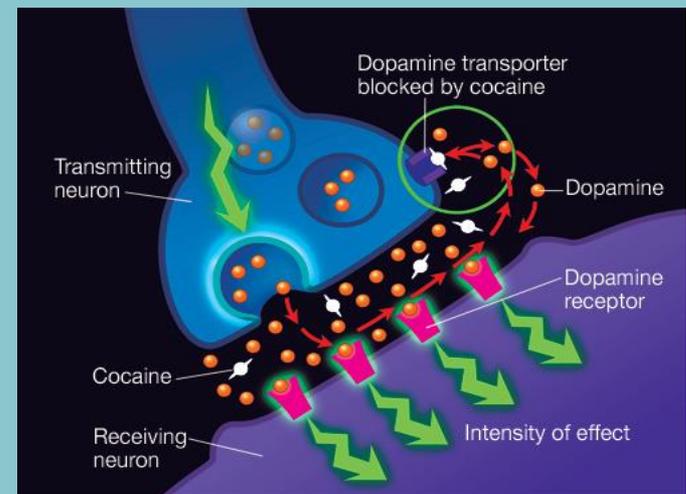
**Excitatory & Inhibitory**

**Affects Sensory Perception, Judgment, & Emotion**

**Impacts Motor Control & Coordination  
(Inhibitory/Relaxes Muscles)**

**Stimulates the Brain**

**Reward Center**



# Neurotransmitters

## NOREPINEPHRINE

**Excitatory**

**Focus – Allows Frontal Lobe to Perform Executive Functions**

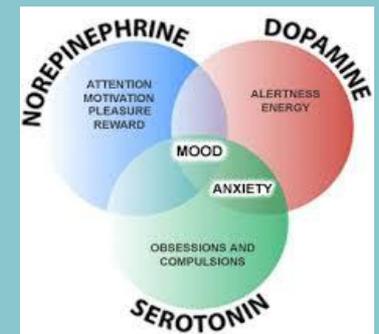
**Alertness – Learning – Memory**

**Good Mood**

**Wake-up Part of Sleep/Wake Cycle**

**Pain Management**

**Fight or Flight**



# Neurotransmitters

## SEROTONIN

**Excitatory & Inhibitory**

**Affects Perception**

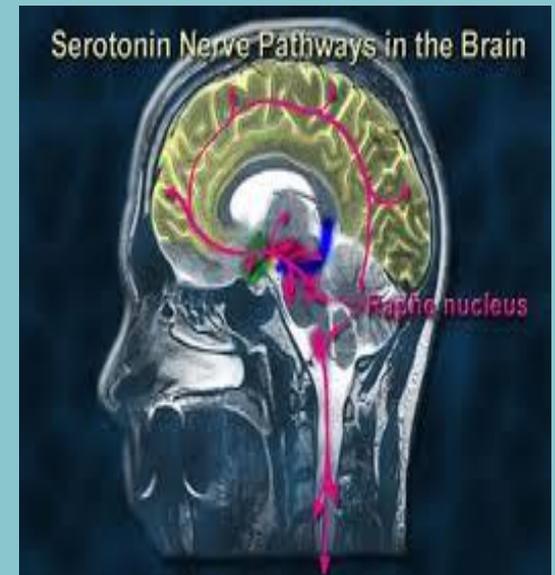
**Good Mood**

**Sleep Part of Sleep/Wake Cycle**

**Hunger & Satiety**

**Modulates Dopamine &**

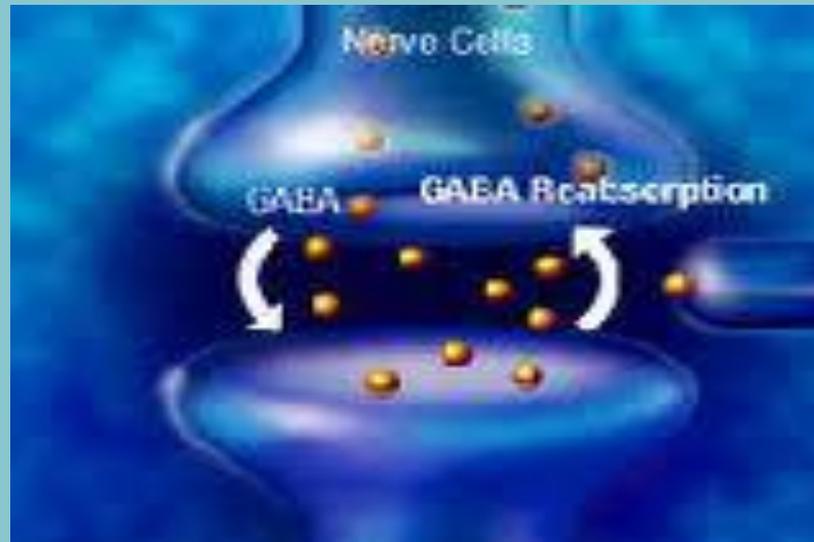
**Norepinephrine**



# Neurotransmitters

## GABA

**Major Inhibitory Neurotransmitter of the Brain**  
**Inhibition of Dopamine Released to Reward**  
**Center of the Brain = **Stable Mood****



# Neurotransmitters

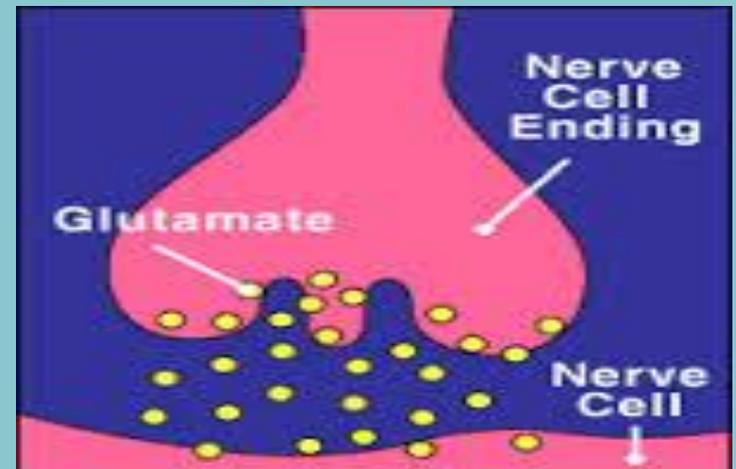
## GLUTAMATE

**Excitatory & Inhibitory**

**Impacts Long-term Memory/Learning**

**Signal Amplification of Other Neurotransmitters**

**Transmission of Pain Signals**



# Neurotransmitters

## ENDORPHINS

**Inhibitory**

**Modifies the Experience of Pain**

**Relaxation**

**Well-being**



# Neurotransmitters

## ENDOGENOUS CANNABINOIDS

**Inhibitory**

**Assists in Memory**

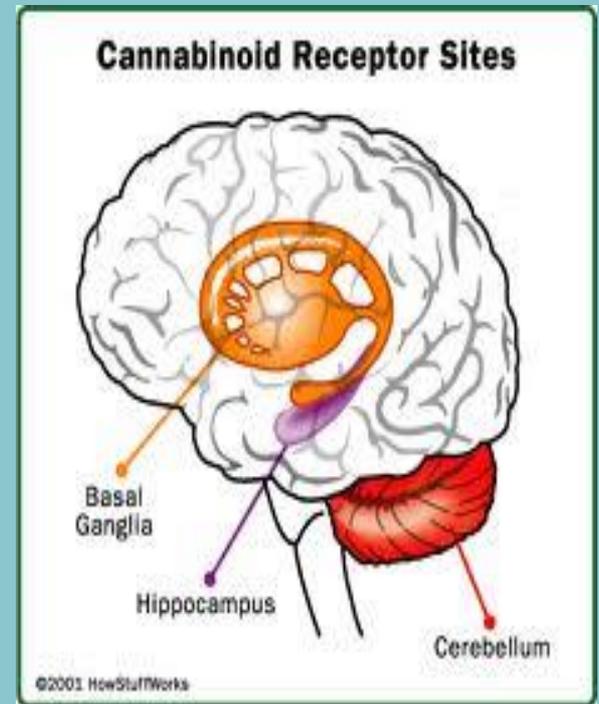
**Relaxation**

**Pain Modulation**

**Nausea Reduction**

**Stimulates Appetite**

**Decrease Pressure in the Eye**



# Definitions of Mood vs. Mind Altering

- **Mood- Altering: Client Becomes Their Own Pharmacist. Focus is on a Temporary or Short-term Emotional or Feeling State; Can Involve Perception of Outside Stimuli; Deregulates Brain Chemistry; Getting High is the Goal**



- **Mind Altering: Medical Personnel are Pharmacists. Focus is on Long-term Feeling or Emotional State; Targets Intellect, Judgment, Cognition, Intellect; Re-regulates Brain Chemistry; Getting High Is Not the Goal Nor Part of the Perception of the Client**



TABLE 2.

## DSM-5 Criteria for Substance Use Disorder

Criterion	Severity
Use in larger amounts or for longer periods of time than intended	Severity is designated according to the number of symptoms endorsed: 0-1: No diagnosis 2-3: Mild SUD 4-5: Moderate SUD 6 or more: Severe SUD
Unsuccessful efforts to cut down or quit	
Excessive time spent using the drug	
Intense desire/urge for drug (craving)	
Failure to fulfill major obligations	
Continued use despite social/interpersonal problems	
Activities/hobbies reduced given use	
Recurrent use in physically hazardous situations	
Recurrent use despite physical or psychological problem caused by or worsened by use	
Tolerance	
Withdrawal	

*SUD, substance use disorder*

*Adapted from Diagnostic and Statistical Manual of Mental Disorders, fifth edition.<sup>23</sup>*

# Substance Induced Disorder

## Permanent vs Transient

**Defined as a disorder that has the same symptoms as one of the mental health disorders but is caused by the use of or abuse of drugs and/or alcohol**

**For example:**

**Alcohol Induced Mood Disorder**

**Cocaine Induced Psychotic Disorder**

**Hallucinogenic Induced Anxiety Disorder**



# Psychological Effects of Stimulants

Cocaine

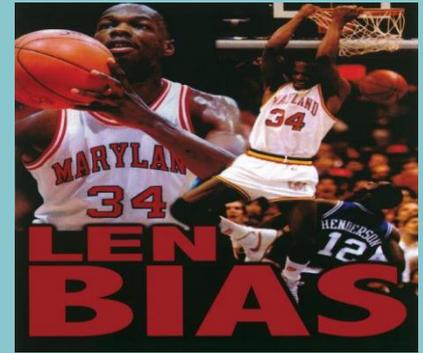
Amphetamines

Methamphetamine

Bath Salts

Nicotine

Caffeine



- **Euphoria**
- **Increased Energy**
- **Increased Focus**
- **Lack of Sleep**
- **Sense of Grandiosity**
- **Sense of Competence**
- **Paranoia in High Doses**

# Psychological Effects of Narcotics



**Heroin**

**Opium**

**Morphine**

**Codeine**

**Hydrocodone (ex: Vicodin, Zohydro)**

**Hydromorphone (ex: Dilaudid)**

**Oxycodone (ex: OxyContin, Percodan, Tylox)**

**Oxymorphone (Opana)**

**Buprenorphine (Subutex, Suboxone)**

**Fentanyl**

**Meperidine (Demerol)**

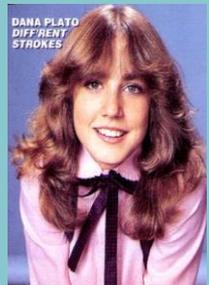
**Methadone (Dolophine)**

**Pentazocine (Talwin)**

**Propoxyphene (Darvon)**



- **Mood swings**
- **Depression**
- **Anxiety**
- **Irritability**
- **Lethargy**
- **Exhaustion**
- **Sedation**
- **Memory problems**
- **Hallucinations**
- **Delusions**
- **Paranoia**



# Psychological Effects of Sedative Hypnotics



**Alcohol**  
**Benzodiazepines**  
**Barbiturates**  
**Sleeping Pills**

- **Aggression**
- **Depression**
- **Anxiety**
- **Poor judgment and decision making ability**
- **Irritability**
- **Memory Loss**
- **Fatigue**
- **Inability to concentrate or pay attention**
- **Improved mood**
- **Personality changes**
- **Suicidal thoughts and behaviors**
- **Social withdrawal**
- **Self-harm**
- **Disorientation**



# Psychological Effects of Hallucinogens

**Cannabis**

**LSD**

**Psilocybin Mushrooms**

**Mescaline/Peyote**

**Cactus**

**Ecstasy/MDMA**

**Ketamine**

**PCP**

**Nutmeg/Mace**

**Dextromethorphan**

**K-2 or Spice**

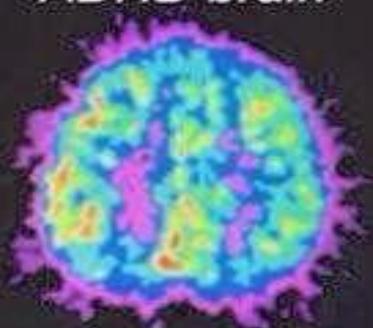
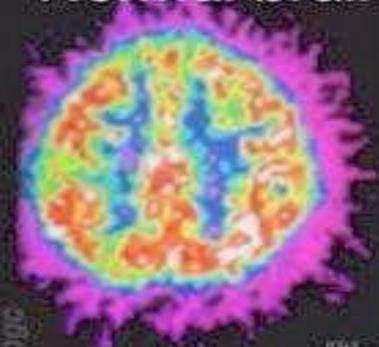


- **Numbness**
- **Disorientation, confusion, and loss of coordination**
- **Changes in sensory perceptions (such as sight, sound, shapes, time, and body image)**
- **Feelings of detachment from self and environment**
- **Hallucinations**
- **Memory loss**
- **Marked psychological distress, including feelings of extreme panic, fear, anxiety, paranoia, invulnerability, exaggerated strength, and aggression**



Normal brain

ADHD brain

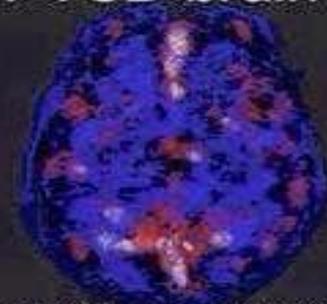
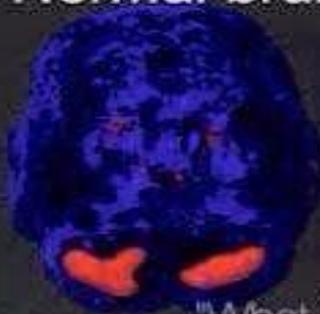


"It's just a made up ailment to give kids an excuse for not paying attention"

# ADHD

Normal brain

PTSD brain

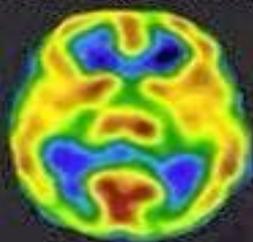


"What happened to you wasn't even that bad"

# PTSD

Normal brain

Bipolar brain

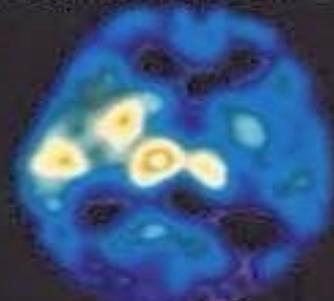


"Why can't you control yourself and try and act like a normal person?"

# Bipolar Disorder

Normal brain

Depressed brain

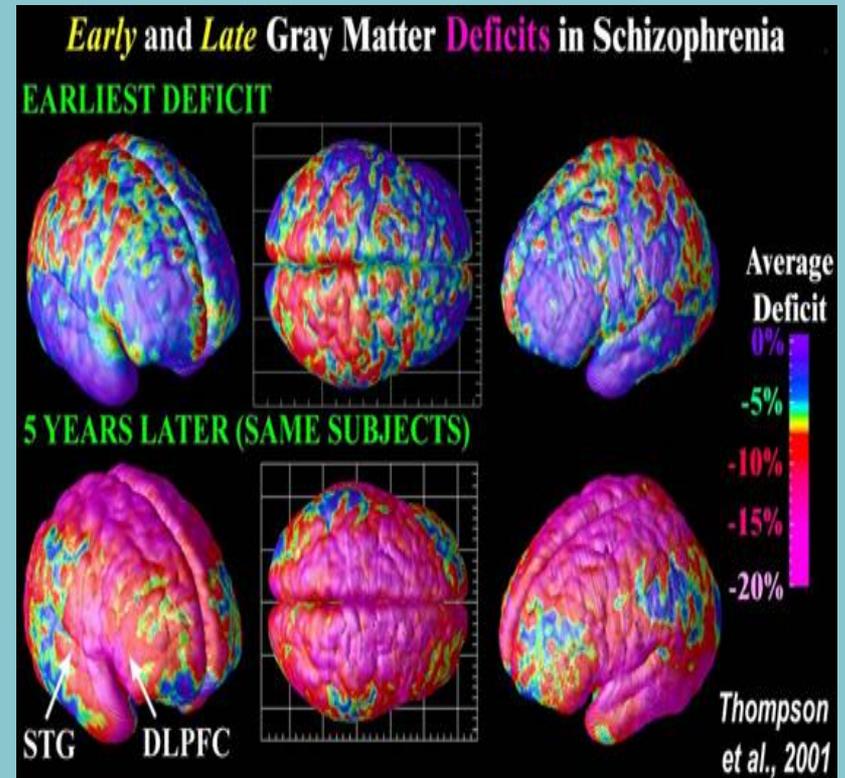


"Get over it lots of people have it worse"

# Depression

# Schizophrenia

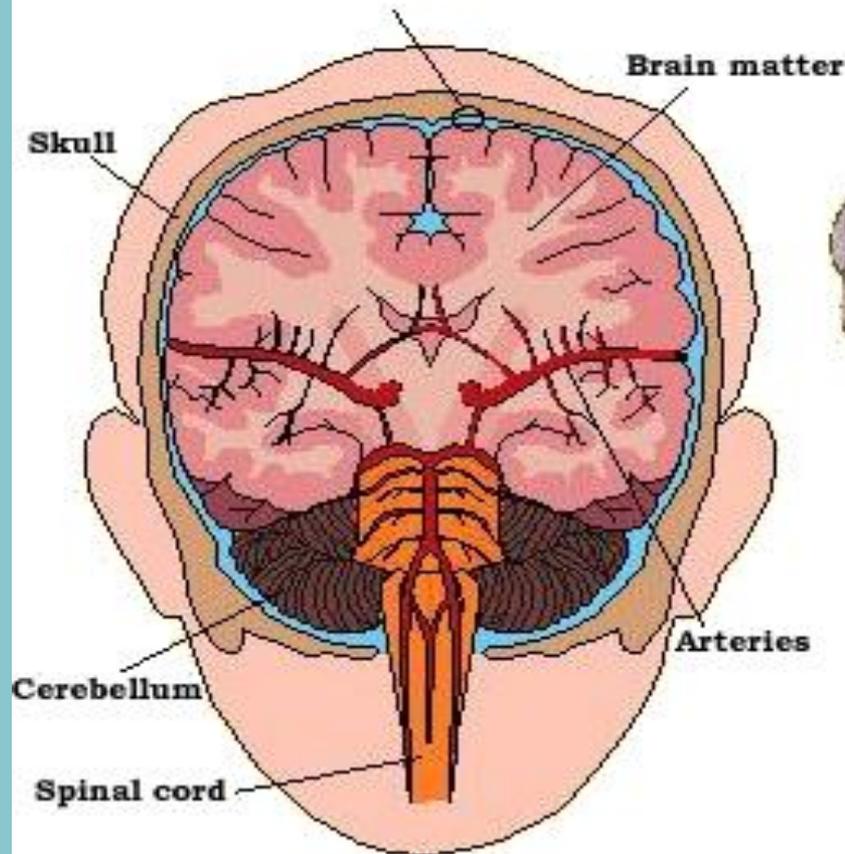
**Many studies have investigated the possible role of brain neurotransmitters in the development of schizophrenia. Most of these studies have focused on the neurotransmitter called dopamine. The "dopamine theory of schizophrenia" states that schizophrenia is caused by an overactive dopamine system in the brain. There is strong evidence that supports the dopamine theory, but there are also some data that do not support it**



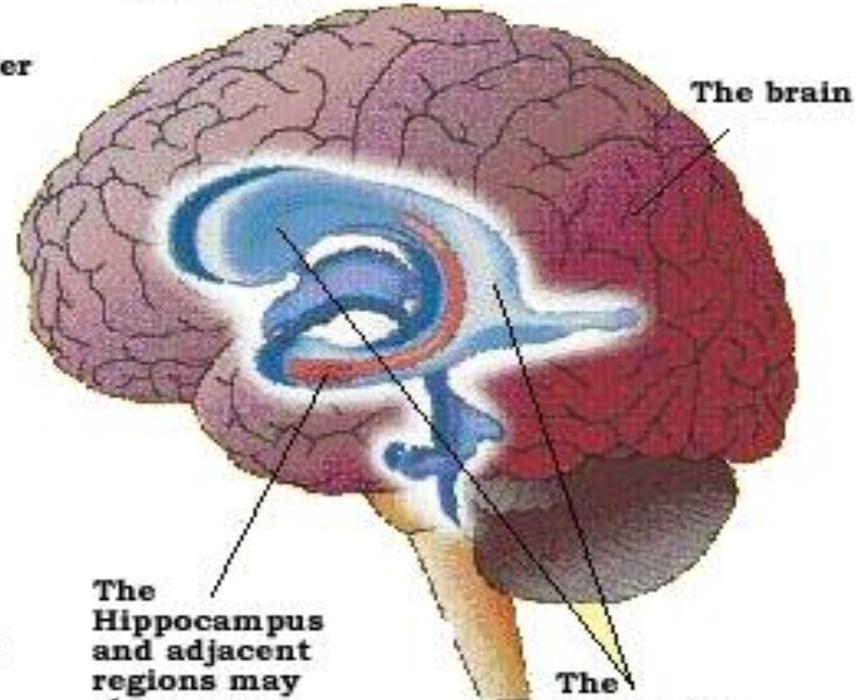
# Area of the brain involved with schizophrenia

The cerebrospinal fluid (fluid surrounding the brain) may contain different relative amounts of chemicals associated with the transmitting of nerve impulses.

There may be changes in the frontal lobes, the part of the brain concerned with emotional and some higher mental functions.



Cross section of the skull and brain  
(view from the front)



The Hippocampus and adjacent regions may show some reduction in size. This can affect the sensory filtering that takes place in this region of the brain.

The ventricles (fluid-filled spaces) may be larger than normal. This may put pressure on surrounding brain tissue.

# Symptoms of Schizophrenia

## Positive:



Delusions



Hallucinations



Disorganized speech

## Negative:



Flattened affect



Reduced speech



Lack of initiative

# Medications to Treat Psychotic Disorders

## Conventional Antipsychotics

- **Thorazine**
- **Mellaril**
- **Serentil**
- **Moban**
- **Loxitane**
- **Haldol**
- **Prolixin**
- **Navane**
- **Stelazine**

## Atypical Antipsychotics

- **Clozaril**
- **Zyprexa**
- **Zeldox**
- **Risperdal**
- **Invega**
- **Seroquel**
- **Geodon**
- **Abilify**
- **Rexulti**
- **Vrylar**
- **Caplyta (2020)**





# Selected Stimulant Medications Used in the Treatment of ADHD

Medication	Frequency	Peak Effect	Duration of Action
<b>Amphetamines</b>			
<i>Short Acting:</i>			
Dexedrine	b.i.d. or t.i.d.	1-3 hours	5 hours
Adderall	b.i.d. or t.i.d.	1-3 hours	5 hours
<i>Long Acting:</i>			
Dexedrine Spansule	q.a.m.	1-4 hours	6-9 hours
Adderall XR	q.a.m.	1-4 hours	9 hours
<b>Methylphenidates</b>			
<i>Short Acting:</i>			
Ritalin	t.i.d.	1-3 hours	2-4 hours
Focalin	b.i.d.	1-4 hours	2-5 hours
<i>Long Acting:</i>			
Ritalin SR	q.a.m. or b.i.d.	3 hours	5 hours
Metadate CD	q.a.m.	5 hours	8 hours
Concerta	q.a.m.	8 hours	12 hours

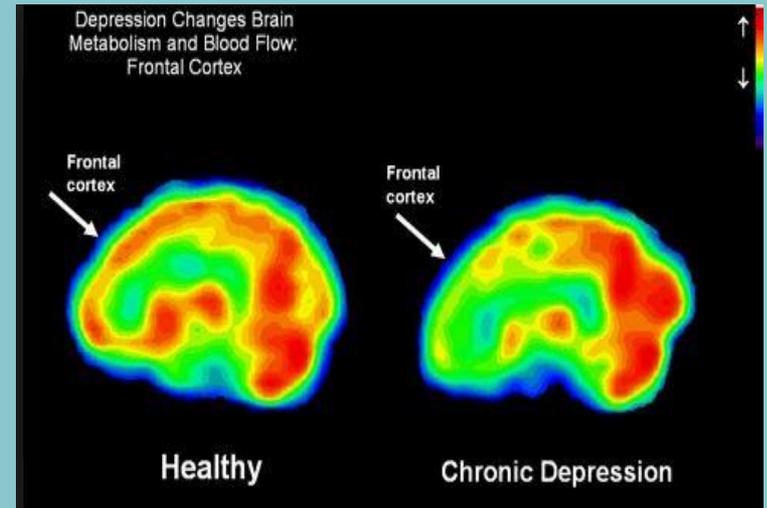
Source: Adapted from Greenhill, L., "Are the New Stimulants Really Better?" AACAP Annual Meeting, Oct. 2001.

## Non-Stimulant Medications Used for ADHD

Generic Class (Brand Name)	Daily Dosage	Prescribing Schedule
Atomoxetine (Strattera)	Once a day to twice a day	0.5 mg/kg per day increasing to 1.4 mg/kg per day)
Guanfacine		Start at lower doses
<ul style="list-style-type: none"> <li>• Long-acting (Intuniv)</li> </ul>	<ul style="list-style-type: none"> <li>• 1–4 mg daily</li> </ul>	
<ul style="list-style-type: none"> <li>• Short-acting (Tenex)</li> </ul>	<ul style="list-style-type: none"> <li>• 1–2 mg 2 to 3 times daily</li> </ul>	
Clonidine		Start at lower doses
<ul style="list-style-type: none"> <li>• Long acting (Kapvay)</li> </ul>	<ul style="list-style-type: none"> <li>• 0.1–0.3 mg 2 to 3 times daily</li> </ul>	
<ul style="list-style-type: none"> <li>• Oral tablets</li> </ul>	<ul style="list-style-type: none"> <li>• 0.1-.2 mg twice a day</li> </ul>	
<ul style="list-style-type: none"> <li>• Film patches</li> </ul>	<ul style="list-style-type: none"> <li>• 0.1–0.3 mg patch daily</li> </ul>	
Bupropion		
<ul style="list-style-type: none"> <li>• Short-acting (Wellbutrin)</li> </ul>	<ul style="list-style-type: none"> <li>• 3 times daily, no single dose &gt;150 mg</li> </ul>	<ul style="list-style-type: none"> <li>• 150–300 mg per day</li> </ul>
<ul style="list-style-type: none"> <li>• Intermediate (Wellbutrin SR)</li> </ul>	<ul style="list-style-type: none"> <li>• 2 times daily, no single dose &gt;150 mg</li> </ul>	<ul style="list-style-type: none"> <li>• 150–300 mg per day</li> </ul>
<ul style="list-style-type: none"> <li>• Long-acting (Wellbutrin XL)</li> </ul>	<ul style="list-style-type: none"> <li>• Once daily (twice if single dose &gt;150 mg)</li> </ul>	<ul style="list-style-type: none"> <li>• 150–300 mg per day</li> </ul>

# Depressive Disorders

- **Brain cells usually produce levels of neurotransmitters that keep senses, learning, movements, and moods normative**
- **But in some people who are severely depressed or manic, the complex systems that accomplish this go awry**
- **Receptors may be oversensitive or insensitive to a specific neurotransmitter, causing their response to its release to be excessive or inadequate**
- **A message might be weakened if the originating cell pumps out too little of a neurotransmitter or if an overly efficient reuptake absorbs too much before the molecules have the chance to bind to the receptors on other neurons. Any of these system faults could significantly affect mood**



# Symptoms of Depression



knowmedge

Mnemonic: "A SAD FACES"

**A**

**A**ppetite (Weight Change)

**SAD**

**S**leep (Insomnia / Hypersomnia)

**FACES**

**F**atigue

**A**nhedonia

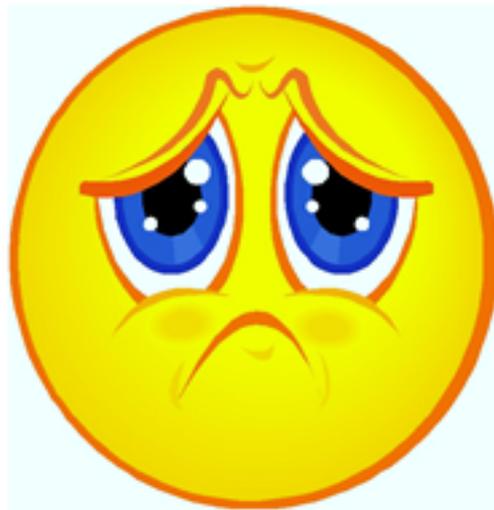
**A**gitation / Retardation

**D**ysphoria

**C**oncentration Diminished

**E**steem (Low) / Guilt

**S**uicide / Thoughts of Death



# Antidepressant Nation

By APage

1 in 10 Americans take antidepressants, making them the third most common prescription drug in the U.S. Take a look at the types of antidepressants and know their most common side effects.

## Types of Antidepressants & Common Side Effects

Tricyclics	SSRIs	SNRIs	MAOIs	Newer Combinations
<ul style="list-style-type: none"> <li>Tremors</li> <li>Indigestion</li> <li>Headache</li> <li>Dry Mouth</li> <li>Drowsiness</li> <li>Elevated Heart Rate</li> </ul>	<ul style="list-style-type: none"> <li>Sweating</li> <li>Indigestion &amp; Nausea</li> <li>Headache</li> <li>Dry Mouth</li> <li>Drowsiness</li> <li>Sexual Side Effects</li> </ul>	<ul style="list-style-type: none"> <li>Tremors</li> <li>Nausea</li> <li>Headache</li> <li>Dry Mouth</li> <li>Blurred Vision</li> <li>Increased Blood Pressure</li> <li>Sexual Side Effects</li> <li>Nervousness</li> <li>Dizziness</li> </ul>	<ul style="list-style-type: none"> <li>Insomnia</li> <li>Muscle Aches</li> <li>Low Blood Pressure</li> <li>Dry Mouth</li> <li>Sexual Side Effects</li> <li>Nervousness</li> <li>Dizziness</li> <li>Need to Avoid Decongestants &amp; Certain Foods (Fish, Chocolate, Fermented Foods)</li> </ul>	<ul style="list-style-type: none"> <li>Appetite Changes</li> <li>Indigestion &amp; Constipation</li> <li>Headache</li> <li>Dry Mouth</li> <li>Insomnia</li> <li>Sweating</li> <li>Nervousness</li> <li>Sexual Side Effects</li> <li>Vomiting</li> </ul>
<b>Common Brand Names:</b>	<b>Common Brand Names:</b>	<b>Common Brand Names:</b>	<b>Common Brand Names:</b>	<b>Common Brand Names:</b>
<ul style="list-style-type: none"> <li>Elavil</li> <li>Asendin</li> <li>Anafranil</li> <li>Adapine</li> <li>Sinequan</li> <li>Tofranil</li> <li>Pamelor</li> <li>Vivactil</li> </ul>	<ul style="list-style-type: none"> <li>Celexa</li> <li>Lexapro</li> <li>Luvox</li> <li>Prozac</li> <li>Paxil</li> <li>Zoloft</li> </ul>	<ul style="list-style-type: none"> <li>Cymbalta</li> <li>Serzone</li> <li>Effexor</li> </ul>	<ul style="list-style-type: none"> <li>Marplan</li> <li>Nardil</li> <li>Parnate</li> </ul>	<ul style="list-style-type: none"> <li>Wellbutrin</li> <li>Norpramin</li> <li>Ludiomil</li> <li>Remeron</li> <li>Desyrel</li> </ul>

For a complete list of antidepressants and side effects visit:  
<http://www.nimh.nih.gov/health/publications/mental-health-medications/complete-index.shtml>

- **Rexulti**
- **Esketamine (Nasal Spray)**
- **Pristiq**

### Treatments

Top 10 most prescribed drugs and their success rate.

Although there is no standard treatment for clinical depression that's right for everyone, sufferers do have many options that can be used in combination. Medication and professional therapy are two mainstays of depression treatment. Daily Strength users have personal experience with many prescription drugs and have reviewed each of the following drugs. Each drug has been given a percentage based on these reviews.



66%



#### Wellbutrin

Bupropion is an atypical drug used as a smoking cessation aid.



61%



#### Celexa

Citalopram is used to treat depression associated with mood disorders.



75%



#### Amoryn

Amoryn is a dietary supplement used to relieve depression and anxiety.



65%



#### Cymbalta

Duloxetine is used primarily for major depressive disorders (MDD).

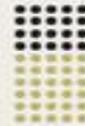


62%



#### Lexapro

Escitalopram acts as a selective serotonin reuptake inhibitor or SSRI.



60%



#### Prozac

Fluoxetine is used for depression, and obsessive-compulsive disorder.



48%



#### Luvox

Fluvoxamine is used for obsessive-compulsive disorder.



84%



#### Remeron

Mirtazapine is used to treat mental depression.



81%



#### Serzone

Nefazodone is used to treat mental depression.



55%



#### Paxil

Paroxetine or paroxetine hydrochloride is an SSRI.



63%



#### Zoloft

Sertraline is an orally administered SSRI drug.



62%



#### Effexor

Venlafaxine is a class of antidepressants called SNRI.

# Bipolar Disorder

## How does BD affect the brain?

**Two strategies have been used to investigate how BD affects the brain: examination of brain tissue after people with BD have died and brain imaging in people who have BD. Unfortunately, few studies of either type have been performed.**

## Reported changes in the brains of people with BD

**Decreases in the number and density of glial cells in the prefrontal cortex.**

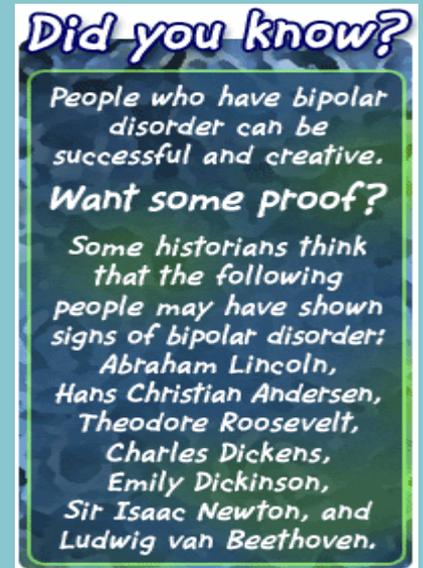
**Decreases in the number of neurons in part of the hippocampus.**

**Increases in the levels of some neuropeptides in the hypothalamus.**

**White matter hyperintensities: small abnormal areas in the white matter of the brain (especially in the frontal lobe) as seen using magnetic resonance imaging. These abnormalities may be caused by the loss of myelin or axons.**

**Decreases in the size of the cerebellum.**

**Reduced activity in the prefrontal cortex during the depressive stage**



# What is Bipolar Disorder? By: Maya Quintanilla

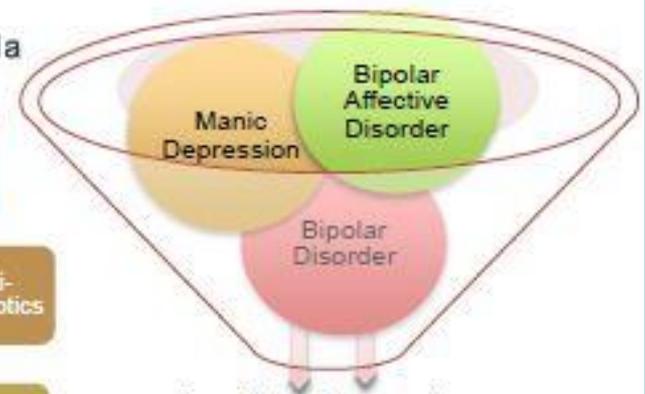
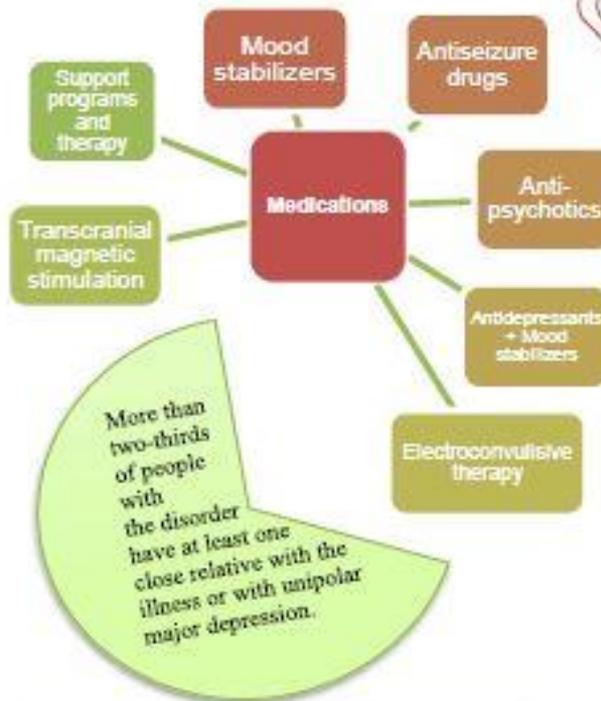
2.6% of Americans have bipolar disorder

## Symptoms of the Manic Phase:

- Easily distracted
- Little need for sleep
- Poor judgment
- Poor temper control
- Reckless behavior and lack of self-control
- Very elevated mood
- Very involved in activities
- Very upset

## Symptoms of the Depressed Phase:

- Daily low mood or sadness
- Difficulty concentrating, remembering, making decision
- Eating problems
- Fatigue or lack of energy
- Feeling worthless, hopeless, or guilty
- Loss of pleasure in activities one enjoyed
- Loss of self esteem
- Thoughts of death and suicide
- Trouble getting to sleep or sleeping too much
- Pulling away from friends or activities

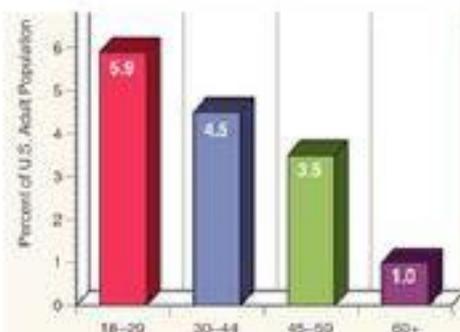


A condition where people go back and forth between periods of a very good or irritable mood and depression. Mood swings between mania and depression.

## What can trigger a manic episode?

- Life changes (e.g., childbirth)
- Medications (e.g., antidepressants or steroids)
- Periods of sleeplessness
- Recreational drug use

Average Age-of-Onset: 25 years old<sup>4</sup>



## References

- Bipolar disorder. (2011). Retrieved from <http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0001924/>
- Bipolar disorder among adults. (2010, July 29). Retrieved from [http://www.nimh.nih.gov/statistics/1BIPOLAR\\_ADULTS.shtml](http://www.nimh.nih.gov/statistics/1BIPOLAR_ADULTS.shtml)
- Bipolar disorder statistics. (2011). Retrieved from <http://www.bipolar-lives.com/bipolar-disorder.statistics.html>
- Korn, J. (n.d.). Bipolar statistics. Retrieved from <http://www.bipolarsymptoms.org/Basics/Disorder-Statistics.html>

# Newer: Vrylar, Latuda

## DRUGS FOR TREATING BIPOLAR DISORDER

### Aripiprazole (Abilify)

Approved for acute mania, prevention of manic recurrence  
**Class:** atypical antipsychotic  
**Dose:** 5–30 mg/day  
**Cost:** \$687–970/month

### Carbamazepine (Tegretol)

Approved for acute mania  
**Class:** anticonvulsant  
**Dose:** 600–1,200 mg/day  
**Cost:** \$15–225/month

### Divalproex (Depakote)

Approved for acute mania  
**Class:** anticonvulsant  
**Dose:** 750–2,000 mg/day  
**Cost:** \$18–71/month

### Quetiapine (Seroquel)

Approved for acute mania, acute depression, prevention of depressive recurrence, prevention of manic recurrence  
**Class:** atypical antipsychotic  
**Dose:** 200–800 mg/day  
**Cost:** \$186–513/month

### Risperidone (Risperdal)

Approved for acute mania, prevention of depressive recurrence, prevention of manic recurrence  
**Class:** atypical antipsychotic  
**Dose:** 2–6 mg/day  
**Cost:** \$19–36/month

### Lithium carbonate

Approved for acute mania, prevention of depressive recurrence, prevention of manic recurrence  
**Class:** antimanic  
**Dose:** 900–1,800 mg/day  
**Cost:** \$13–25/month

### Ziprasidone (Geodon)

Approved for acute mania, prevention of depressive recurrence, prevention of manic recurrence  
**Class:** atypical antipsychotic  
**Dose:** 80–160 mg/day  
**Cost:** \$259–408/month

### Lamotrigine (Lamictal)

Approved for prevention of depressive recurrence, prevention of manic recurrence  
**Class:** anticonvulsant  
**Dose:** 100–400 mg/day  
**Cost:** \$12–22/month

### Asenapine (Saphris)

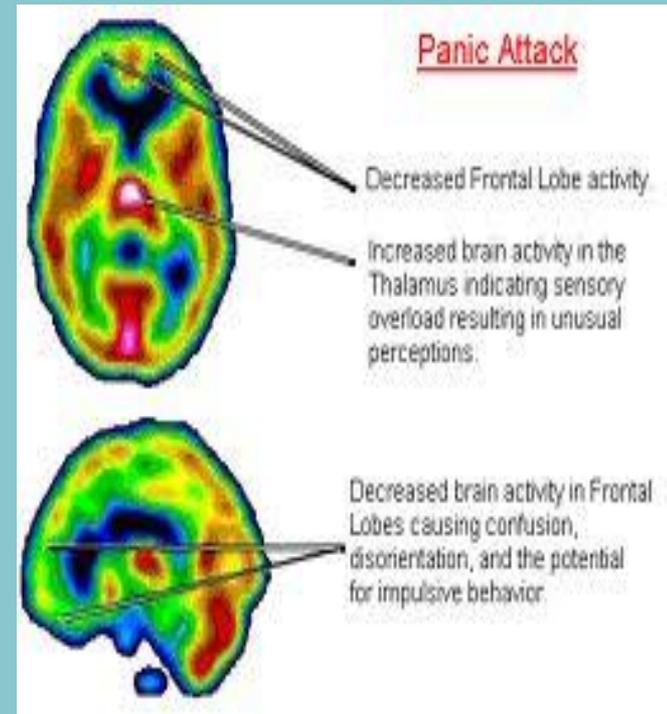
Approved for acute mania  
**Class:** atypical antipsychotic  
**Dose:** 10–20 mg/day  
**Cost:** \$338–683/month

**NOTE:** Drug prices are averaged from three different U.S. geographic regions and vary according to dosage, formulation, and pharmacy. **SOURCE:** rxpricequotes.com

# Anxiety Disorders

**Regions of the brain that are responsible for controlling impulses and producing habitual responses seem to be hyperactive in the brains of those with generalized anxiety, panic attacks, and PTSD**

**Research has shown that those suffering from anxiety often have issues with several neurotransmitters (brain chemicals), including serotonin, norepinephrine and gamma-aminobutyric acid (GABA)**



## Sudden and Extreme

## Shared Symptoms

## Gradually Builds Up



Shaking / Trembling



Chest pain



Feeling disconnected from self (depersonalization) or surroundings (derealization)



Increased Heart Rate



Shortness of Breath



Disturbed Sleep



Irritability



Muscle Tension

# Medications to Treat Anxiety Disorders

- **Benzodiazepines**
- **Buspirone**  
**Buspar**
- **Antihistamines**  
**Atarax, Vistaril,**  
**Benadryl**
- **Antihypertensives**  
**Clonidine**
- **SSRIs**



**Substance  
Use  
Disorders**

**Co-  
Occurring  
Disorders**

**Mental  
Health  
Disorders**