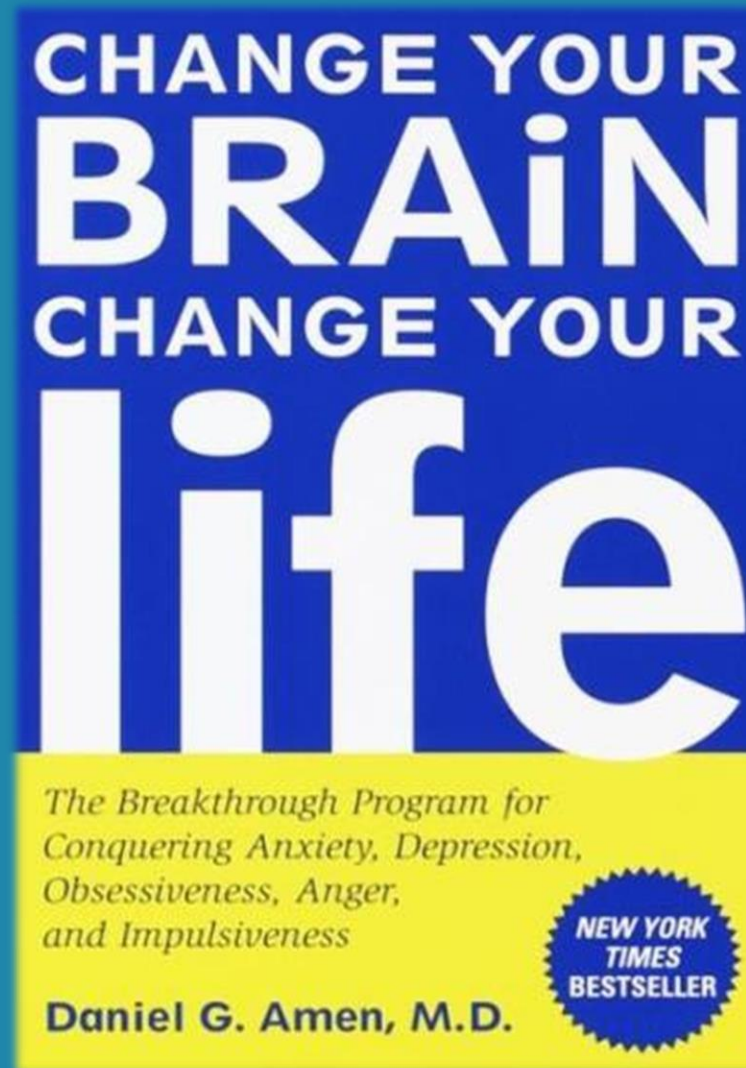
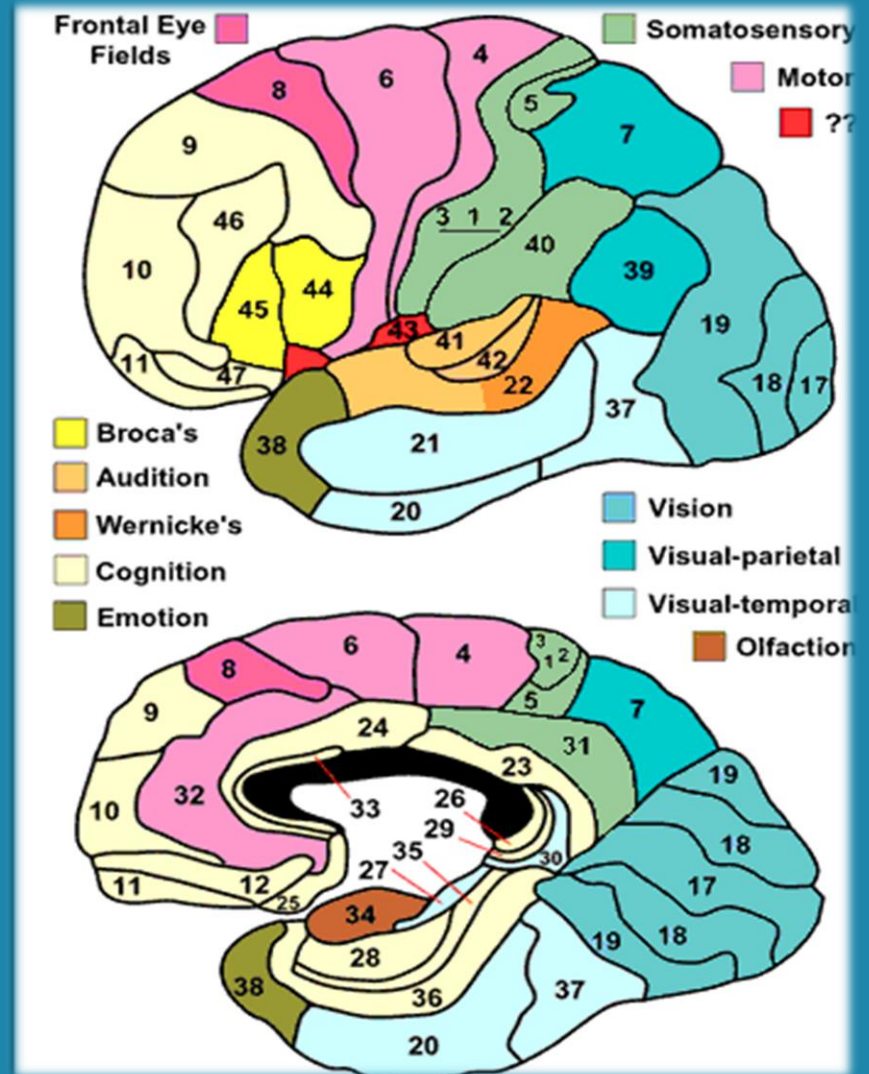


Brain Behavior Systems: Their Functions, Problems and Solutions



Brain System Approach

- Left vs. Right Hemisphere
- Prefrontal Cortex
- Cingulate Gyrus
- Basal Ganglia/Insula
- Temporal Lobes
- Deep Limbic System
- Cerebellum



Left vs. Right Hemisphere

Left Side

Right Side



Sees the Forest



Sees the Forest

Left Hemisphere

- Logical
- Precise
- Details (sees the trees)
- Communicates
- Concerned about time
- Happier, more positive
- Doesn't see problems

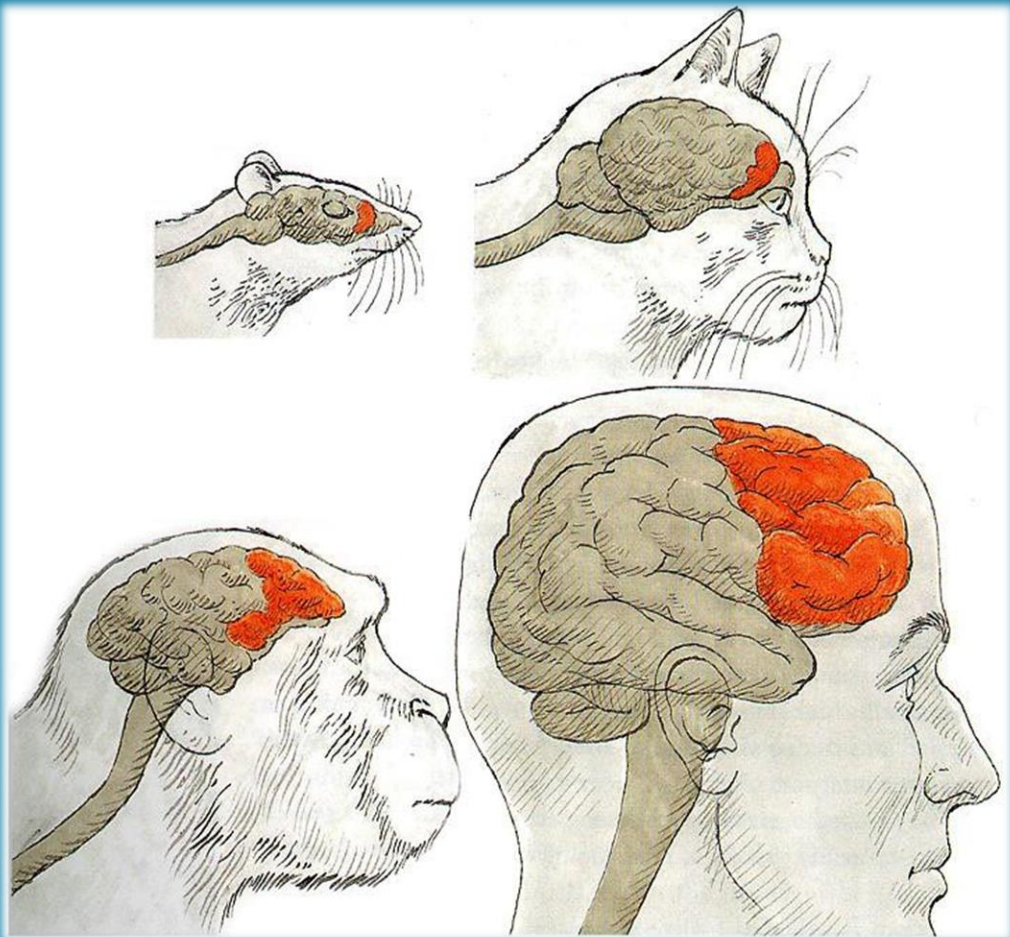


Right Hemisphere

- **Big picture, sees the forest**
- **Creative, artistic**
- **Can put a room together (decorates)**
- **Anxious, fearful, negative**
- **Focuses on problems**
- **Admits to problems**
- **Operates on hunches**



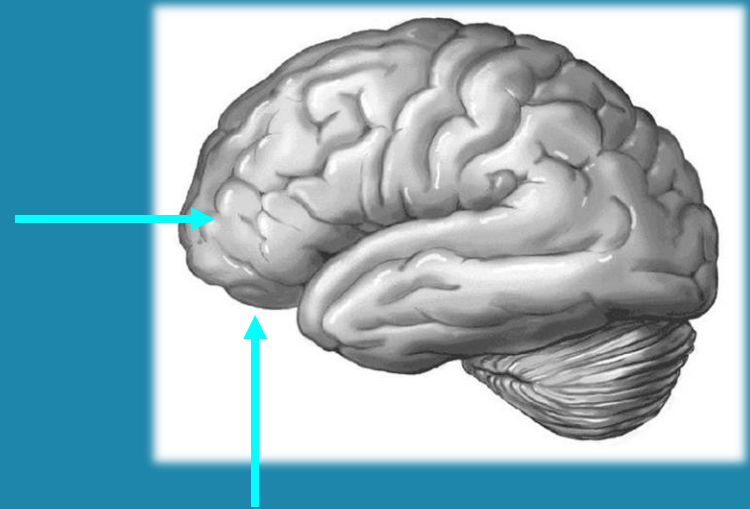
PREFRONTAL CORTEX



PREFRONTAL CORTEX

The Supervisor

- **Dorsal Lateral PFC**
 - ❖ **Short term memory**
- **Inferior Orbital PFC**
 - ❖ **Impulse and mood control**

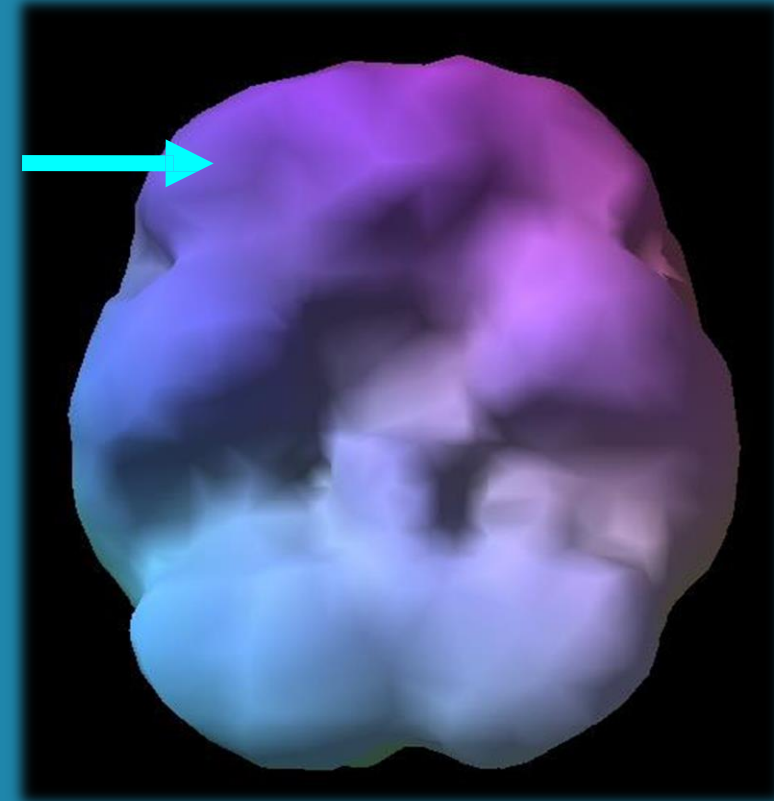




“The best car safety device is a rear-view mirror with a cop in it.”
Dudley Moore

Prefrontal Cortex Functions

- Focus
- Forethought
- Impulse Control
- Organization
- Planning
- Judgment
- Empathy
- Insight and learning from mistakes

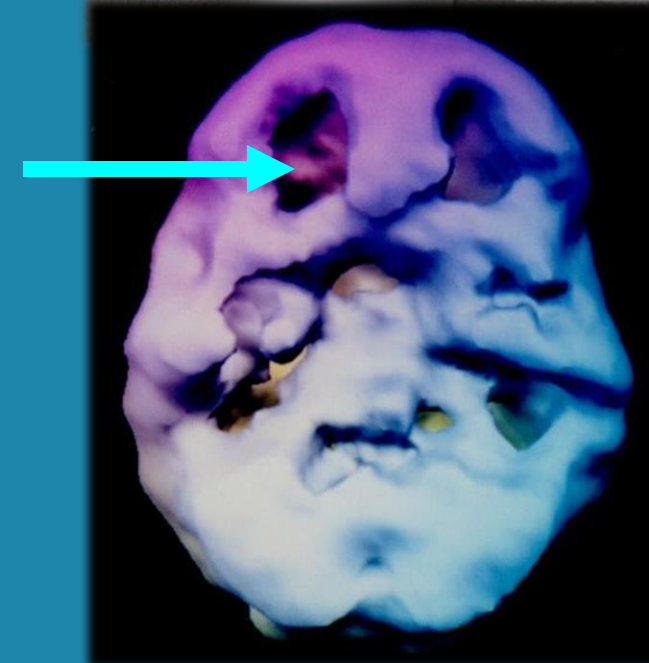


PFC Problems - Bad Habits



PFC Problems

- **Short attention span**
- **Impulsivity**
- **Procrastination**
- **Disorganization**
- **Poor judgment**
- **Lack of empathy and insight**
- **Brutal honesty**



Brutal Honesty

DO YOU SWEAR TO TELL THE TRUTH, THE WHOLE TRUTH AND NOTHING BUT THE TRUTH ?



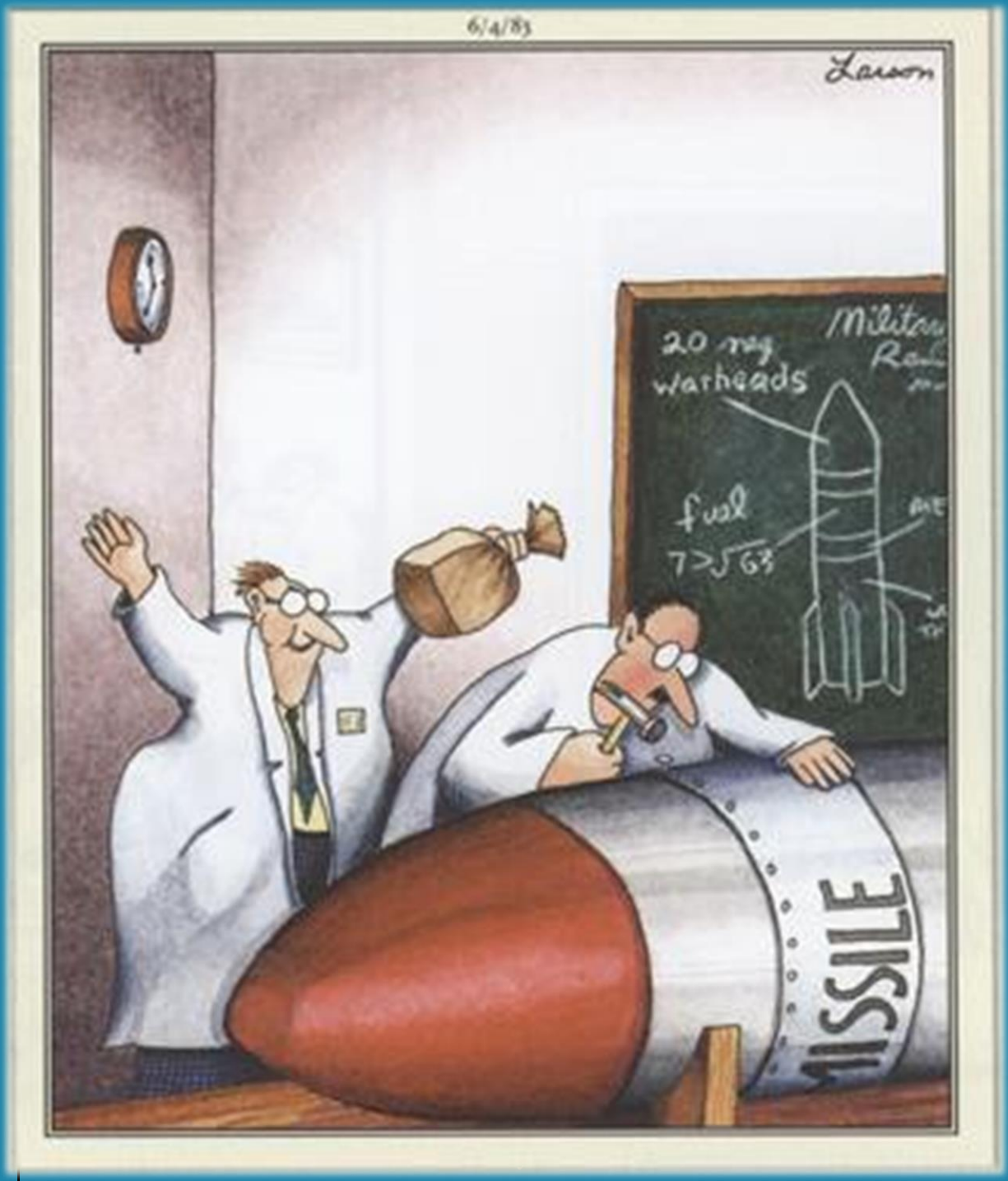
YES, I DO.



YOU COULD LOSE A FEW POUNDS.



Conflict Seeking



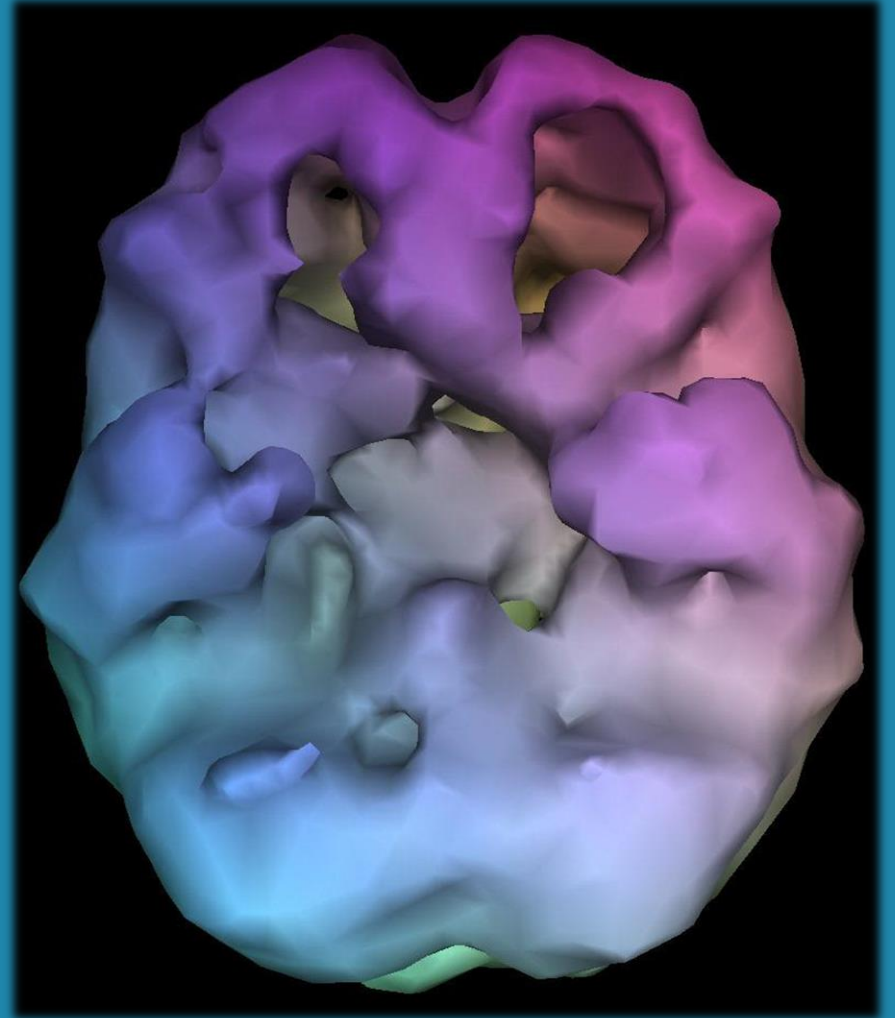
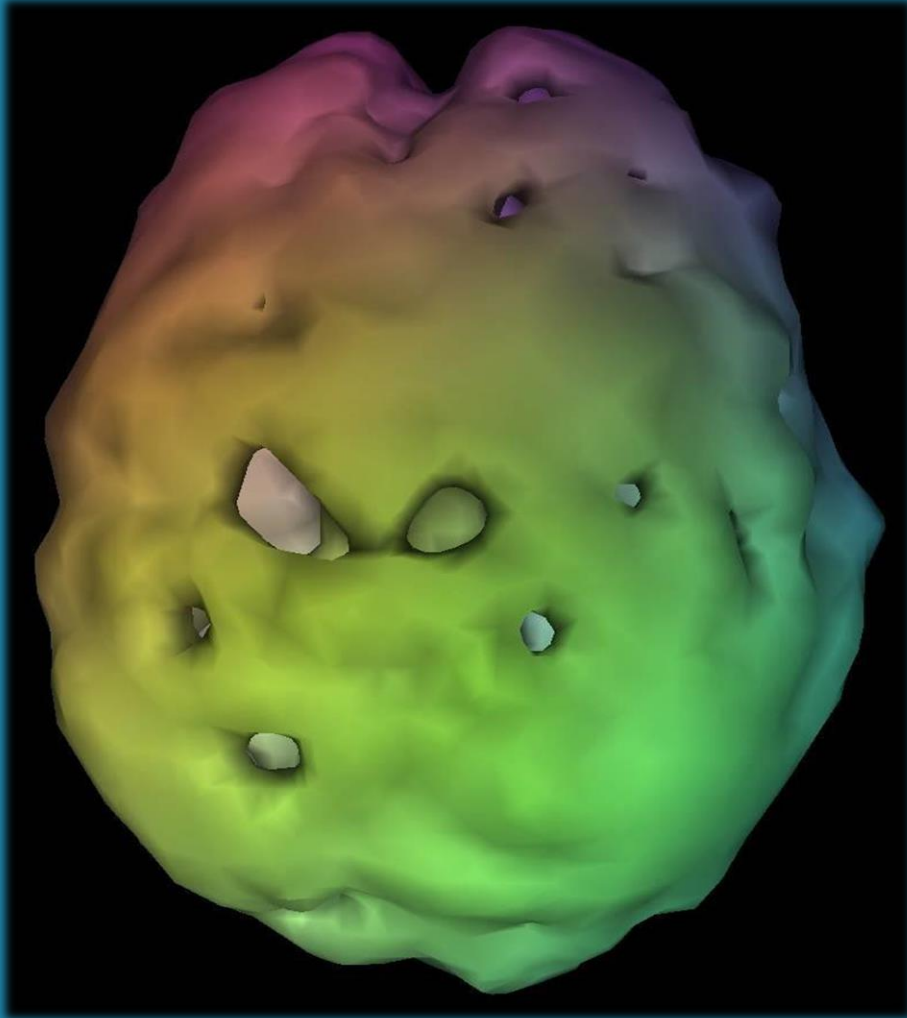
Some Conditions Affecting the PFC

➤ Too Low

- ❖ Bad Habits – smoking and obesity
- ❖ ADHD
- ❖ Schizophrenia
- ❖ Antisocial PD
- ❖ Brain Trauma
- ❖ Frontal Temporal Dementia
- ❖ Certain forms of depression



Antisocial Personality Disorder



PFC Support

- **Goal setting**
- **Exercise**
- **Diet (more protein)**
- **EPA Fish oil**
- **Brain rehab strategies**
- **Stimulating supplements**
- **Stimulating meds**
- **Neurofeedback**
- **rTMS**
- **HBOT**

Stimulating Meds

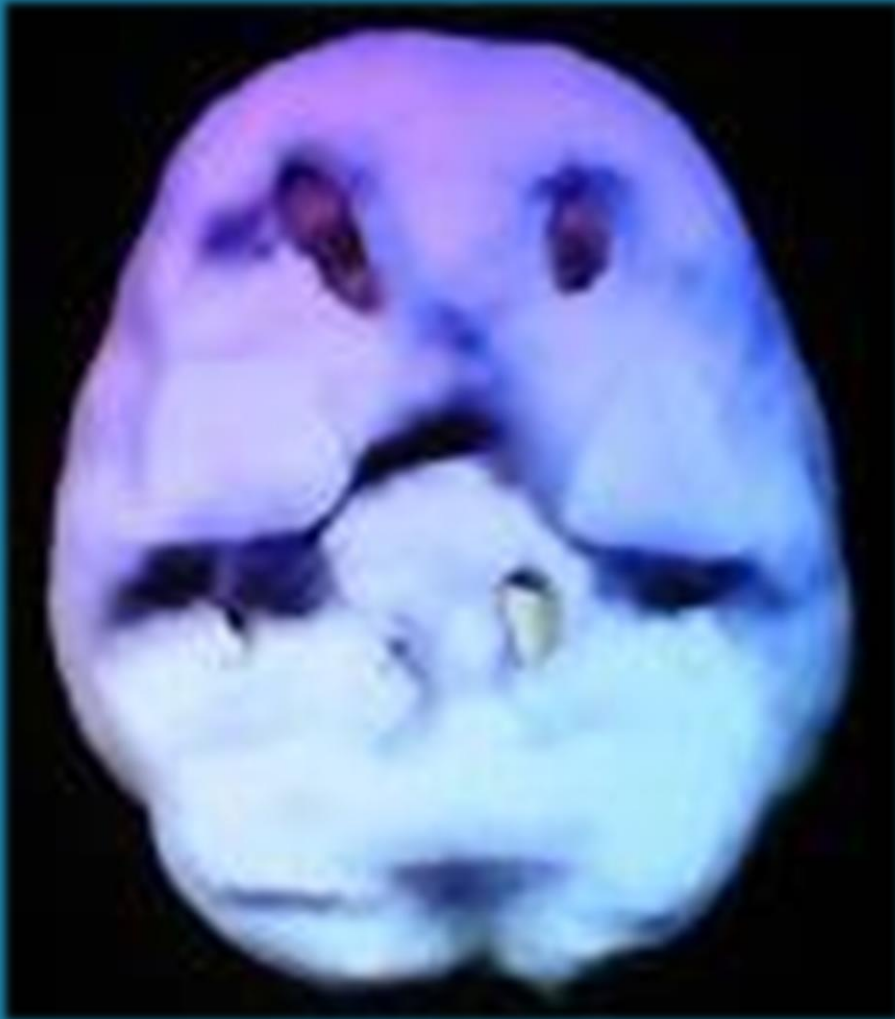
- **Ritalin / Concerta / Metadate / Daytrana**
- **Adderall / Vyvanse**
- **Dexedrine**
- **Provigil / Nuvigil**
- **Strattera**
- **Wellbutrin**
- **Amantadine**
- **Abilify**

Supplements

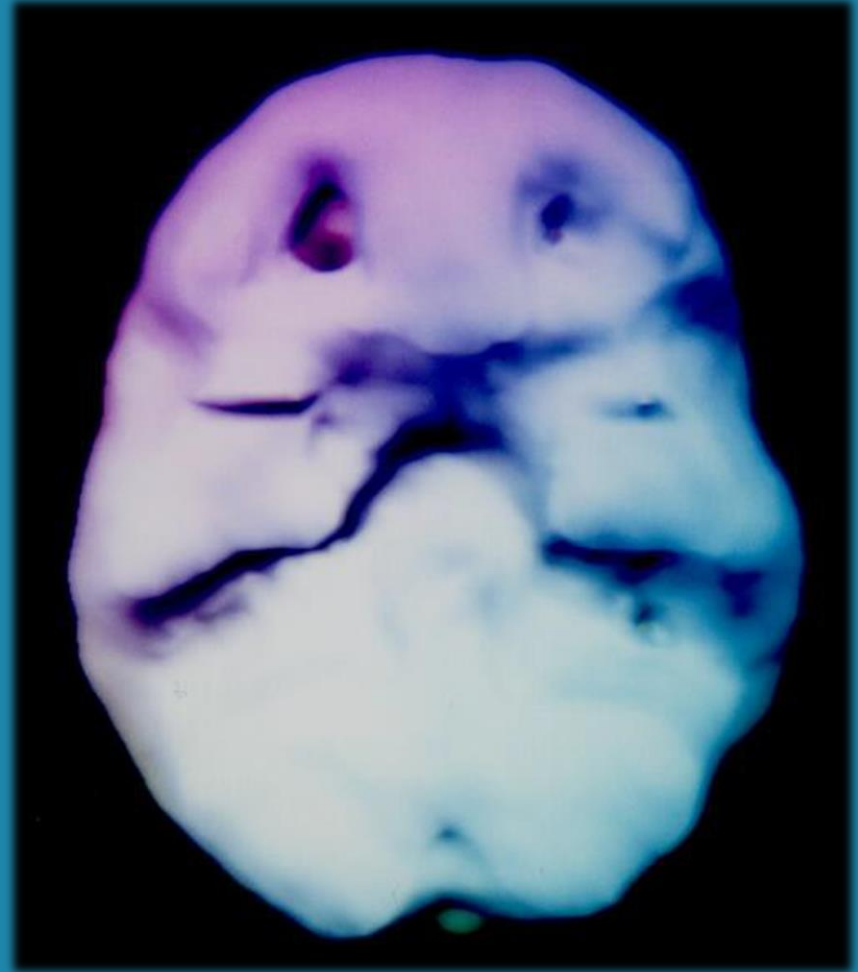
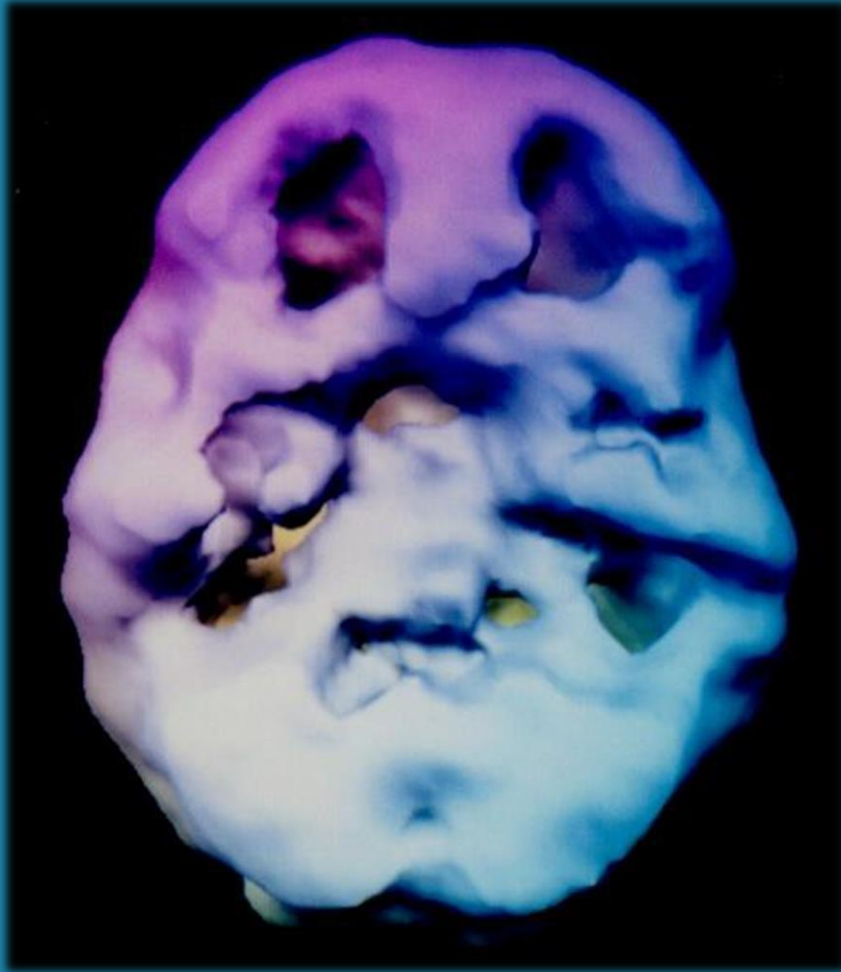
- **Green tea**
- **Rhodiola**
- **Ginseng**
- **Ashwaghandha**
- **L-tyrosine**
- **Phenylalanine**
- **Iron**
- **Zinc**



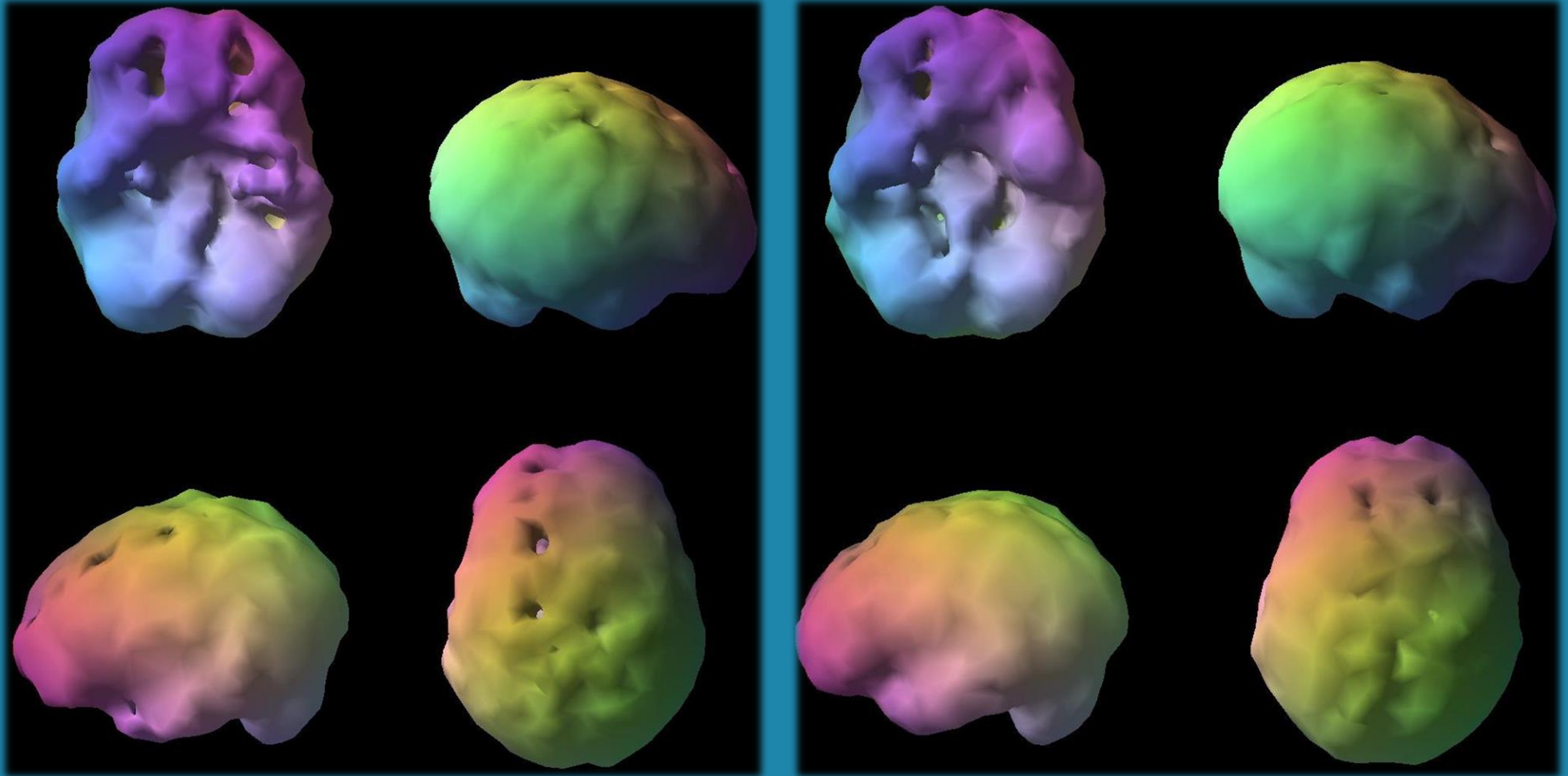
ADHD, Rest and Concentration



ADD, Off and On Adderall



Sex Addict Before and After

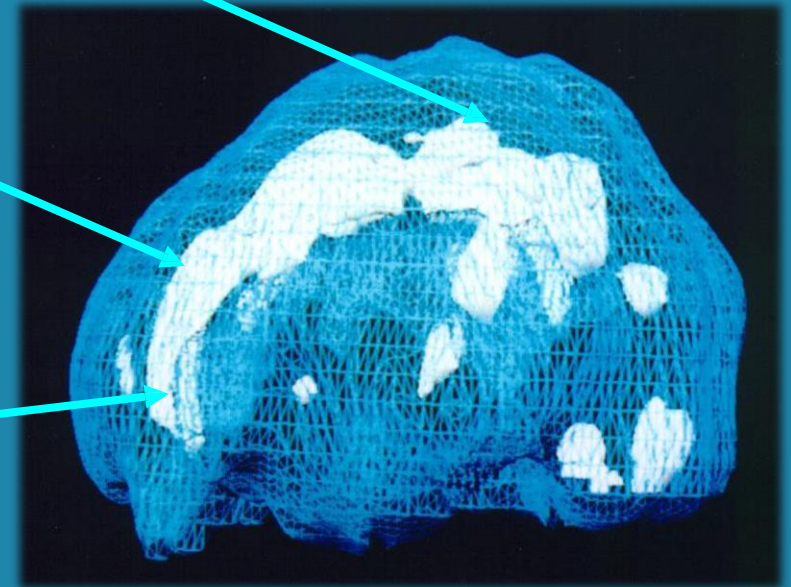


27 HBOT Sessions Plus Focus and Energy

Cingulate Gyrus

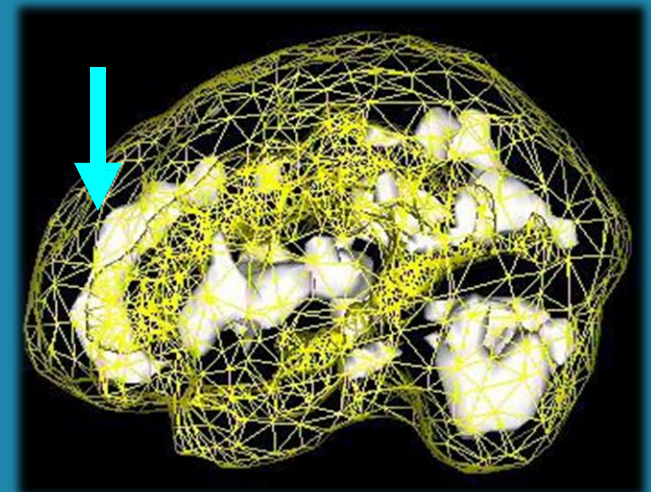
Gear Shifter/Integration

- **Posterior Part**
 - ❖ **Memory Integration**
- **Ant. Dorsal Part**
 - ❖ **Thought Shifting**
- **Ant. Ventral Part**
 - ❖ **Emotional shifting**



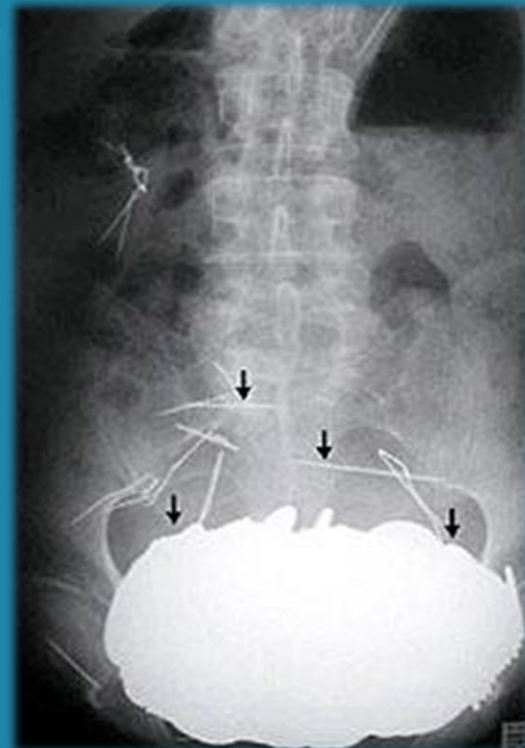
Anterior Cingulate Gear Shifter Function

- Cognitive flexibility
- Shift attention
- Go from idea to idea
- See options
- Go with the flow
- Cooperation
- Error detection

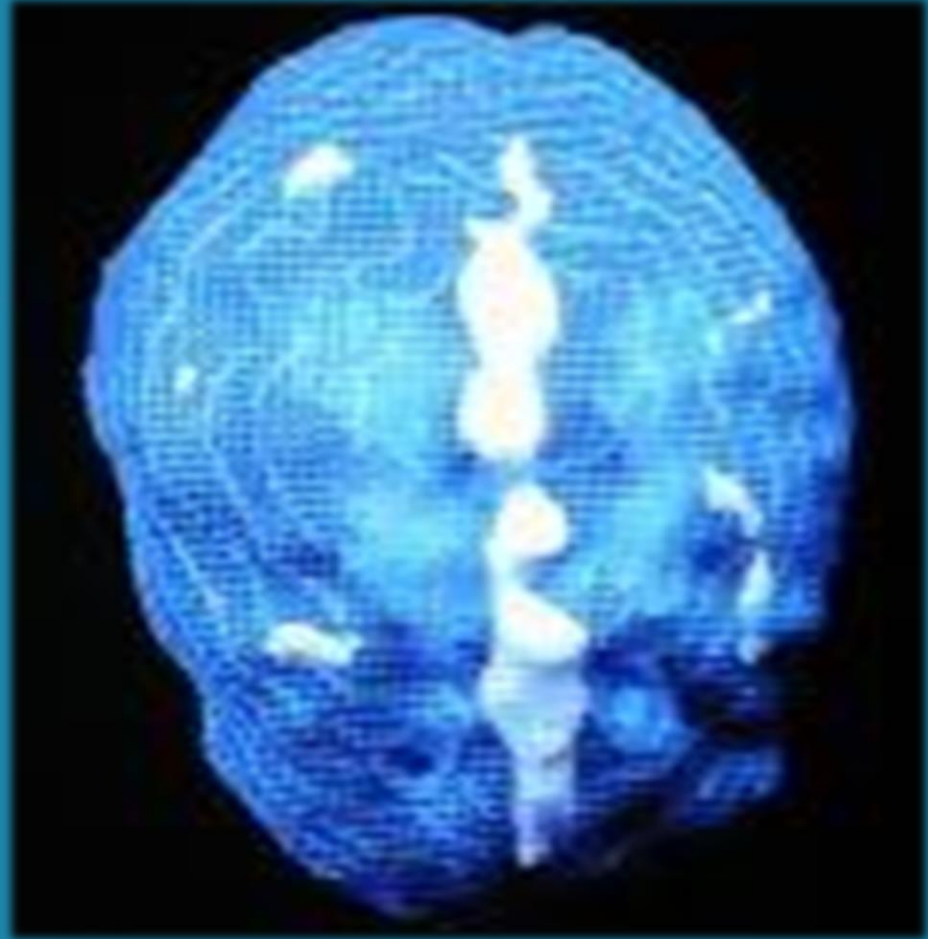


Anterior Cingulate Problems

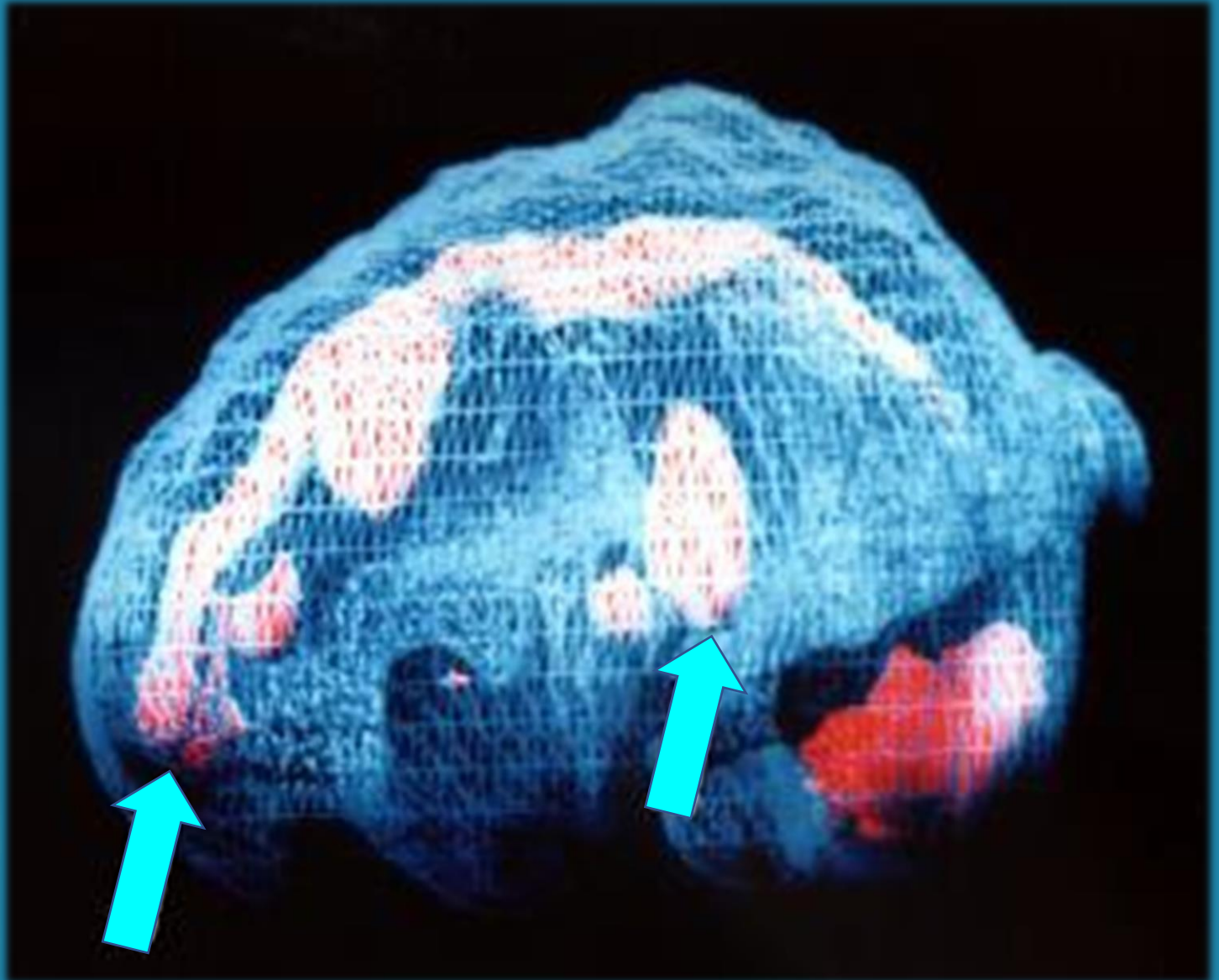
- Gets stuck
- Worries
- Holds grudges
- Obsesses
- Compulsions
- Addictions
- Oppositional/argues
- Sees too many errors



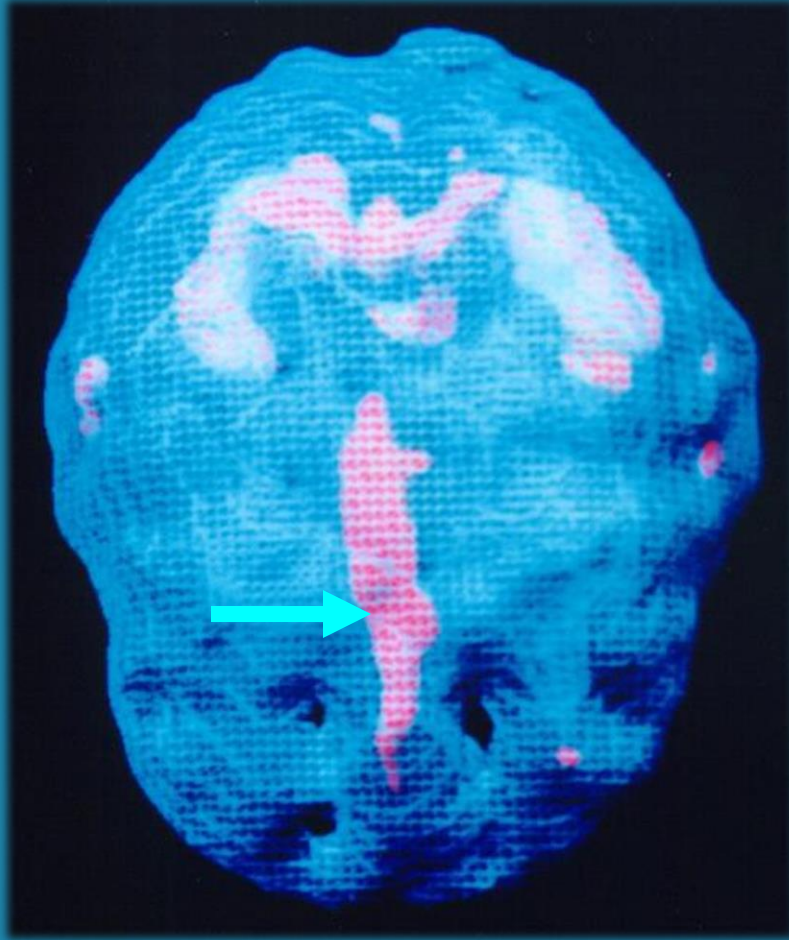
The Automatic No



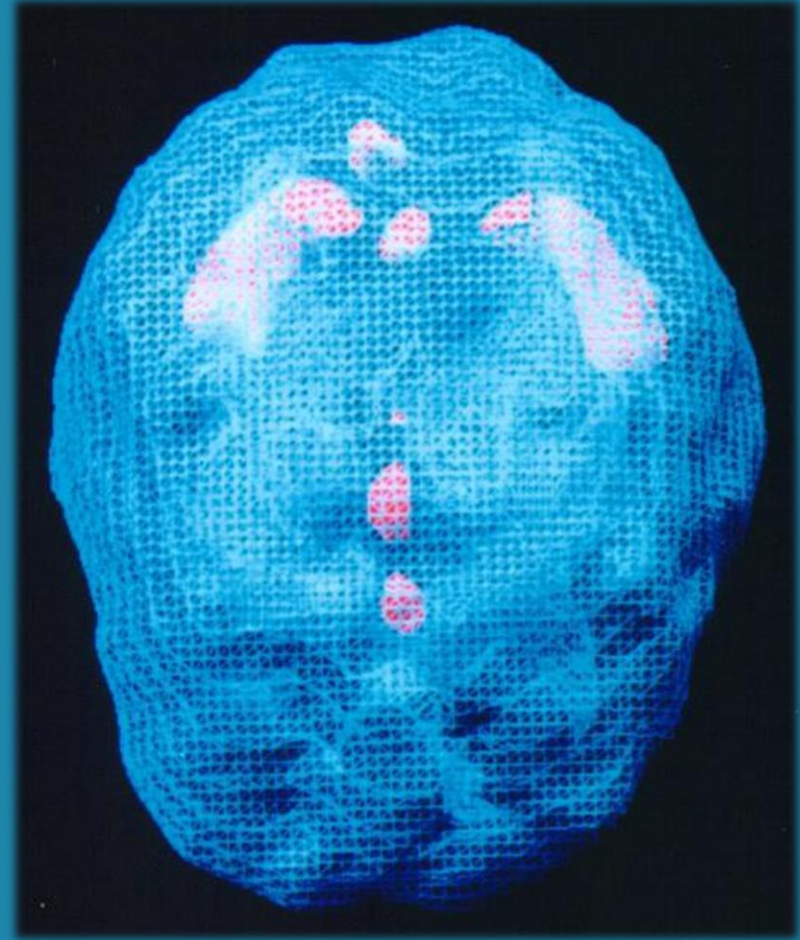
Road Rage



PMS



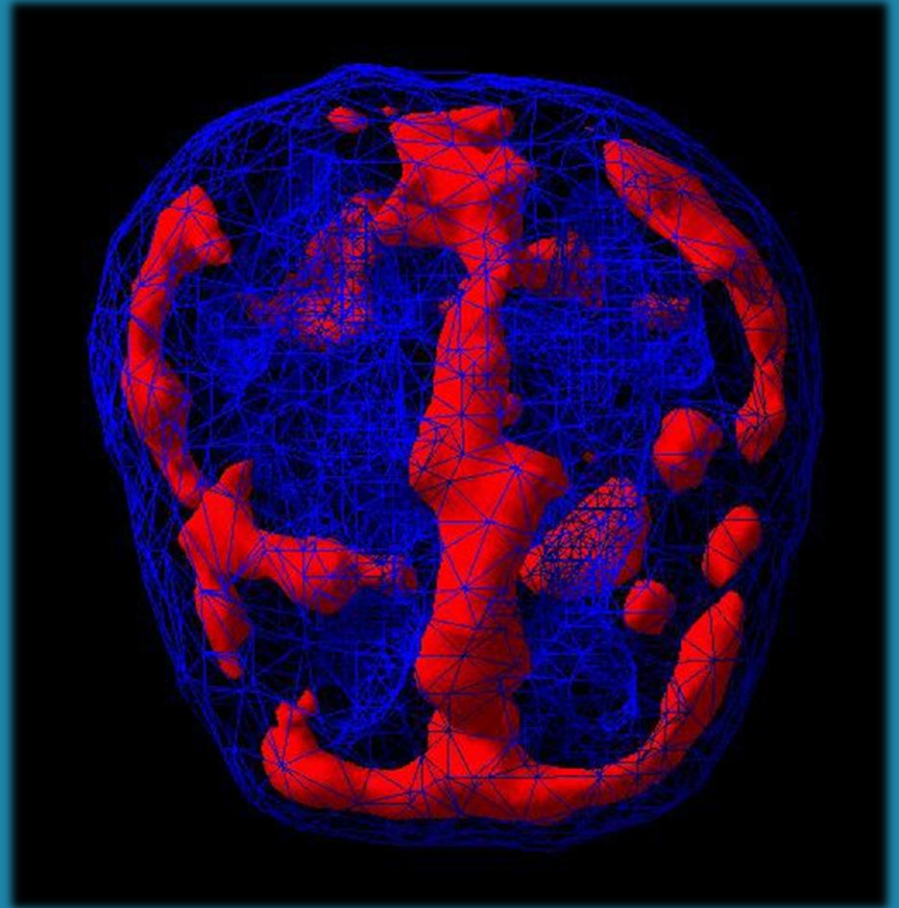
Day 26



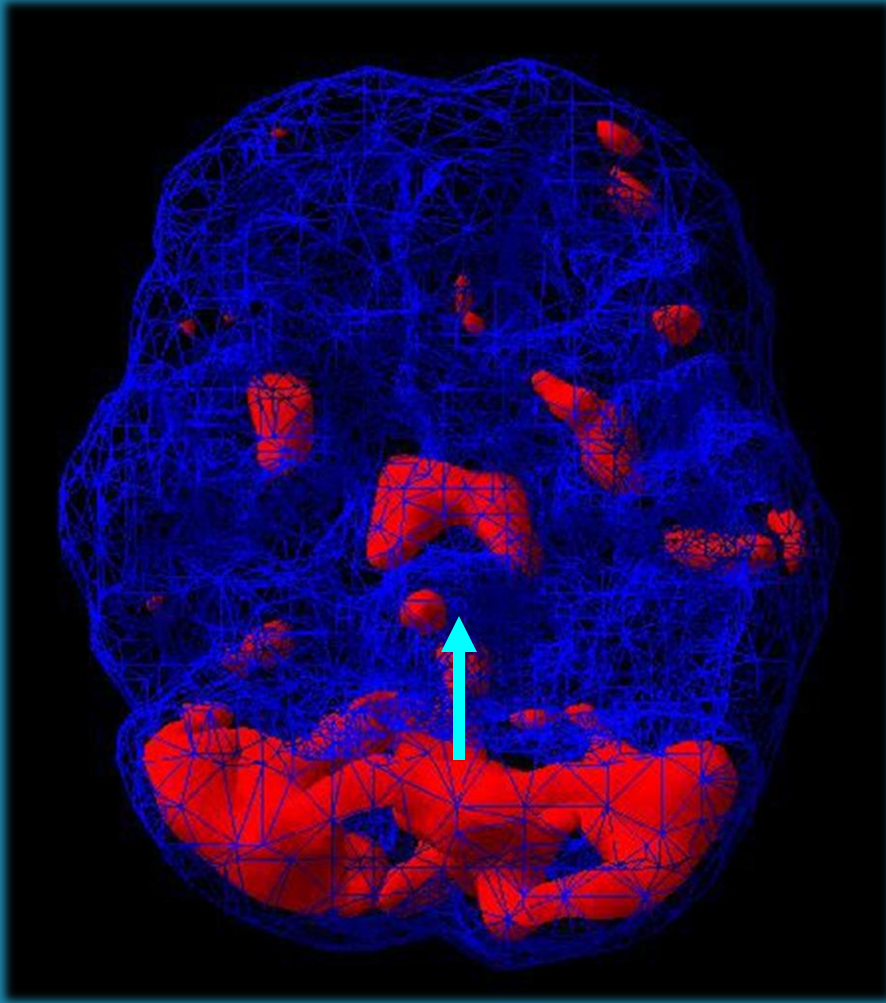
Day 7

17 F -- ODD/Alcohol

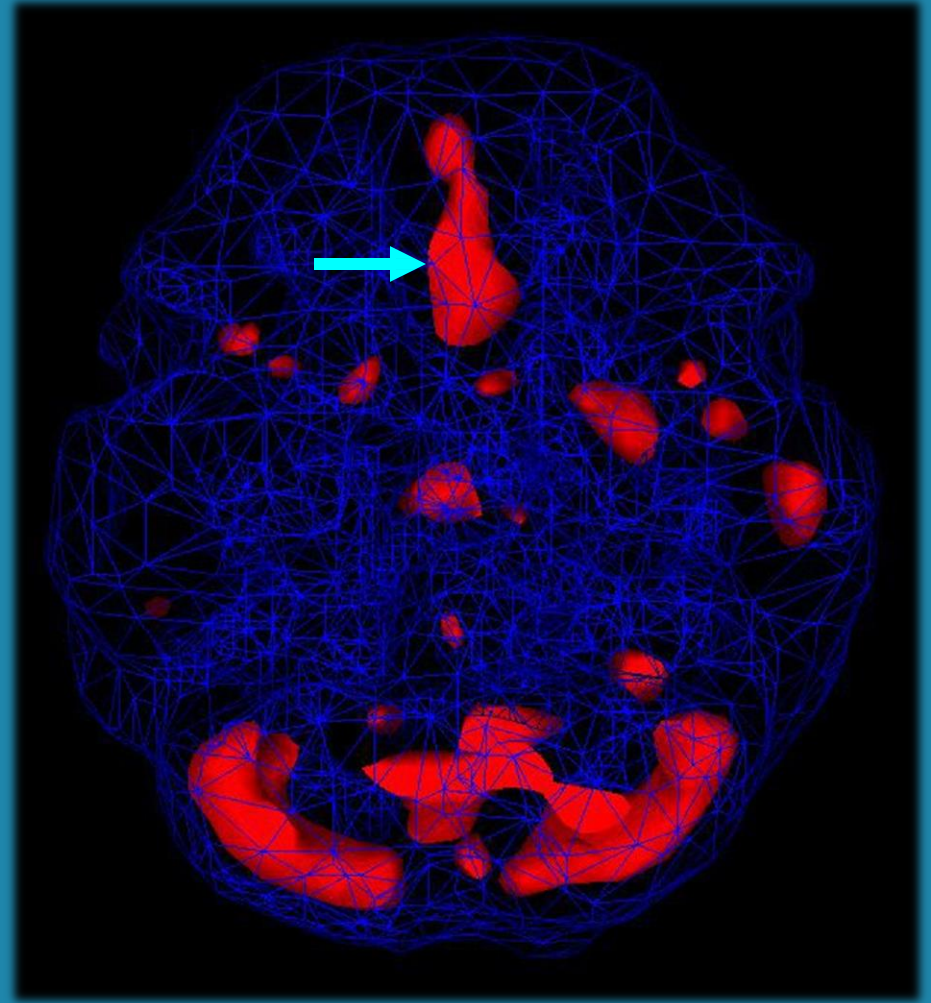
- **Why does she drink?**
 - ❖ **Calm brain**
 - ❖ **Addicted**
 - ❖ **To oppose parents**



Depression

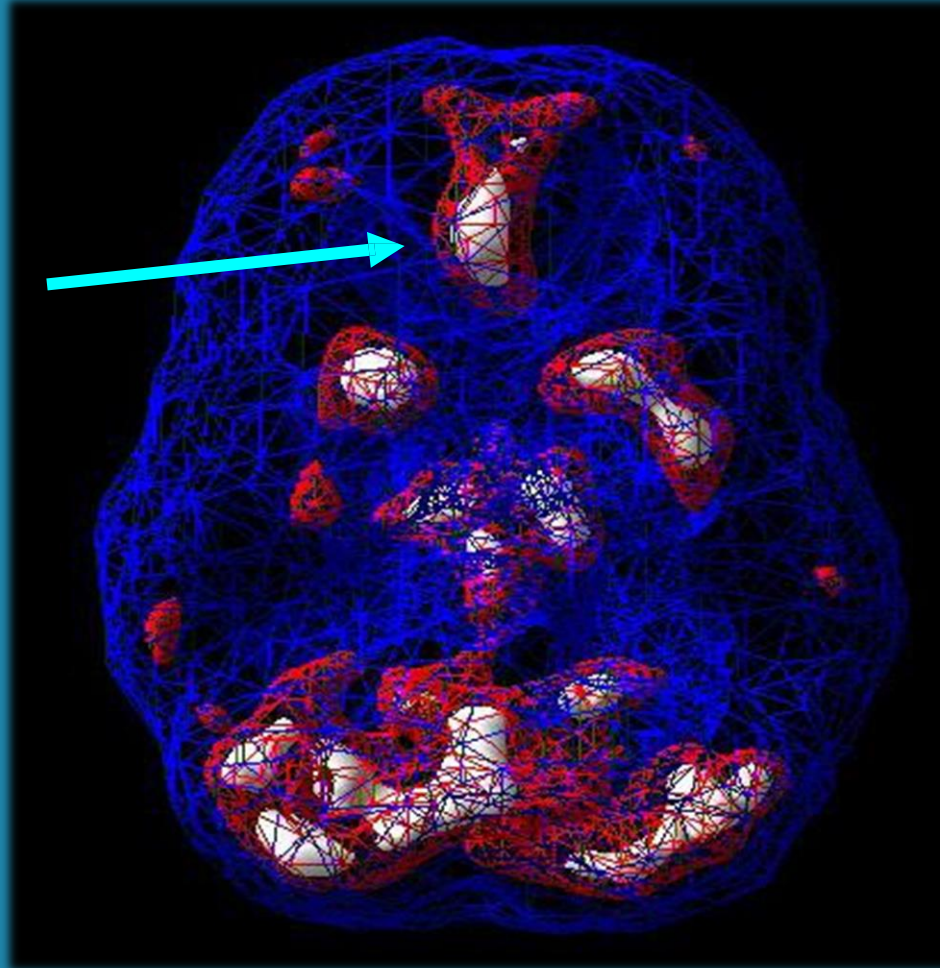


Wellbutrin (SAMe) Best



SSRI (5HTP) Best

Stoned Mouse Story



Marked Increased AC

Some Conditions Affecting the Anterior Cingulate System

Too Low

- **Low motivation**
- **Mutism**
- **Low movement**



Too High – gets stuck

- **Anxiety Disorders**
- **PTSD**
- **OCD Spectrum**
- **Some eating disorders**
- **Addictions**
- **Oppositional DD**

AC Help

- **Distraction**
- **Options/sovereignty**
- **Paradox**
- **Exercise**
- **Diet (more carbohydrates)**
- **DHA fish oil**
- **Boost serotonin with meds or supplements**
- **Risperdal and Zyprexa to calm AC and PFC**



Serotonin Meds

- Prozac
- Zoloft
- Lexapro
- Celexa
- Paxil
- Luvox
- Anafranil

Supplements

- 5HTP
- Inositol
- Saffron
- B6
- L-tryptophan
- St. John's Wort



BASAL GANGLIA/INSULA

Movement, Anxiety, Motivation

➤ Caudate

❖ Thoughts

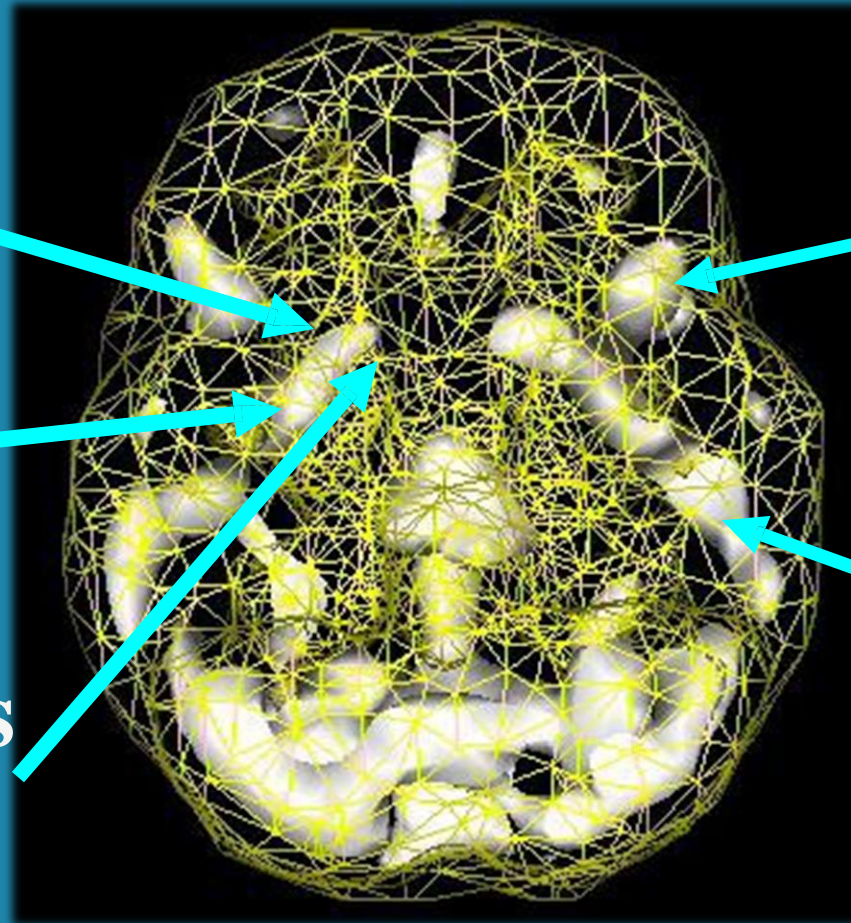
➤ Putamen

❖ Motor

➤ Nucleus

Accumbens

❖ Pleasure



Insula

➤ Anterior

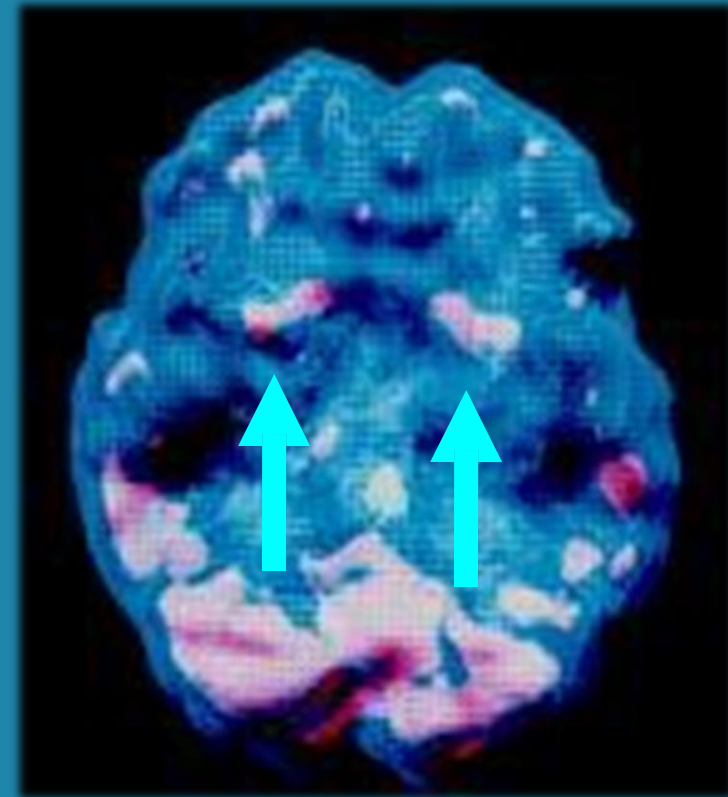
❖ Emotional processing

➤ Posterior

❖ Auditory and visual processing

Basal Ganglia/Insula Anxiety Centers

- **Blends feeling and movement**
- **Control body's idle**
- **Involved with motivation**
- **Helps control smooth movement
(like handwriting)**
- **Senses emotional and physical
pain**



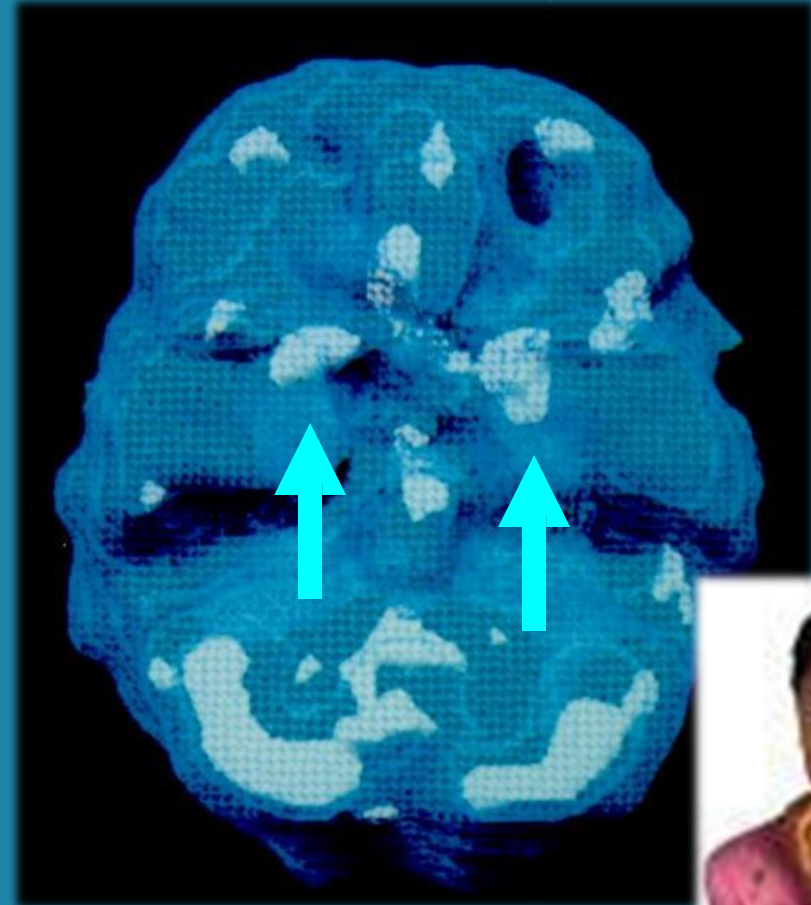
Basal Ganglia/Insula Problems

Increased

- Anxiety, panic
- Conflict avoidant
- Predicts worst
- Excess motivation
- Pain

Decreased

- ADD like symptoms
- Decreased motivation
- Movement disorders

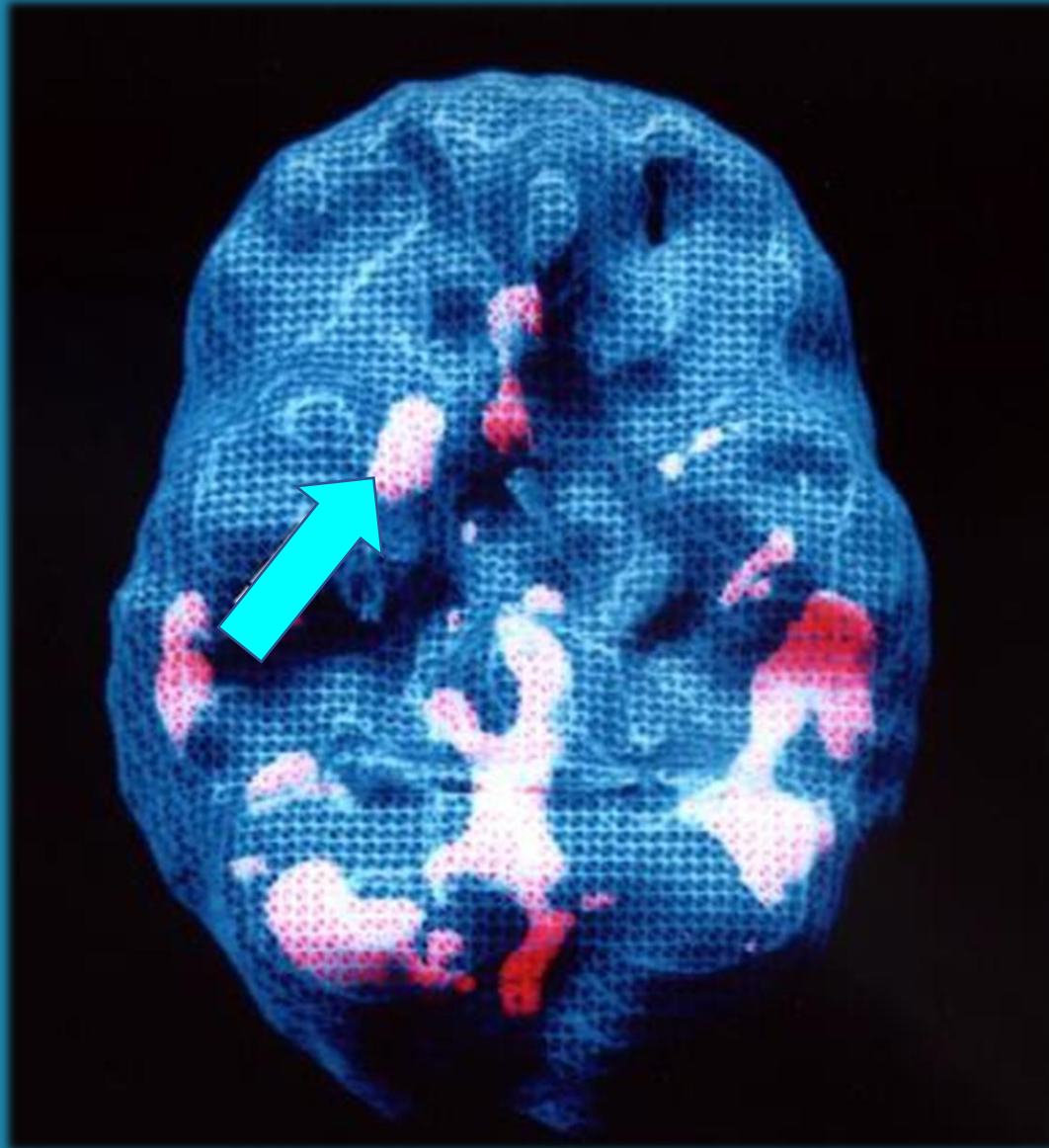


You Need Some Anxiety

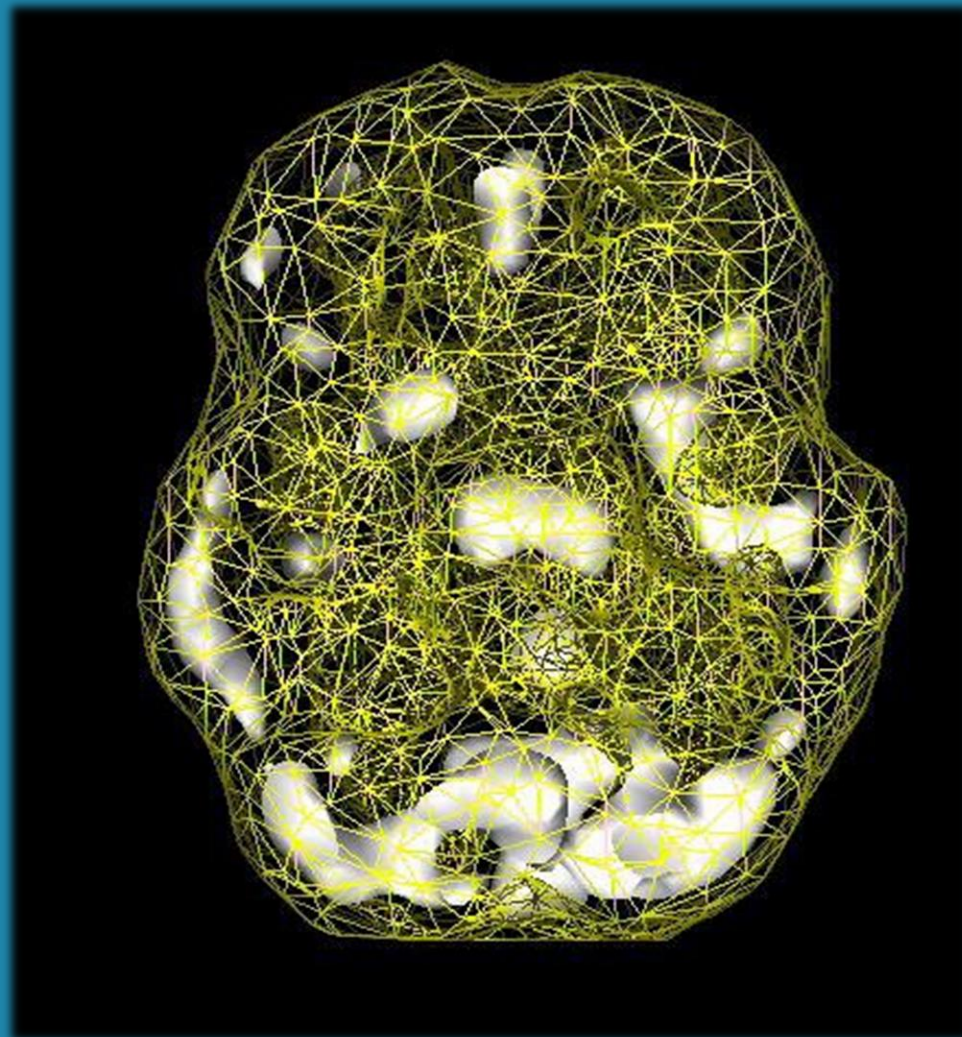
When Anxiety is Too Low

- **Get into trouble**
- **Make bad decisions**
- **More likely to be arrested**
- **Risky behavior**
- **Die earlier**

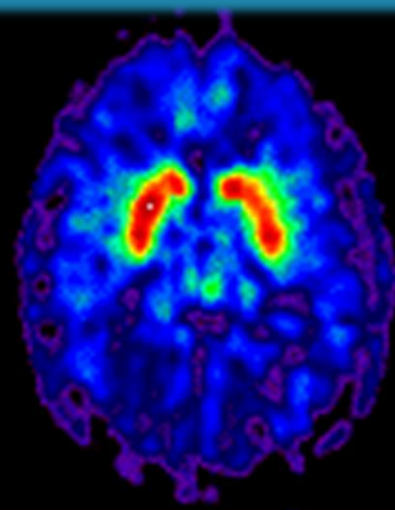
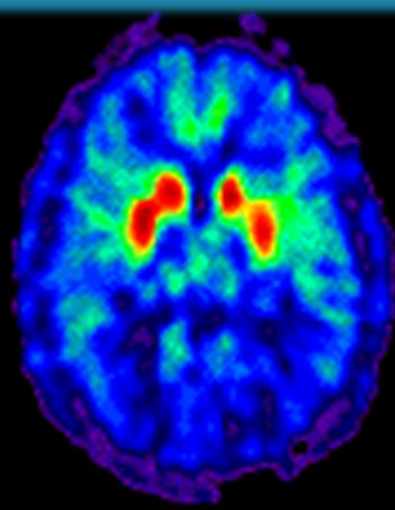
Panic



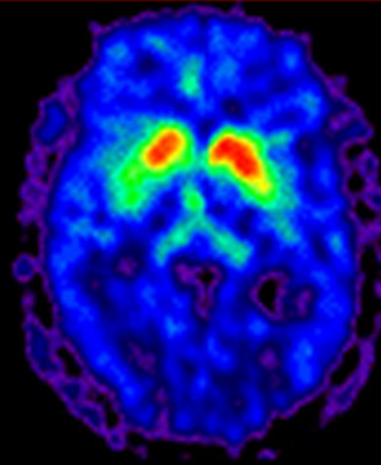
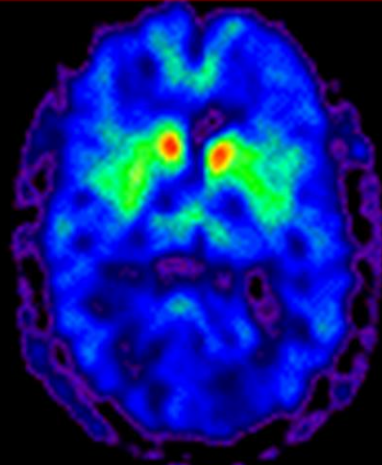
PTSD



Parkinson's

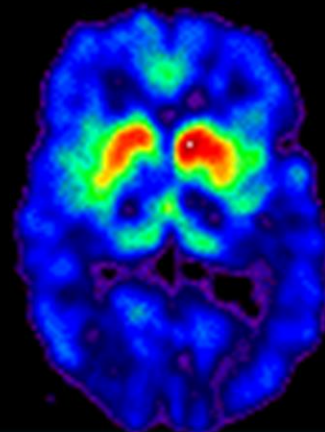
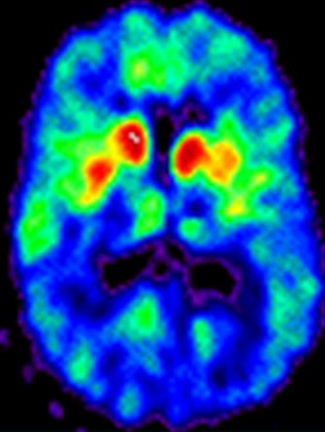


Normal



Parkinson

Pre



Post



Conditions Affecting the Basal Ganglia

Too Low

- **Motor disorders**
 - ❖ PD
 - ❖ Huntington's
 - ❖ Extrapyramidal
- **Low motivation**
- **Apathy**

Too High

- **Panic**
- **Generalized anxiety**
- **Somatoform disorders**
- **Tourette's**
- **PTSD**



High BG Support

- **Relaxation**
- **Hypnosis**
- **Meditation**
- **ANT Therapy**
- **Balanced Diet/Fish Oil**
- **Calming meds or supplements**



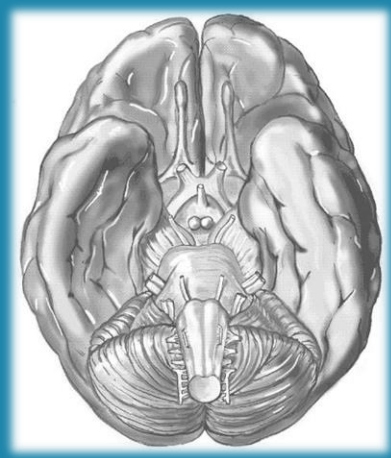
Calming Meds

- **Buspar**
- **Benzos**
- **Anti-epileptic meds**
 - **Neurontin**
 - **Lyrica**
 - **Lamictal**
 - **Depakote**
 - **Trileptal**
- **Propranolol**

Supplements

- **Magnesium**
- **Relora**
- **Holy Basil**
- **B6**
- **Theanine**
- **GABA**
- **Valerian**
- **Kava kava**





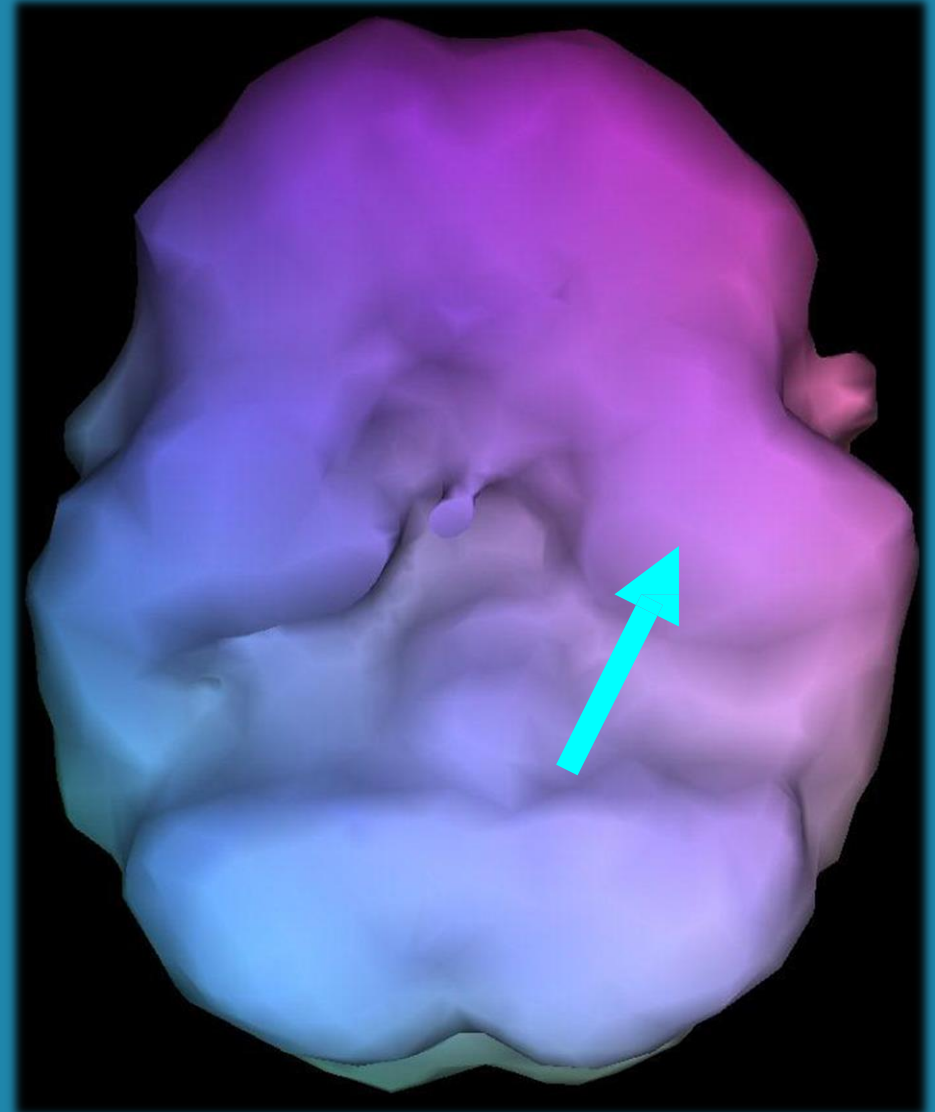
TEMPORAL LOBES

The Memory, Mood, Music and Learning

- **Lateral Aspect – auditory**
- **Medial Aspect – hippocampus/memory, amygdala/emotional reactions**
- **Underside – visual processing and facial recognition**

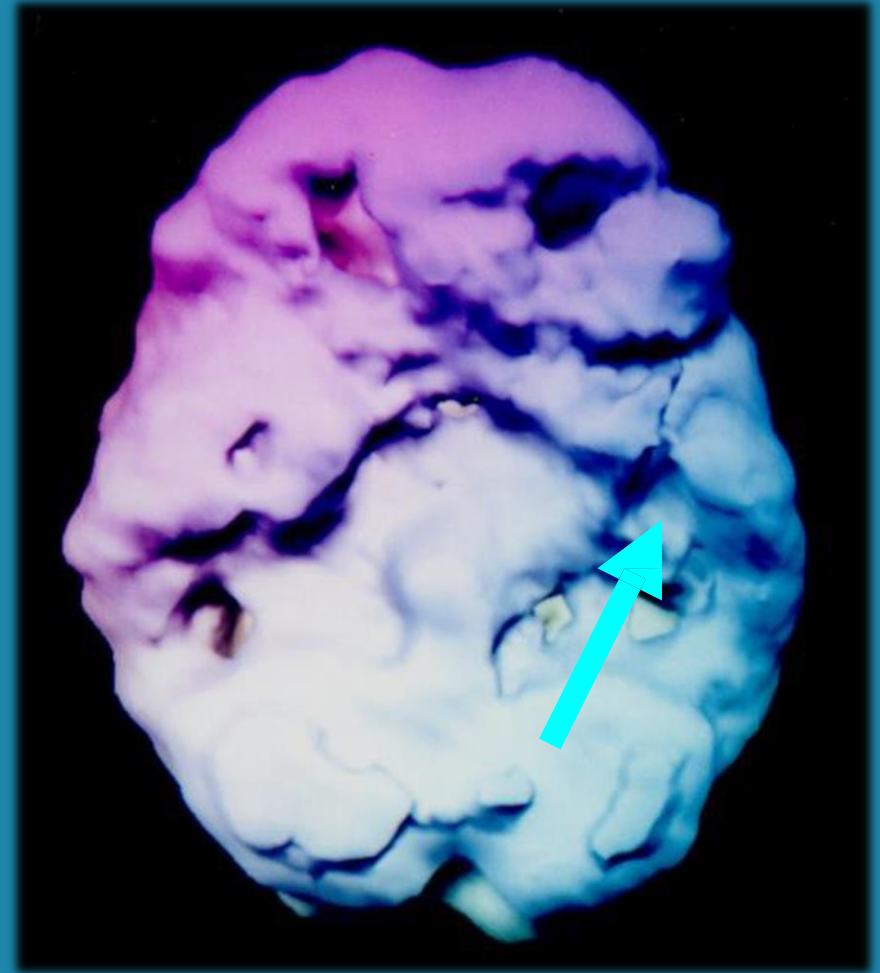
Temporal Lobe Functions

- **Language usage**
- **Memory**
- **Mood stability**
- **Listening/reading**
- **Social cues**
- **Rhythm, music**
- **Spiritual experience**
- **What pathway**



Temporal Lobe Problems

- Emotional instability
- Memory problems
- Feelings of panic
- Aggression
- Headaches
- Learning problems
- Illusions, Deja vu
- Mild paranoia



Some Conditions Affecting the Temporal Lobes



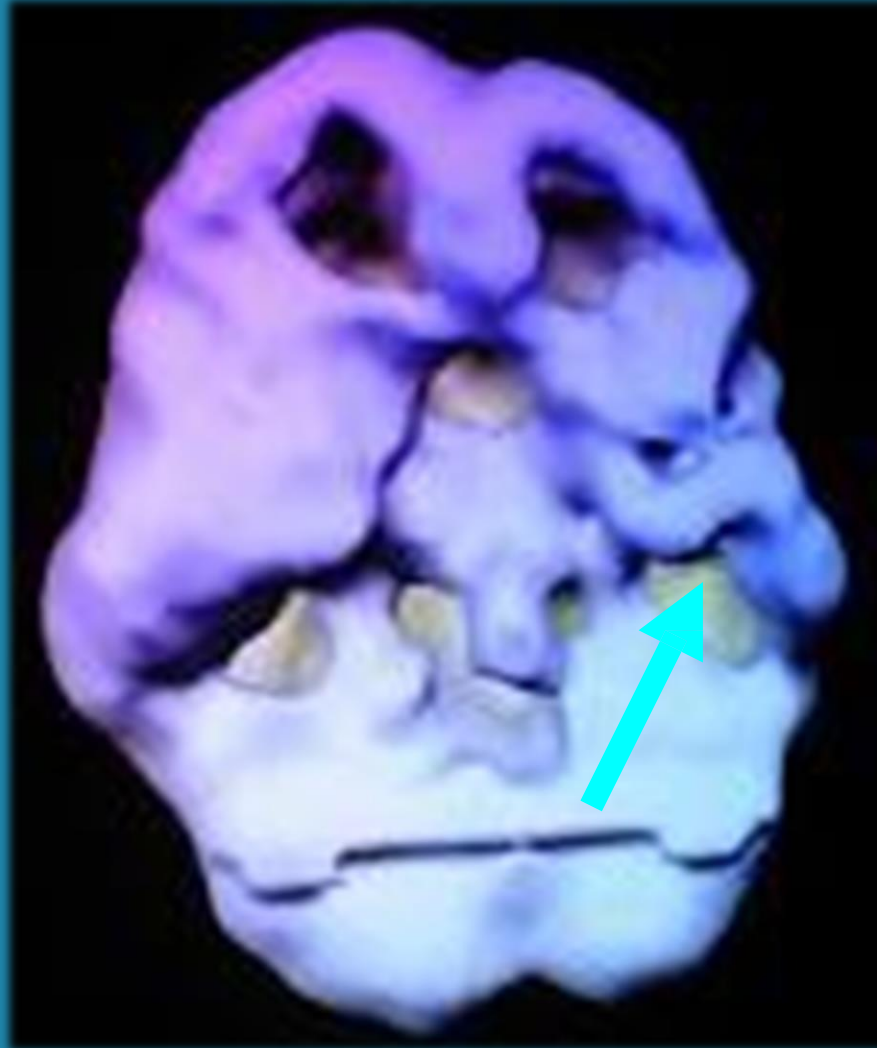
Too Low

- Learning problems
- Memory problems
- Dementias
- Temporal lobe epilepsy
- Aggression/Suicidal
- Brain Trauma

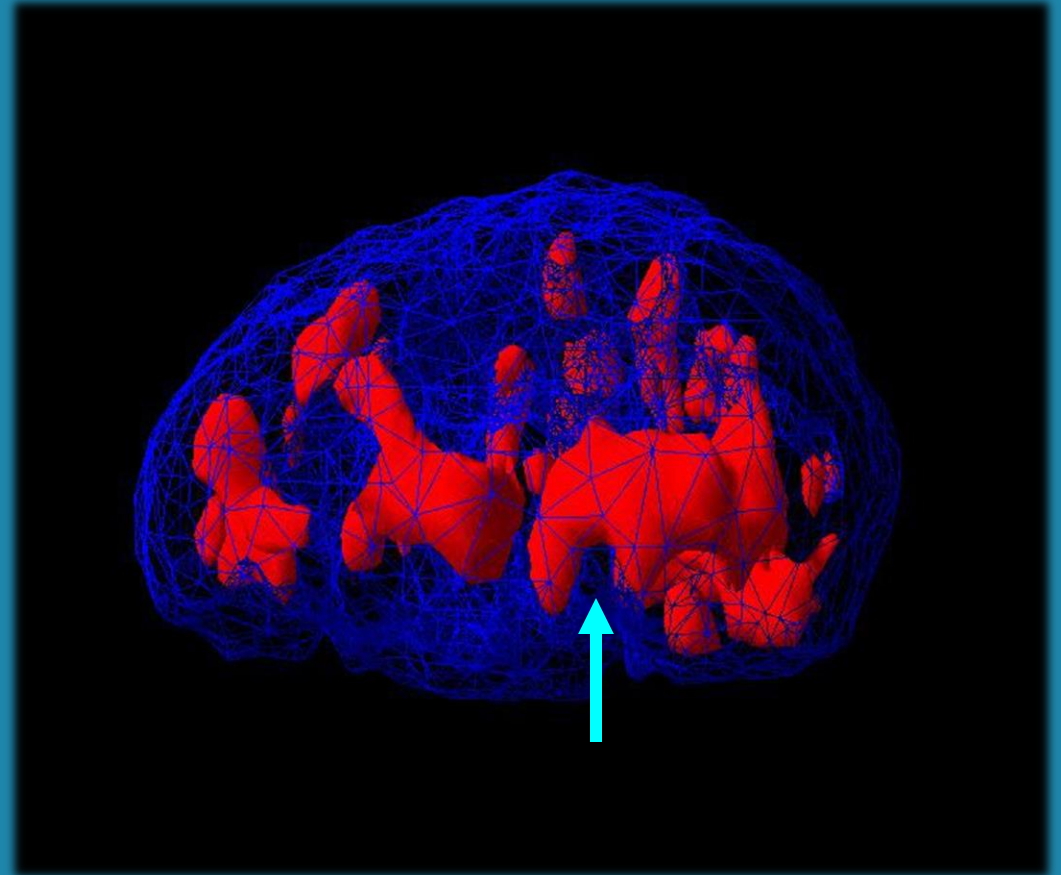
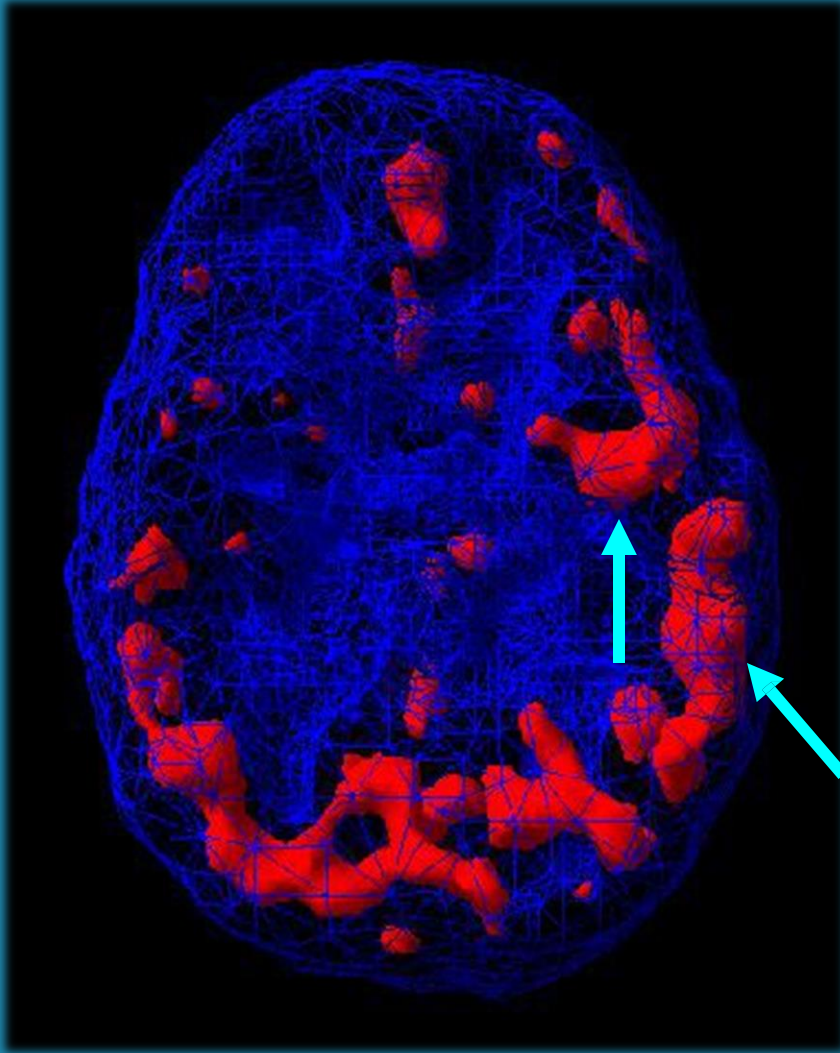
Too High

- Seizures
- Irritability
- Panic
- Mysticism
- Spiritual or religious experiences

Temporal Lobe Trauma



Temporal Lobe Epilepsy

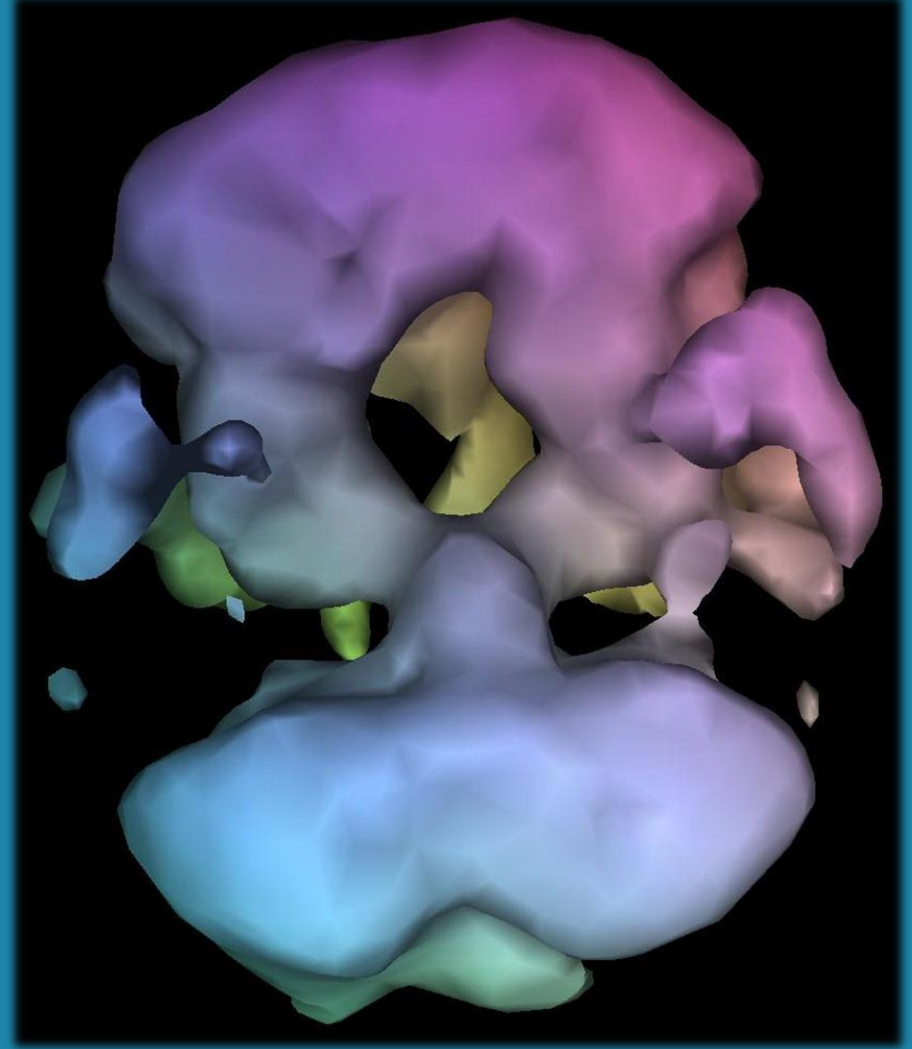
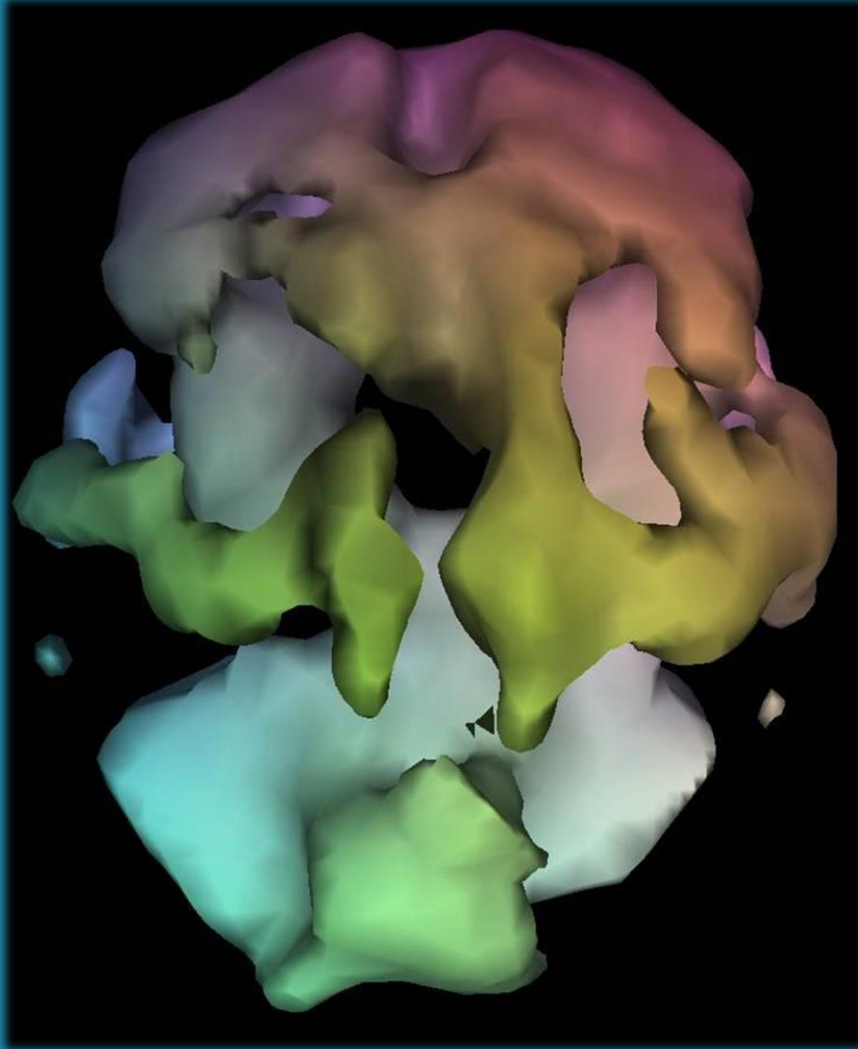


Anger, Marital Problems

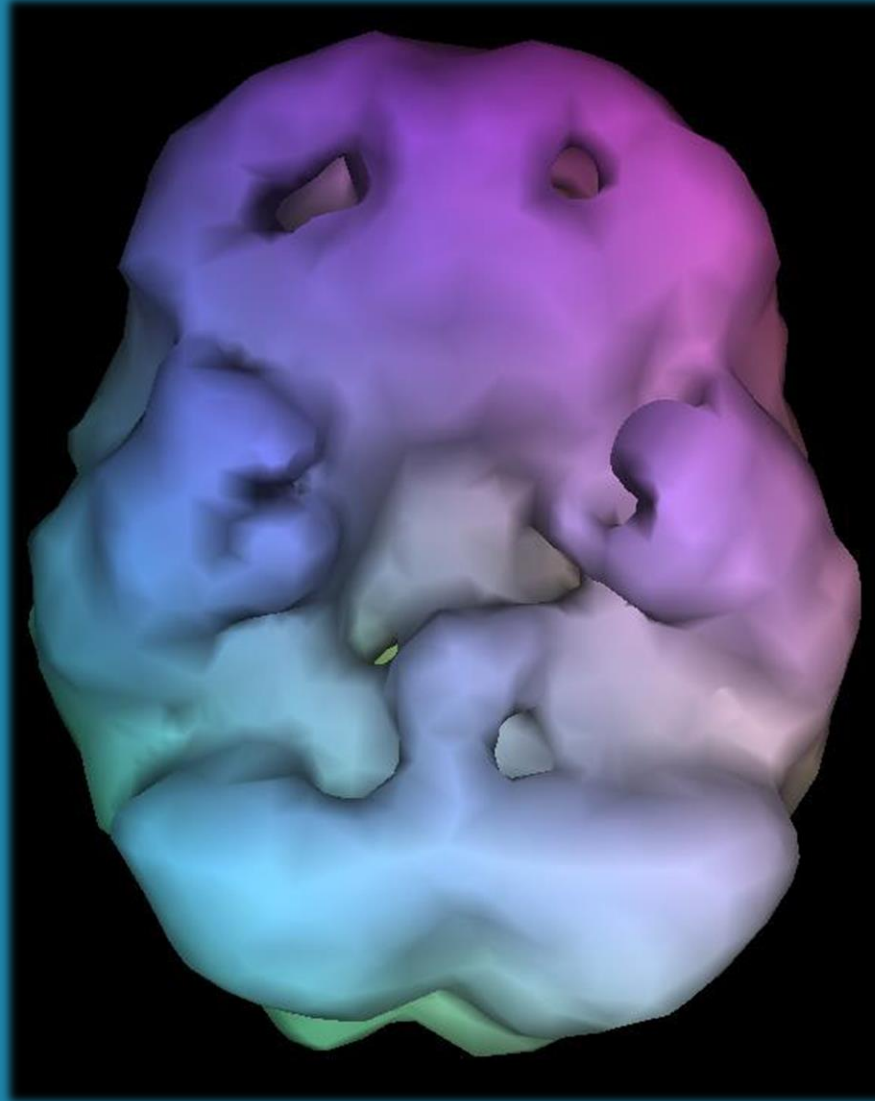


Before and After Treatment

Alzheimer's Disease



Violence - Kip Kinkel



Temporal Lobe Treatment

- **Ketogenic diet**
- **Meds/supplements for mood stability, irritability or memory**
- **Neurofeedback**

TL Meds

➤ Mood Stability

❖ Anti-epileptic meds

- Neurontin
- Lyrica
- Lamictal
- Depakote
- Dilantin

➤ Memory

❖ ACEI

- Aricept, Exelon

❖ Namenda

Supplements

➤ Mood Stability

❖ GABA, B6, fish oil

➤ Memory Support

❖ Blood flow – ginkgo, vinpocetine

❖ Acetylcholine – acetyl – l – carnitine, huperzine A

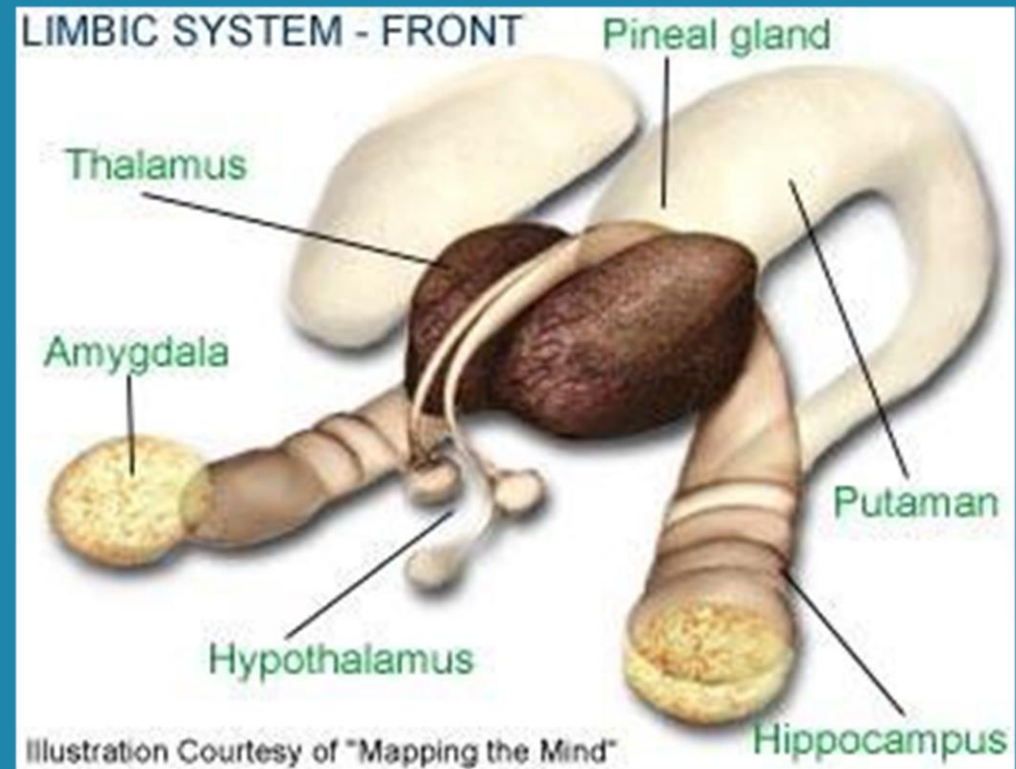
❖ Membrane - PS



DEEP LIMBIC SYSTEM

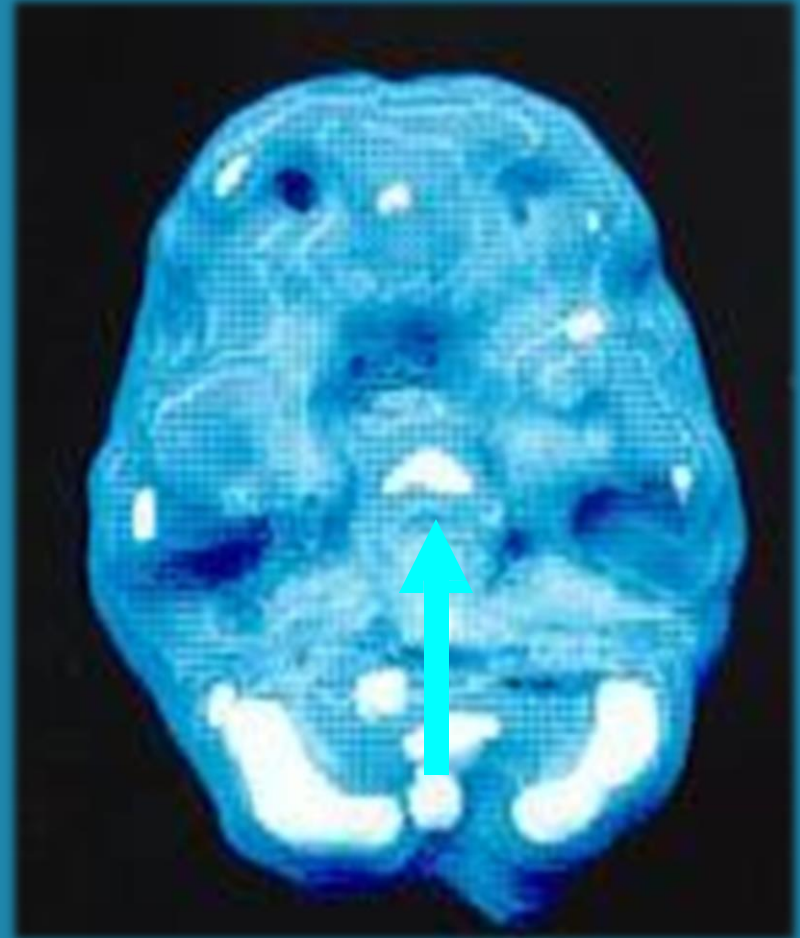
Emotional Centers

- Medial thalamus
- Amygdala
- Hippocampus
- Hypothalamus
- Inferior orbital PFC
- Anterior cingulate



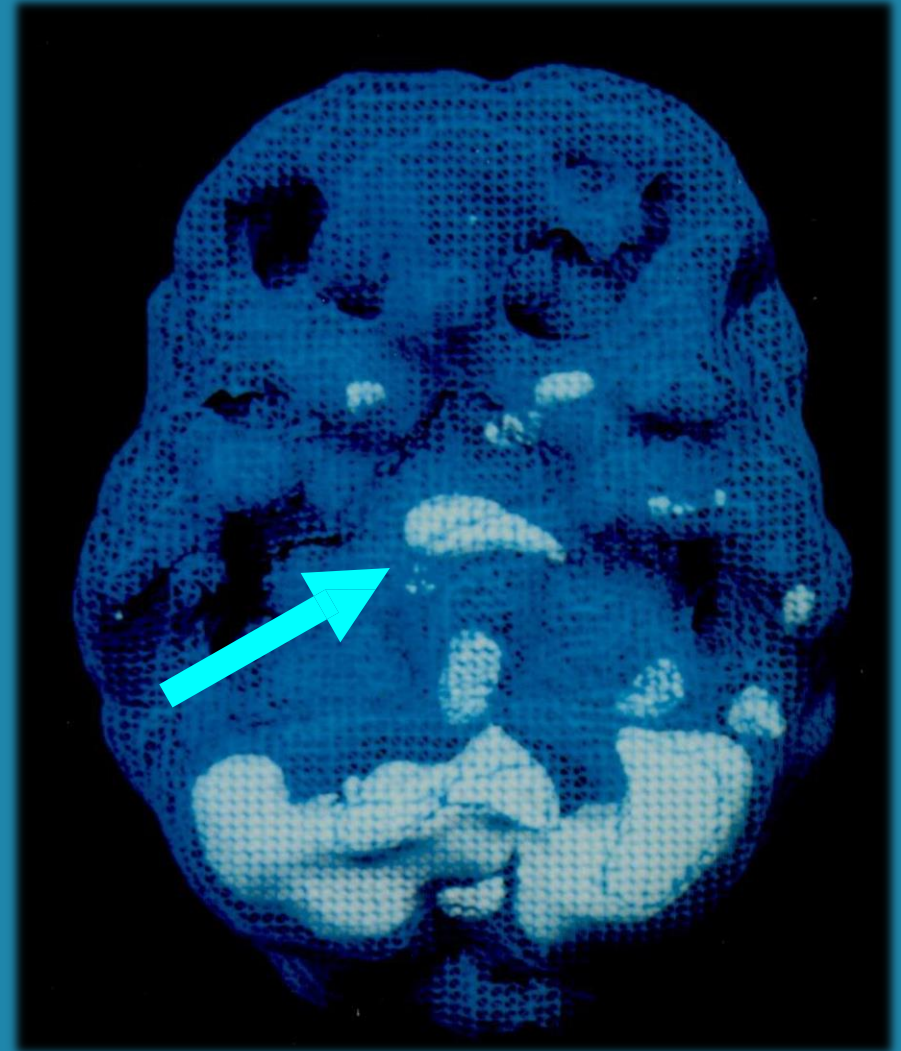
Deep Limbic System/Thalamus

- **Integrates/gates sensory information**
- **Sets emotional tone**
- **Bonding**
- **Charged memories**
- **Sense of smell**
- **Libido**



Deep Limbic System Problems

- **Sad, moody**
- **Negative thoughts**
- **Low motivation**
- **Social isolation**
- **Loss of libido**
- **Pain**



Some Conditions Affecting the Thalamus/Deep Limbic Area

Too Low

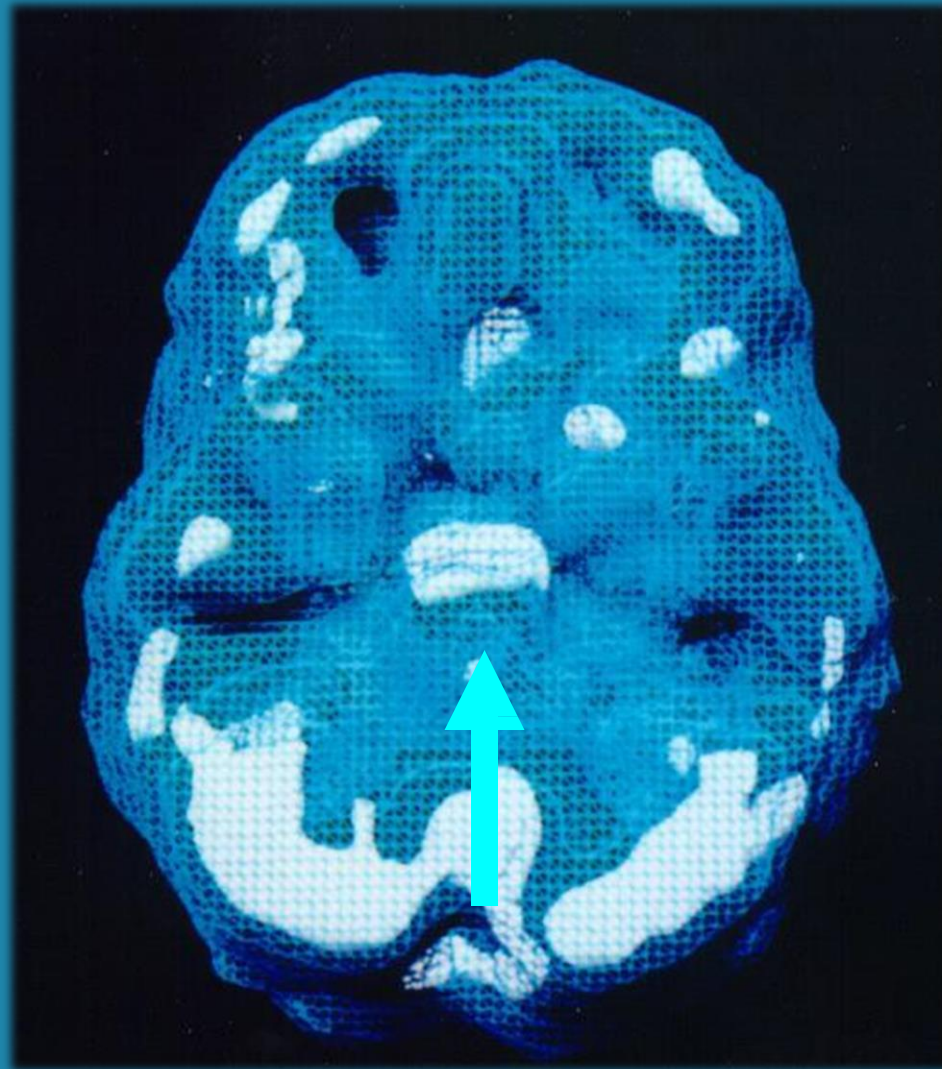
- **Decreased reactivity**



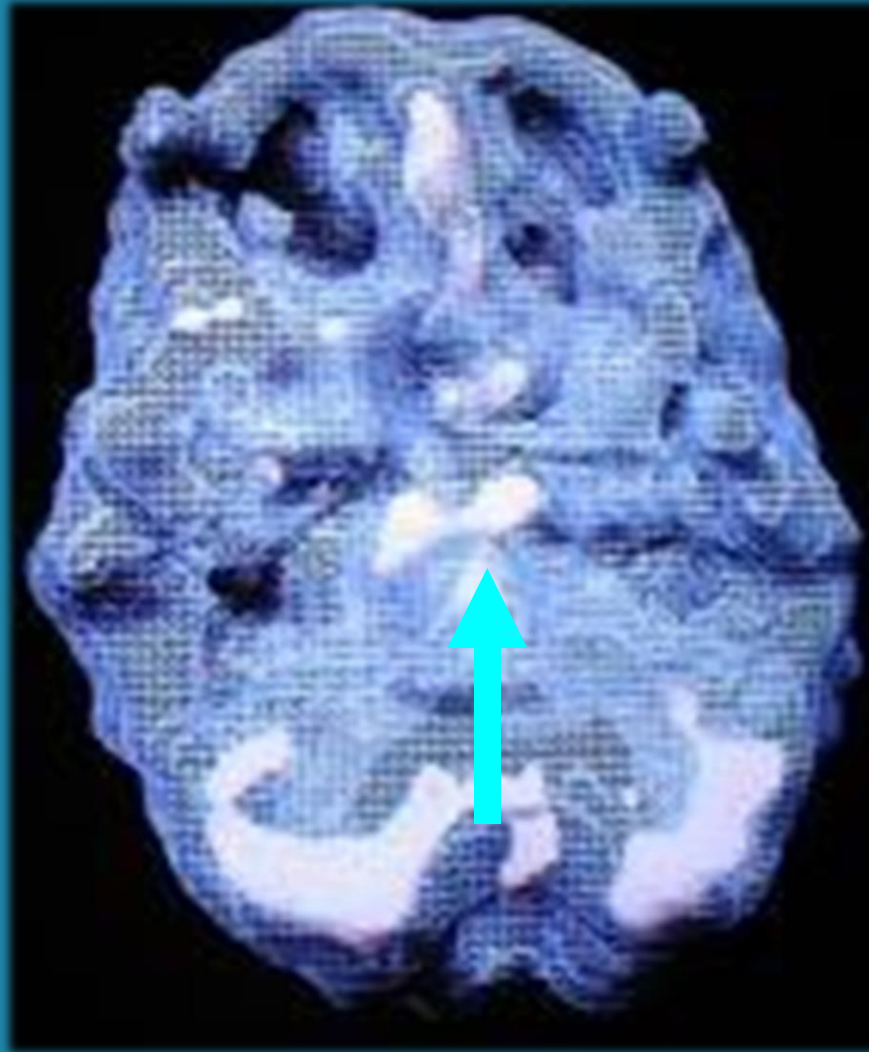
Too High

- **Depression**
- **Cyclic mood changes**
- **Pain**
- **Sensory overload**

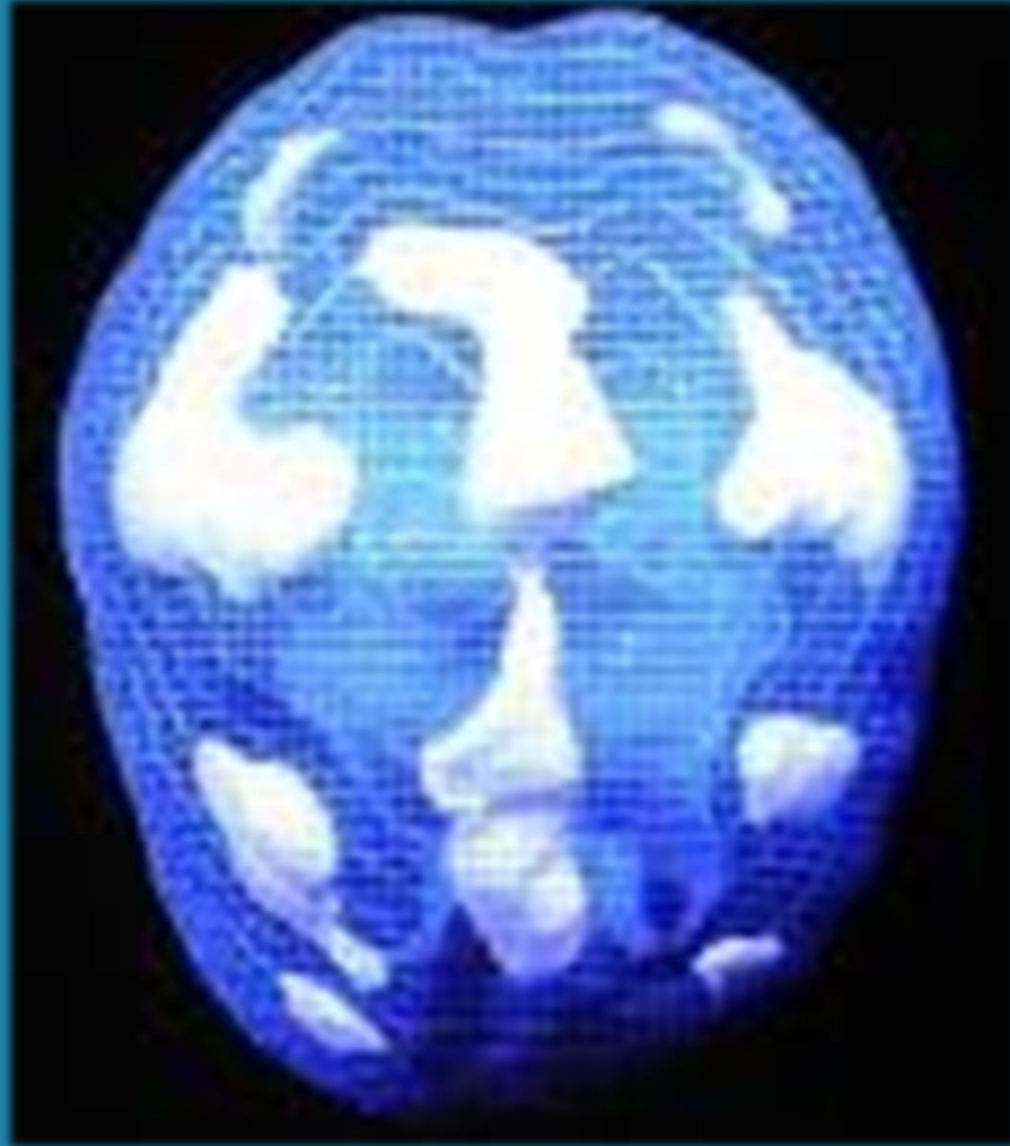
Depression



Depression



Bipolar



Deep Limbic Help

- Exercise
- Feeding the Anteater
- Healing smells (lavender)
- Getting along better with others
- Fish oil
- Antidepressants meds or supplements



Limbic Meds

➤ Mood

- ❖ Wellbutrin = low PFC
- ❖ Effexor = Low PFC + AC
- ❖ Cymbalta = Low PFC + AC
- ❖ SSRI = AC

➤ Pain

- ❖ Cymbalta
- ❖ Lyrica
- ❖ Neurontin

Supplements

➤ Mood

- ❖ SAMe
- ❖ 5HTP + SAMe
- ❖ 5HTP + SAMe
- ❖ 5HTP

➤ Pain

- ❖ SAMe
- ❖ Fish oil

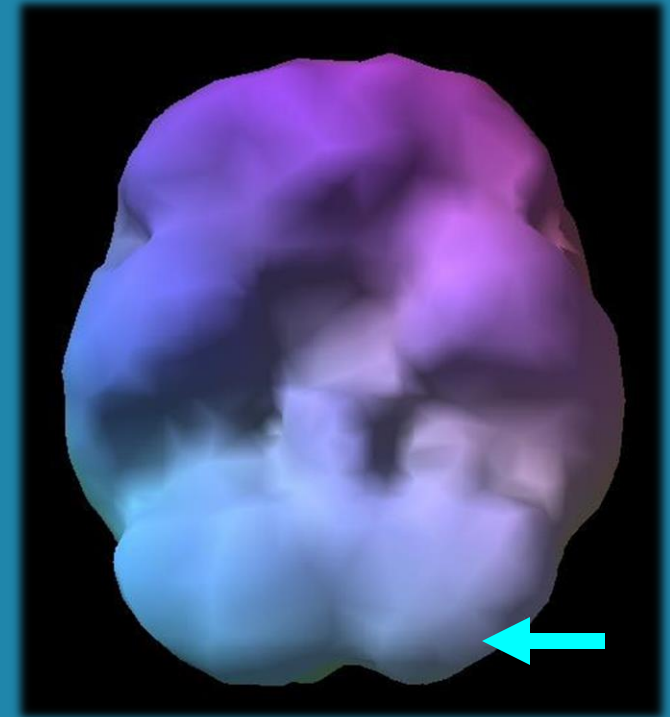
Cerebellum

Processing/Integration



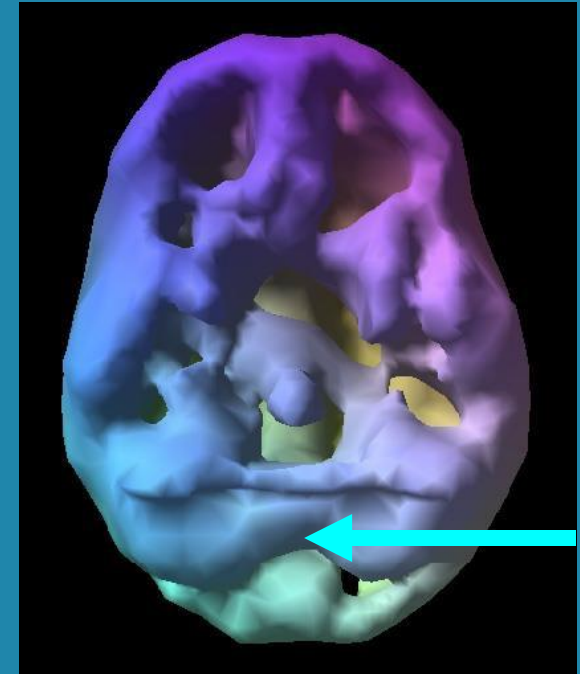
Cerebellum

- **Coordination**
- **Impulse control**
- **Organization**
- **Speed of thought (like clock speed of computer)**
- **Left hemisphere connected to right frontal lobe and vice versa**

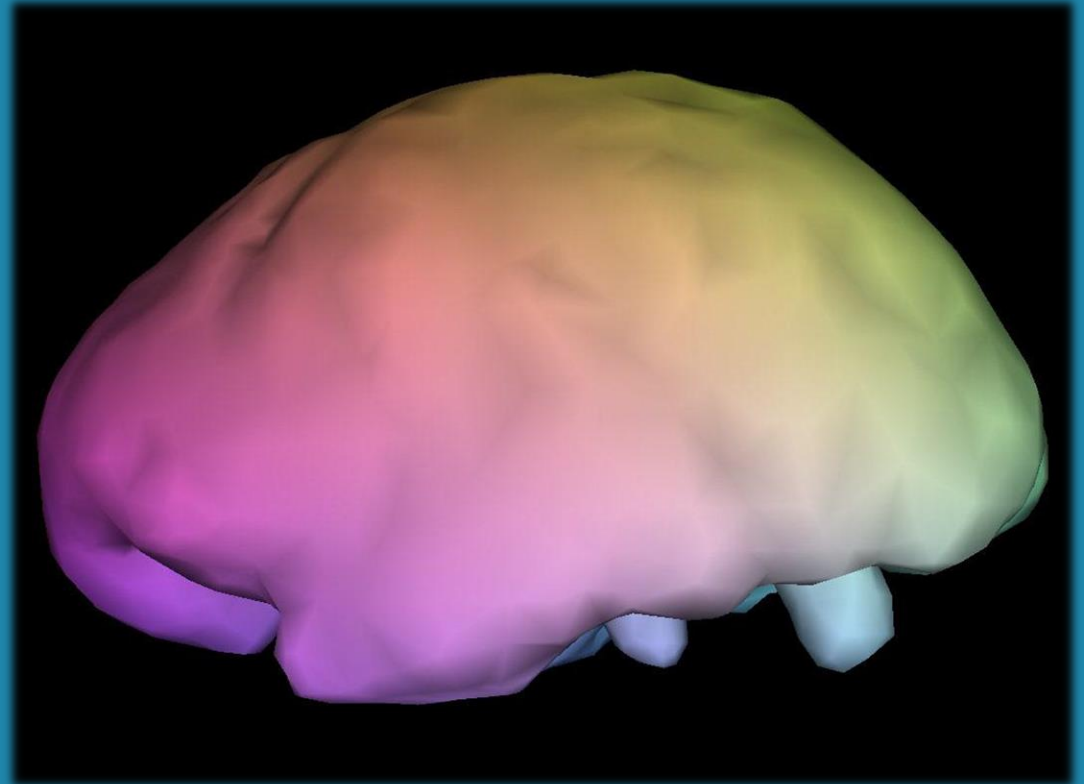
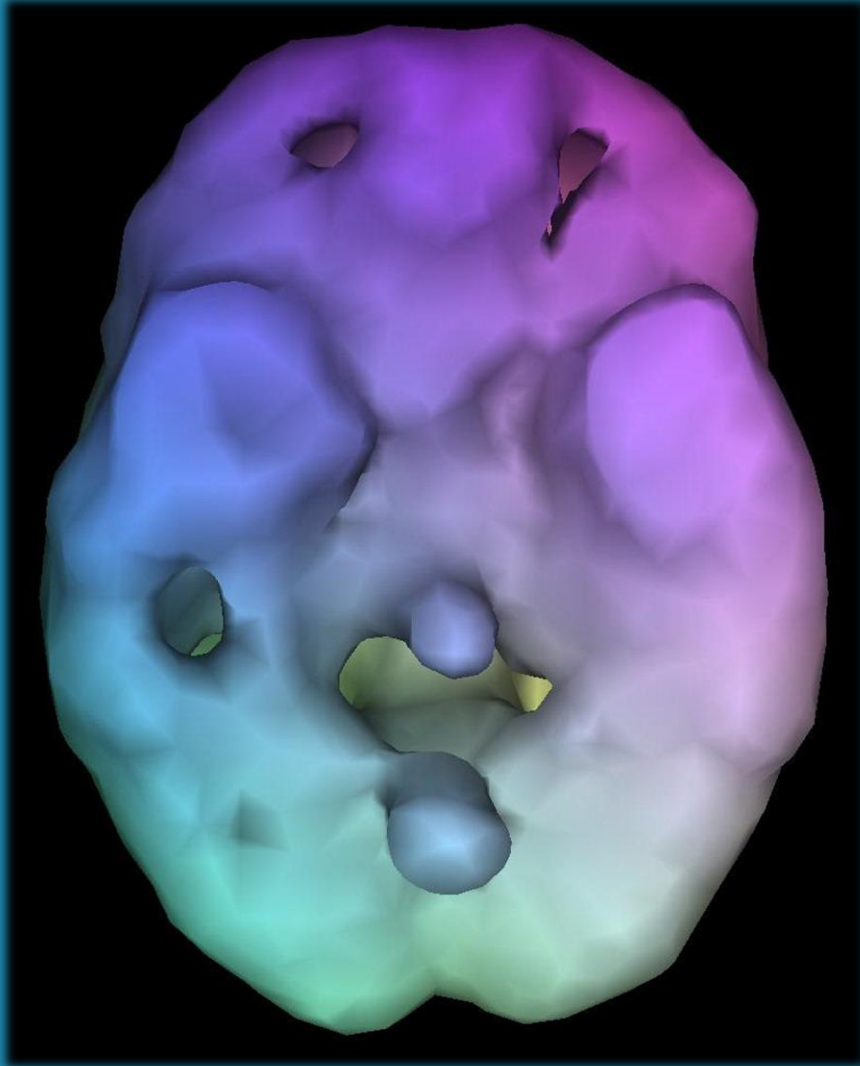


Cerebellar Problems

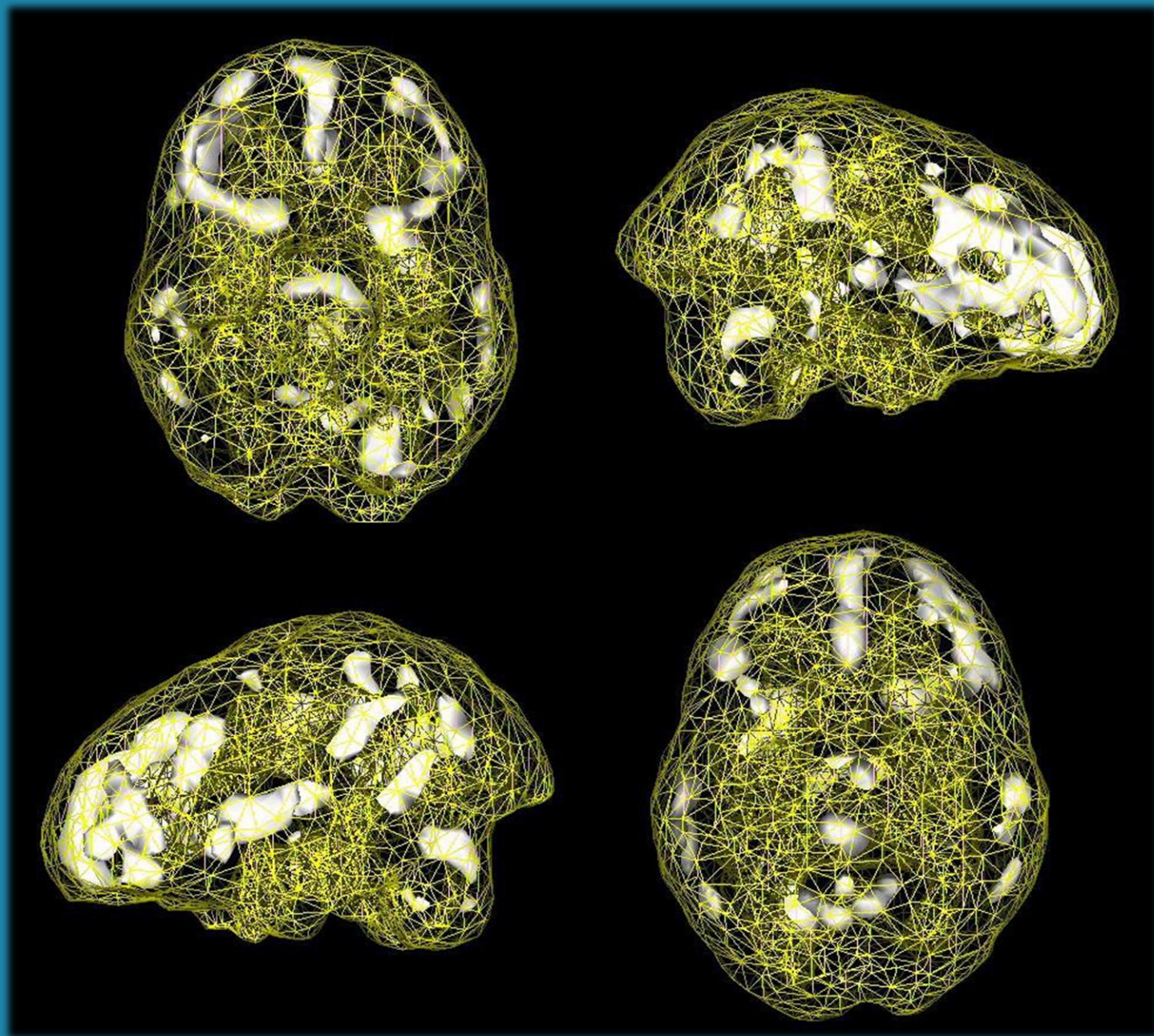
- **Coordination problems**
- **Slowed walking**
- **Slowed thinking**
- **Slowed speech**
- **Disorganization**
- **Impulsive**
- **Poor conditioned learning**



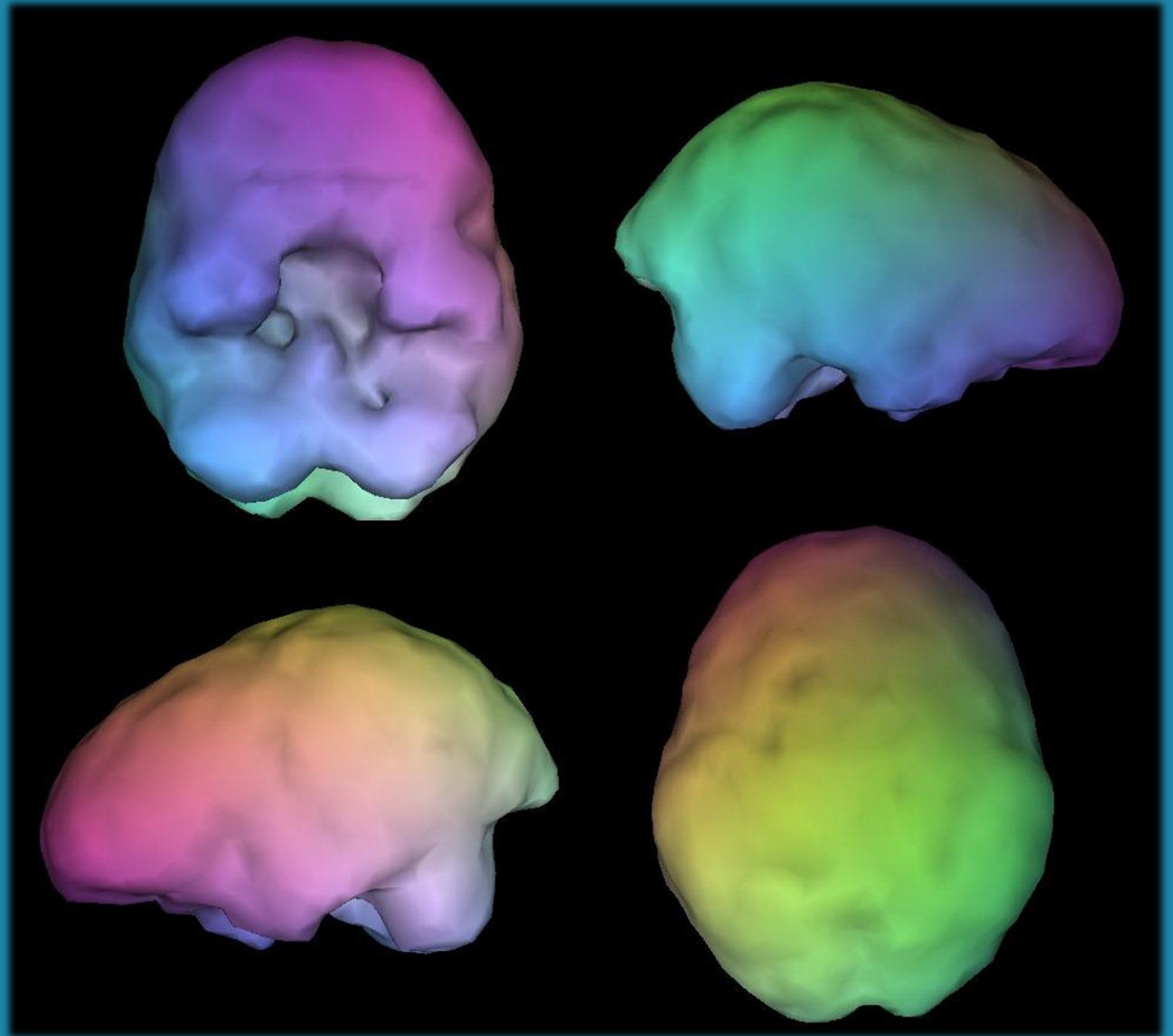
Severe Cerebellar Atrophy



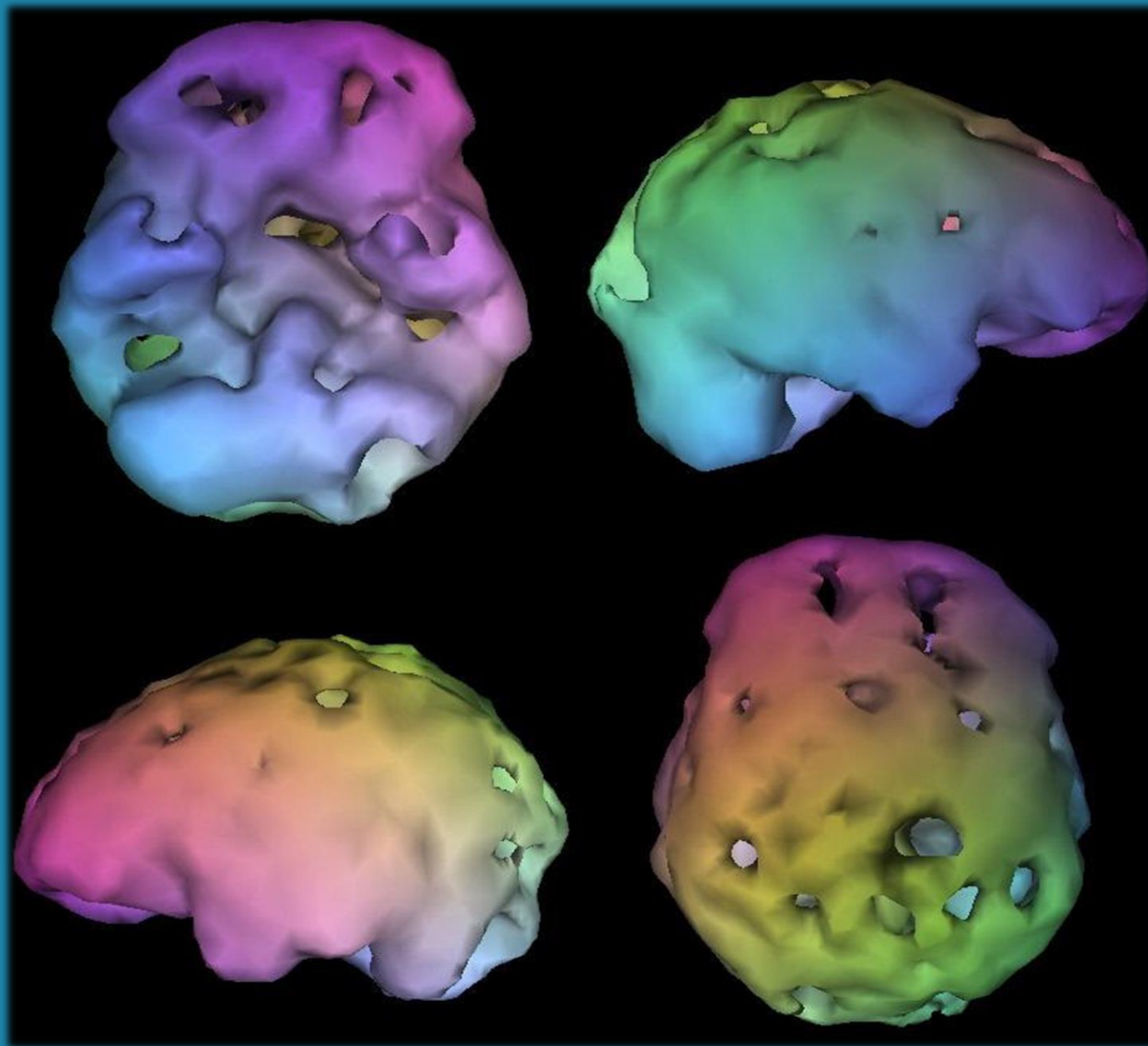
Asperger's Syndrome



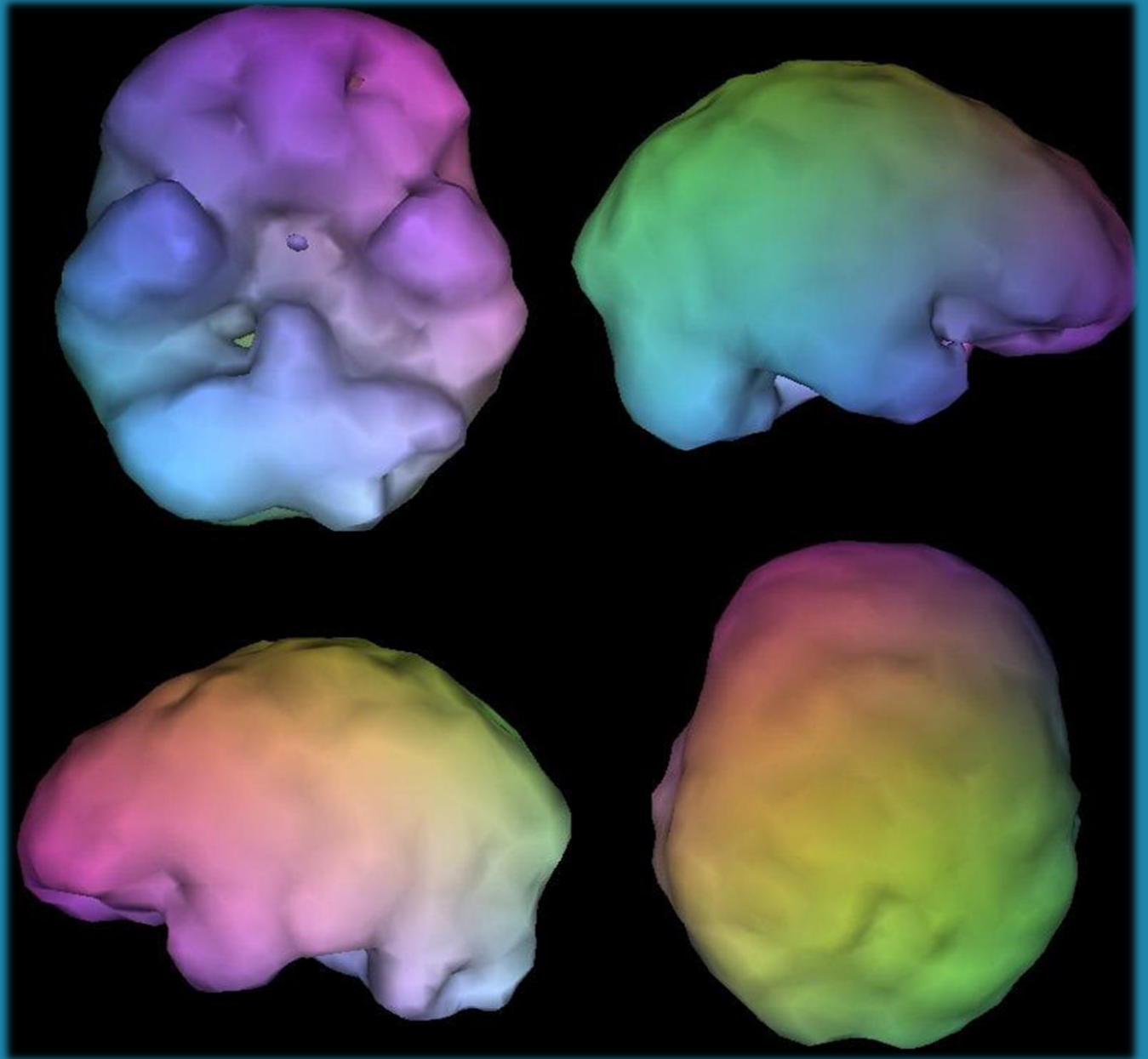
Asperger's Syndrome



Cerebellar Tumor

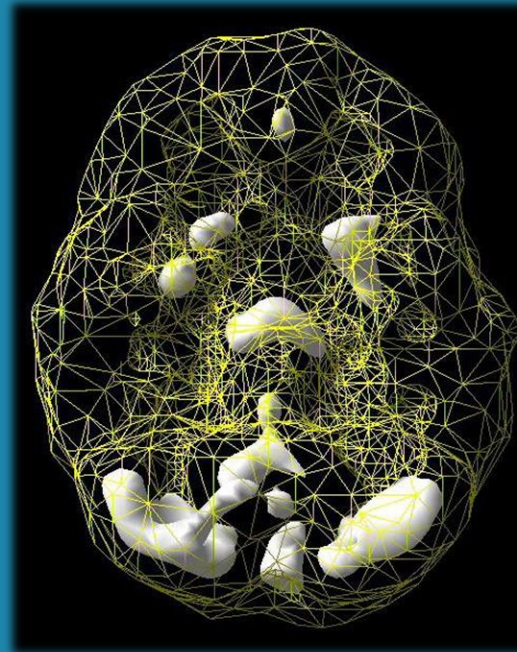


Cerebellar Tumor After Surgery

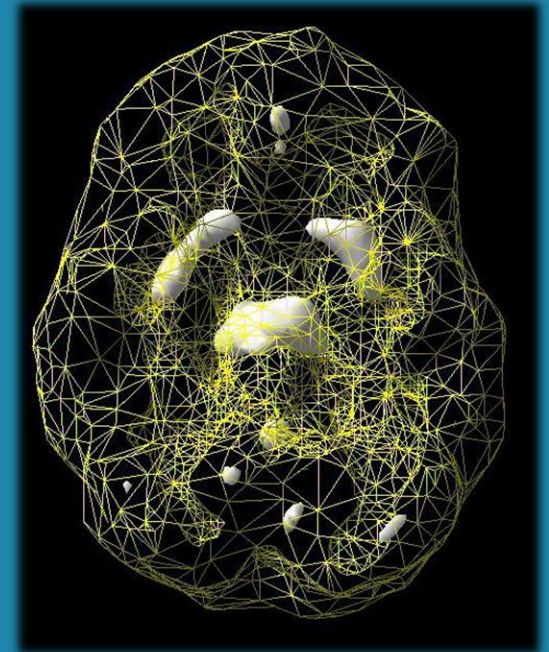


Cerebellar Help

- **Coordination exercises**
- **Juggling**
- **Dancing**
- **Table Tennis**
- **Gratitude**
- **Stimulants**

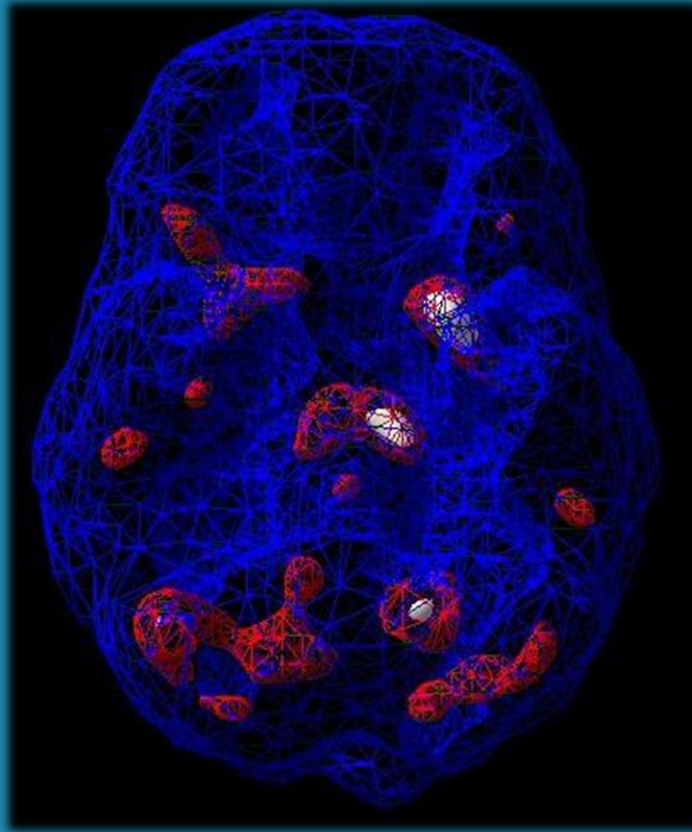


Grateful

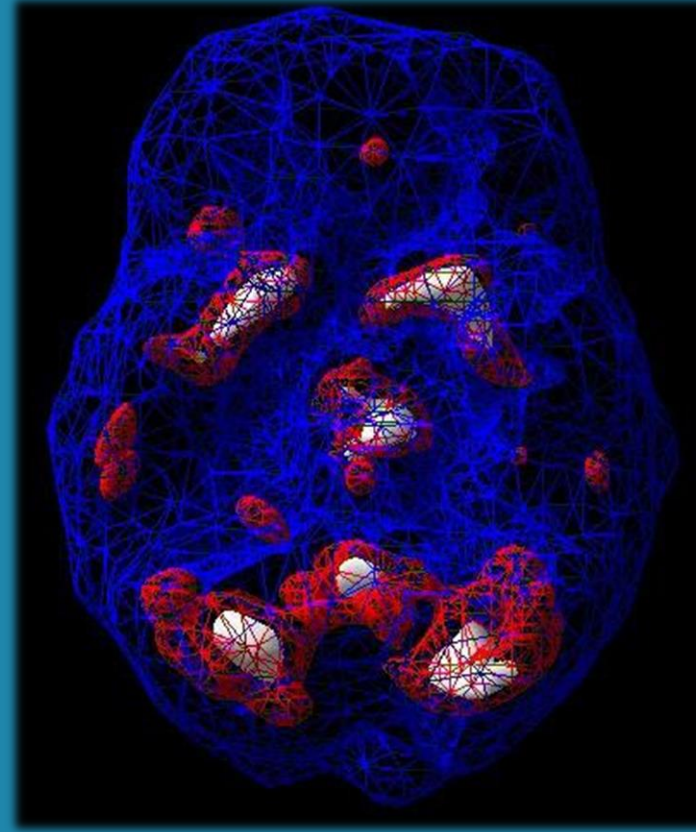


Hateful

Before and After Brain Power Max and Focus and Energy



Before



After