



ATTENTION DEFICIT DISORDER & THE BRAIN

Information taken from Dr. Daniel Amen, Amen Clinics

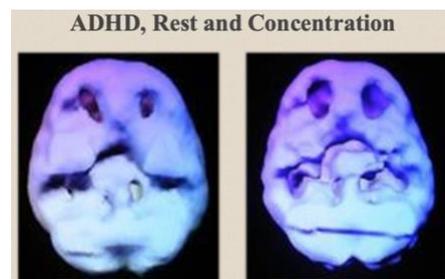
ADD – Important Considerations

❖ Causes of ADD:

- Genetics – It's a highly inheritable condition
- Brain trauma –Oxygen deprivation, brain injury, more common in kids w/ADD because of risky behavior
- Toxic exposure -prenatal-(Such as mothers who smoke) & environmental toxins mold, chemicals, etc.
- Brain infections
- Food allergies-food dyes, gluten, etc.
- The more anesthesia children have more likely they will be diagnosed with learning disabilities & ADD

❖ Tends to be identified in hyperactive boys, but as easily not in girls because their behavior typically isn't as overt.

❖ It is a myth that people with ADD just need to “try harder.” In reality, there is a decrease of blood flow to the Prefrontal Cortex (PFC) when they concentrate (which means the harder they try, the harder it gets). When there is a concurrent decrease in Temporal Lobe activity, it can be indicative of a learning disorder.



❖ ADD is a highly genetic disorder and is quite prevalent today, even though it has been known for many years. The incidence of it in our culture has skyrocketed as a result of food additives, the increase in watching television, the internet, highly stimulating video games and decreased exercise.

❖ Living in an ADD household can be very stressful. ADD people tend to be conflict-seeking which is a way to stimulate their own brains.

❖ ADD Children can be conflict driven and excitement seeking. They can be masterful at causing upset in the home by stirring up trouble to get an emotional reaction (getting parent to yell at them). It's better to respond to the child by being firm, but calm and kind rather than argue with or yell at the child.

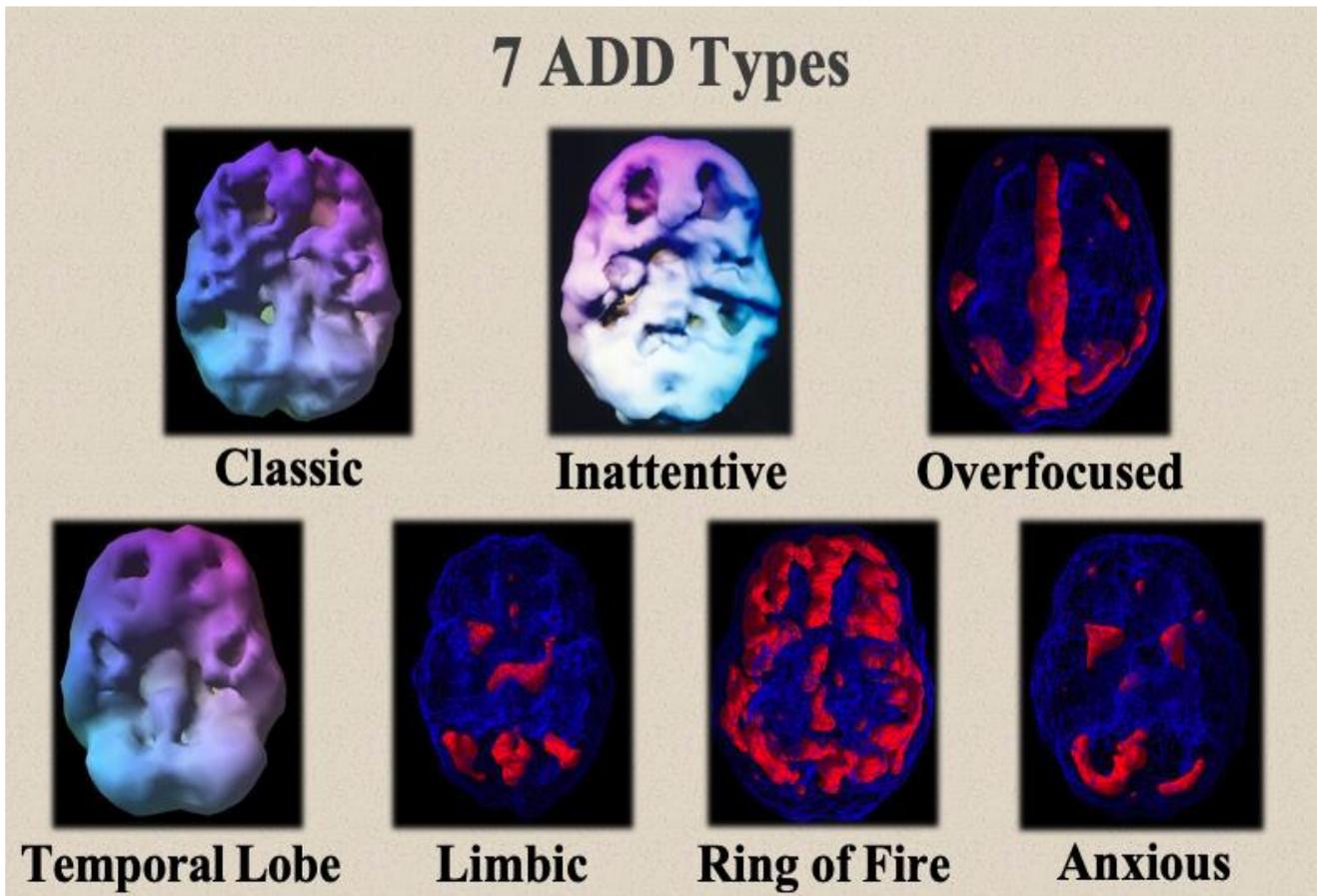
❖ Research indicates that 75% of people with ADD have interpersonal problems. 52% have problems with drugs or alcohol.

❖ ADD is not a single entity; therefore, it is very important to identify the brain system(s) involved with the problem so treatment can be targeted to the individual.

❖ ADD children & adults are typically 3-5 years developmentally behind their peers. They do well with homeschooling and structure and may be vulnerable to issues such as leaving home for college until they are emotionally age 20.

- ❖ ADD is not a minor psychiatric disorder. According to research studies:
 - 35% never finish high school
 - 43% of unmedicated aggressive ADHD boys get arrested for a felony by age 16
 - Up to 52% of those in prison have ADD or a learning disorder
 - 52% of ADD adults are substance abusers
 - 75% have interpersonal problems

- ❖ Criteria common to all types of ADD:
 - Short attention span for routine tasks; focus is better when they are interested in a subject which causes an increase in adrenaline.
 - Distractibility – Decreased Prefrontal Cortex (PFC) activity cannot inhibit incoming sensory information (sound, texture, taste, etc.).
 - Disorganization – Time management problems, messy spaces, haphazard approach to projects, and multiple internal concurrent conversation in their minds.
 - Difficulty with follow-through – Interested in many things at once, but only partially complete them because they get distracted by new things.
 - Poor internal supervision – Live in the moment, difficulty with long-term goals, don't think through the consequences.



7 Brain Types Associated with ADD

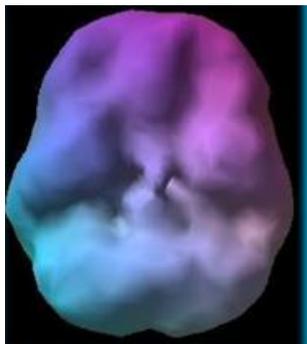
Type 1: Classic ADD/ADHD

Don't do well with increase of serotonin. A plate of pasta is like 5 mg of Prozac (simple carbs raise serotonin)

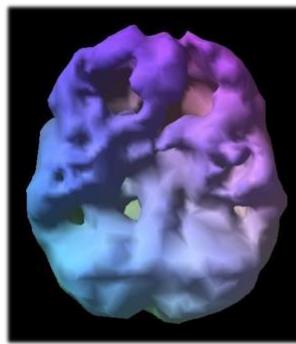
Exciting video games HORRIBLE for this type-floods their dopamine

- Short attention span (for routine things)
 - Distractibility
 - Disorganization
 - Procrastination
 - Impulsivity/Poor internal supervision
 - Restlessness/hyperactivity
 - Constant motion/difficulty sitting still
 - Talkativeness/interrupting others
 - Lack of forward thinking
- ❖ Scans show decreased blood flow in the Prefrontal Cortex (PFC), Cerebellum, and Basal Ganglia with concentration. Low activity in the PFC and cerebellum, likely due to low dopamine in the brain.
- ❖ As babies, they tend to be colicky, active, and wiggly. As children, they tend to be noisy, impulsive, and demanding.
- ❖ **Type 1 Treatments:**
- Higher protein, low carb diet and avoiding sugar/simple carbohydrates
 - Intense aerobic exercise
 - To help improve concentration, frequent movement is essential
 - Children with Type 1 are more focused when education or clean-up tasks are presented as a race, obstacle course, or other fun game
 - Have an organized and creative work environment will help you focus and maximize productivity. Also, get up from your desk at least once an hour and move around.
 - Limiting TV & Video Games
 - Stimulating supplements that boost dopamine and blood flow to the brain
 - EPA fish oil, Omega-3 fatty acid, Green tea, Rhodiola, Ginseng, Ashwagandha, L-tyrosine (a building block for dopamine), phenylamine, iron, zinc
 - Stimulant Medications(Ritalin & Adderall)

Healthy Brain



Classic ADD Brain

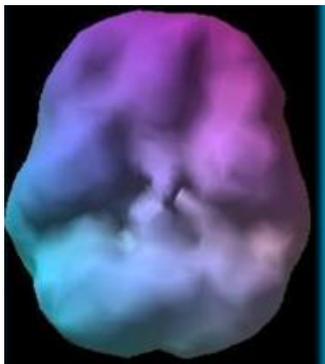


Type 2: Inattentive ADD(Hypoactive)

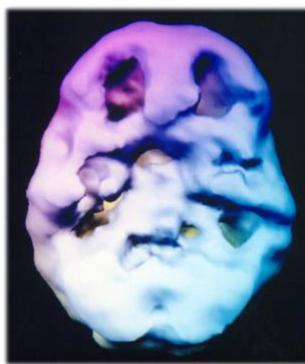
This type tends to get diagnosed later than Type 1 because their behavior problems aren't as overt. Instead, they tend to seem spacey and often are underachievers

- Trouble focusing
 - Not hyperactive or impulsive
 - Introverted
 - More common in girls
 - Fewer behavior problems
 - Low Prefrontal Cortex
 - Tendency to be spacey and daydream, seem internally preoccupied and may be more sluggish with low motivation
- ❖ Scans show decreased blood flow in the Prefrontal Cortex (PFC), Cerebellum, and Basal Ganglia with concentration (but not as low as Type 1); boosting dopamine is helpful.
 - ❖ Adolescents with Inattentive ADD may struggle with stress, time management, and chronic anxiety.
 - ❖ Those with Inattentive ADD tend to be introverted and may have trouble finding motivation in life.
- ❖ **Type 2 Treatments (same as for Type 1):**
 - Higher protein diet and avoid sugar/simple carbohydrates
 - Exercise-higher protein/lower carbohydrate
 - Intense aerobic exercise
 - An effective behavioral technique for Type 2 kids is to set up a reward system: reward good behavior and withhold privileges when negative behavior occurs.
 - Children with Inattentive ADD respond better to straightforward directions that establish fair and realistic expectations, so giving simple and clear instructions is important.
 - Creating a written checklist will help with a sense of accomplishment when visually see goals being achieved.
 - Limiting TV & Video Games
 - Stimulant Medications
 - Stimulant supplements that boost dopamine and blood flow to the brain
 - l-tyrosine (a building block for dopamine)
 - EPA fish oil

Healthy Brain



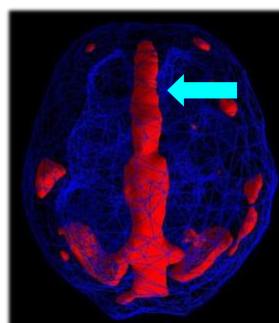
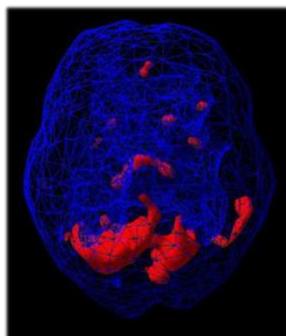
Inattentive ADD Brain



Type 3: Overfocused ADD

- Difficulty shifting attention that looks as though they can't pay attention to other things
 - Worry
 - Tendency to hold grudges
 - Get stuck on thought patterns and behavior patterns (i.e., ritualistic behavior)
 - Upset if things don't go their way
 - Often argumentative or oppositional
 - Often have overfocused family members
 - Rigid/Inflexible
- ❖ Scans show low PFC activity with high anterior cingulate activity and decrease blood flow during concentration in the underside of the PFC, Cerebellum, and Basal Ganglia; benefits from boosting serotonin and dopamine. Can be seen in substance abusers and the grandchildren of alcoholics.
- ❖ This type has been mistaken for Obsessive-compulsive disorder (OCD). Impulsivity is a pivotal difference between the two. People with OCD typically aren't impulsive, whereas those with Overfocused ADD tend to make more impulsive decisions.
- ❖ People with this type have trouble with cognitive processing; they aren't inattentive, but rather over-attentive.
- ❖ **Type 3 Treatments:**
- EPA/DHA fish oil (balancing)
 - EPA-stimulating
 - DHA-calming
 - **Less** protein and increased simple and complex carbohydrate diet (The Zone diet)
 - Intense aerobic exercise
 - Can help distract from obsessive thoughts, provide relaxation for open-mindedness, and boost blood flow to the brain.
 - 3-Thought Cutoff—once a negative or obsessive thought has repeated in your mind 3 times, get up and do a different activity. Focusing on something else can help push negative thoughts to the back of your mind.
 - Write down your goals and review them every day. This helps you evaluate your decisions and adjust your behavior so that you're working toward your goals, instead of against them.
 - Limiting TV & Video Games
 - Medication (i.e., SSRI) that boost serotonin and dopamine
 - Supplements that boost serotonin and dopamine
 - 5HTP + L-tyrosine

Active Brain



Overfocused ADD Brain

Type 4: Temporal Lobe ADD

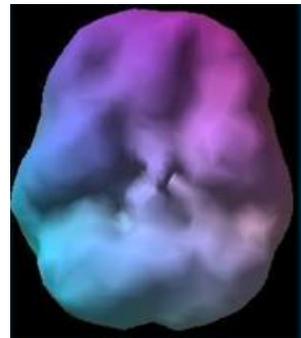
They typically have all the ADD symptoms (with or without hyperactivity), plus they are very moody, irritable, have flash tempers, reading or language problems and have illusions and déjà vu

- Inattention
 - Emotional instability
 - Memory problems
 - Periodic anxiety
 - Illusions/seeing shadows
 - Frequent headaches
 - Too sensitive to others
 - External or internal aggression
 - Learning problems
- ❖ Decreased PFC and temporal lobe activity; benefits from boosting dopamine and GABA but treat the temporal lobe issue first.
- ❖ This type has been correlated with previous head injuries and toxic or infectious exposure.
- ❖ During aggressive periods, Type 4 individuals may be defiant towards parents or authority figures.

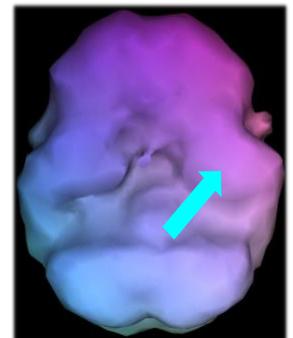
❖ ADD Type 4 Treatments:

- For mood stability:
 - Medications (Anticonvulsants)
 - Supplements
 - Multi-vitamin
 - GABA
 - B6
 - EPA/DHA balanced fish oil)
 - Ketogenic Diet (eliminating all simple sugars)
 - Avoiding violent video games & TV
 - Increased exercise
 - Increases blood flow and releases endorphins
 - To minimize aggressive tendencies and increase self-control
 - Inhale for 3 seconds through your nose
 - Hold for 1 second
 - Exhale for 6 seconds (twice as long as the inhale)
 - Hold for 1 second
 - Repeat 10 times. This will take less than 2 minutes
- For memory: Acetylcholinesterase inhibitors (Aricept and Exelon) and Namenda
- Supplements to boost blood flow, acetylcholine and antioxidants or to improve membrane integrity and/or help with blood sugar

Healthy Brain



Temporal Lobe ADD Brain

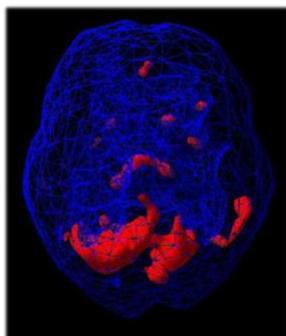


Type 5: Limbic ADD

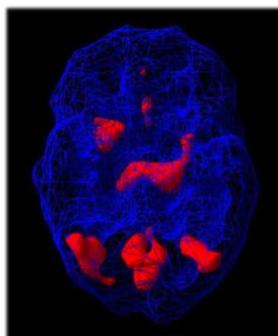
They have the typical ADD symptoms and may or may not be hyperactive. In addition, they tend to be more blue or emotional, isolating and have problems with sleep and appetite. It's like they have a mild chronic depression and ADD.

- Inattentive
 - Sad, moody, irritable
 - Negative thoughts – often not depressed, just negative
 - Low motivation
 - Anhedonia
 - Sleep and appetite problems
 - Social isolation but less so than depressed or dysthymic patients
- ❖ Scans show low PFC activity and high limbic activity. The clinical presentation is oftendysthymic, and patients tend to respond well to Wellbutrin or SAMe.
- ❖ Is frequently misdiagnosed as depression. However, when individuals with this type are given antidepressants, it can increase their moodiness and negative symptoms.
- ❖ People with this type often suffer from low energy, short attention spans, and get stuck on negative thoughts and guilty feelings.
- ❖ High-stress levels are a major trigger for depression in Limbic ADD.
- ❖ **Type 5 Treatments:**
- EPA fish oil
 - SAMe
 - Balanced diet
 - Exercise
 - Limiting TV & Video Games
 - Create strategies that will allow you to calm yourself down when you are triggered.
 - Essential oils, such as lavender, bergamot, grapefruit, and peppermint can help boost your mood.
 - Curb negative thinking patterns by surrounding yourself with people who encourage positive thinking and support conversational bonding. Build strong relationships with them and with those closest to you.
 - Certain SSRIs (Bupropion & Effexor)

Active Brain



Limbic ADD Brain

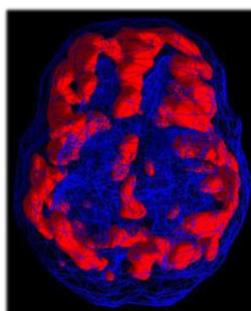
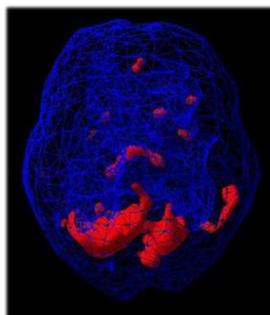


Type 6: Ring of Fire ADD

They have all the ADD symptoms along with restlessness and hyperactivity. This could likely be an early bipolar disorder. Stimulants typically make them worse.

- Easily distracted
 - Too many thoughts
 - Often very hyperactive
 - Hypervocal
 - Oppositional
 - Aggressive
 - Hypersensitive to light, sound, taste, and touch
 - Moodiness
 - Cyclic behavioral changes
 - Rigid, worry, get upset
- ❖ Images reveal overactivity throughout the cerebral cortex, especially in the lateral PFC, parietal lobes, temporal lobes and anterior cingulate gyrus. This may be a bipolar equivalent or diffuse inflammation from another cause.
- ❖ Symptoms are often worsened by stimulants. Treat the ring of fire issue first, then boost the frontal lobes.
- ❖ Ring of Fire ADD may possibly be correlated with allergies or inflammation.
- ❖ Ring of Fire ADD is made worse with stimulant and serotonin-enhancing medications alone.
- ❖ Type 6 **Ring of Fire ADD Treatments:**
- Higher protein, lower simple carb diet
 - Try elimination diet-eliminate corn, soy, dairy, gluten, sugar, and artificial sweeteners.
 - 30-45 minutes of exercise
 - Accelerates blood flow and increases the availability of serotonin. This tends to calm hyperactivity.
 - Kill the ANTs (Automatic Negative Thoughts) that pop into your head and cause you to get upset or depressed.
 - Medications- Anticonvulsants or novel antipsychotic
 - Supplements-
 - Multi-vitamin
 - GABA
 - 5HTP
 - L-tyrosine
 - DHA fish oil (to calm the brain)

Active Brain



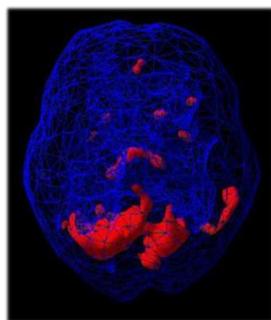
Ring of Fire ADD Brain

Type7: Anxious ADD

Type 1 Symptoms plus

- Anxious
 - Nervous
 - Tense
 - Predict the worst
 - Conflict avoidant
 - Fear of being judged
 - Tendency to clam up in social situations
 - Physical stress symptoms, such as headaches
 - Dislikes or gets excessively nervous speaking in public
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- ❖ Images reveal increased activity in the Basal Ganglia (area of the brain associated with anxiety) and a decrease in activity during concentration in the underside of the PFC and Cerebellum.
 - ❖ Unlike other types of ADD, people with Anxious ADD typically don't seek excitement and conflict.
 - ❖ Anxiety disorders tend to fluctuate over time, while Anxious ADD symptoms are constant.
 - ❖ Taking ADD medications (stimulants) alone can make individuals with this type even more anxious.
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- ❖ **Type 7 Treatments:**
 - Deep relaxation techniques
 - Meditation
 - Diaphragmatic breathing
 - Listen to brain enhancing music
 - Laugh it off! Laughing releases stress-reducing endorphins into your bloodstream.
 - Support GABA and dopamine
 - Stimulants alone usually increase anxiety

Active Brain



Anxious ADD Brain

