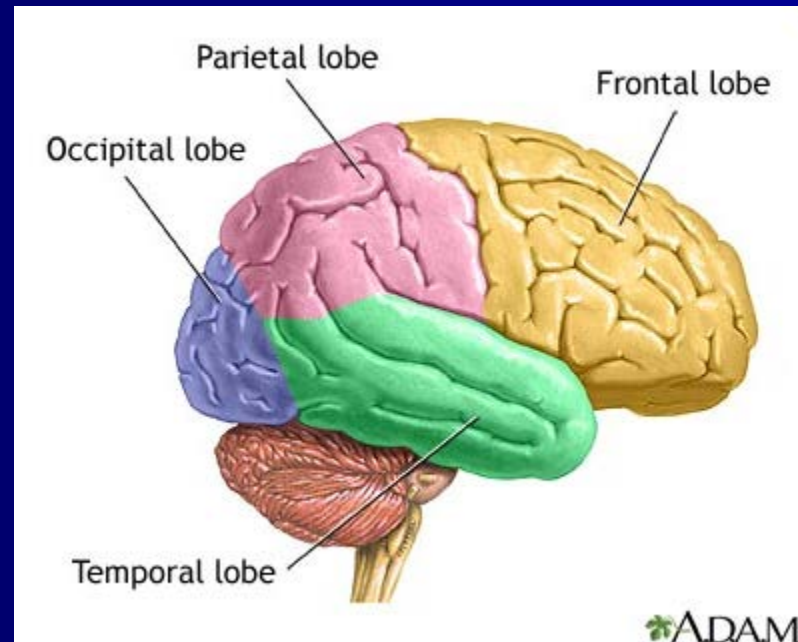


ADHD Revisited: Brain Science Based Interventions

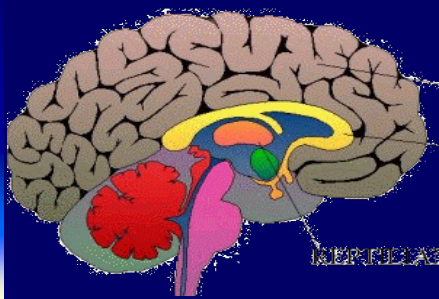


N. Gwalla-Ogisi, Ph.D.
University of Wisconsin: Whitewater

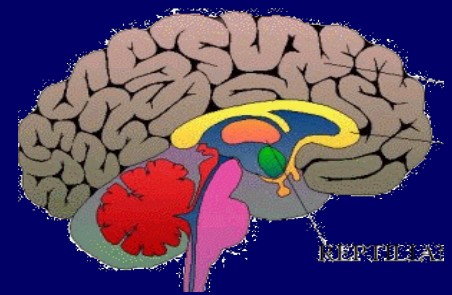
(Sources: Davis, J. Amen, D, Jensen, E. & Hess,)



**Why is this Topic
Worth Your Time?**



Introduction



- ADHD is one of the most common neurobiological disorders affecting about 8% of school age children (Amen 2014; Hess, 2013; & OSEP, 2016).
- Many children with ADHD are served in general education classrooms with 504 Plans, while others are served in general education classes with IEPs under different categories e.g. EBD, OHI and many others do not received any services at all.

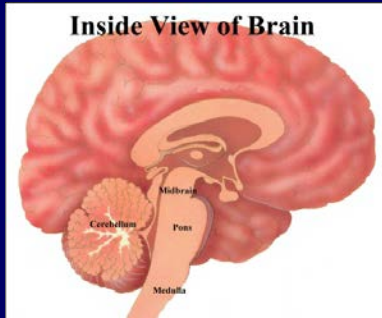


Types of ADHD

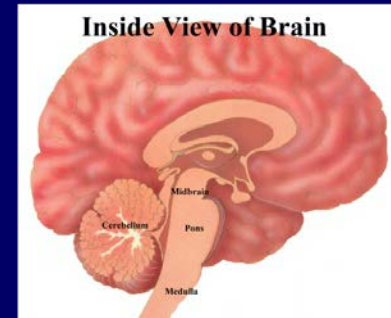


According to the American Psychiatric Association there are 3 ADHD Diagnostic Subtypes (2015):

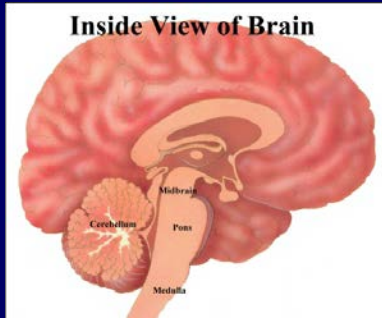
- ADHD: Predominantly Inattentive Type
- ADHD: Predominantly Hyperactive Type/Impulsive Type
- ADHD: Combined Type (DSM VI-R)



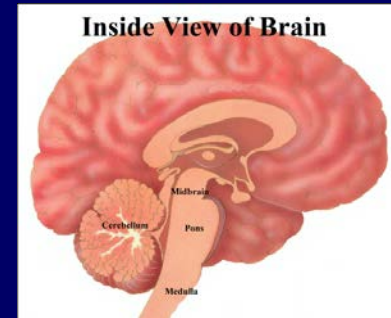
Types of ADHD



- Contrary to the DSM, Amen (2014) asserts that there are 7 types of ADHD versus the 3 types in the DSM :
- **Type 1: Classic ADHD:** inattentive, distractible, disorganized, hyperactive, restless, and impulsive
- **Type 2: Inattentive:** inattentive, easily distracted, disorganized, described as space cadet; daydreamer, and couch potatoes (not hyperactive)
- **Type 3: Overfocused:** inattentive, trouble shifting attention, frequently get stuck in loops of negative thoughts or behaviors, obsessive, excessive worrying, inflexible, frequent oppositional and argumentative behavior, and may or may not be hyperactive

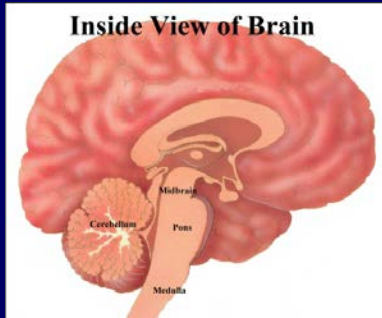


Types of ADHD

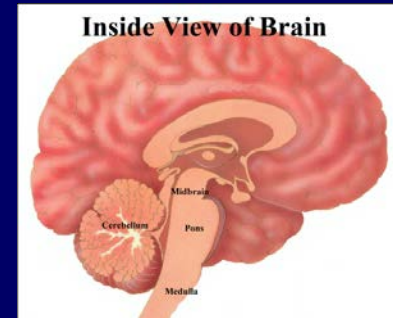


- **Type 4: Temporal Lobe:** inattentive, easily distracted, disorganized, irritable, short fuse, dark thoughts, mood instability, may or may not have hyperactivity
- **Type 5: Limbic:** inattentive, easily distracted, disorganized, chronic low grade sadness or negativity, "glass half empty syndrome," low energy, tends to be more isolated socially, frequent feelings of hopelessness, may or may not have hyperactivity
- **Type 6: Ring of Fire:** inattentive, easily distracted, irritable, overly sensitive, cyclic moodiness, oppositional, and may or may not be hyperactive.





Types of ADHD



- **Type 7: Anxious:** inattentive, easily distracted, disorganized, anxious, tense, nervous, predicts the worst, gets anxious with timed tests, social anxiety, often has physical stress symptoms e.g. headaches, and gastrointestinal symptoms, and may or may not have hyperactivity.

Brain Areas Implicated in ADHD: Prefrontal Cortex (PFC): Executive Function



- Many professionals in the field are now referring to ADHD as the **"Executive Function"** disorder. Executive function is an umbrella term in neuroscience to describe the neurological processes involving mental control and self-regulation. Researchers believe executive function is regulated by the frontal lobe of the brain—the prefrontal cortex (PFC). Because humans are born with brains that are not fully developed, children are not born with these skills, but they have the potential to develop them.
- Students with ADHD do not develop executive functions to the same degree as their peers.

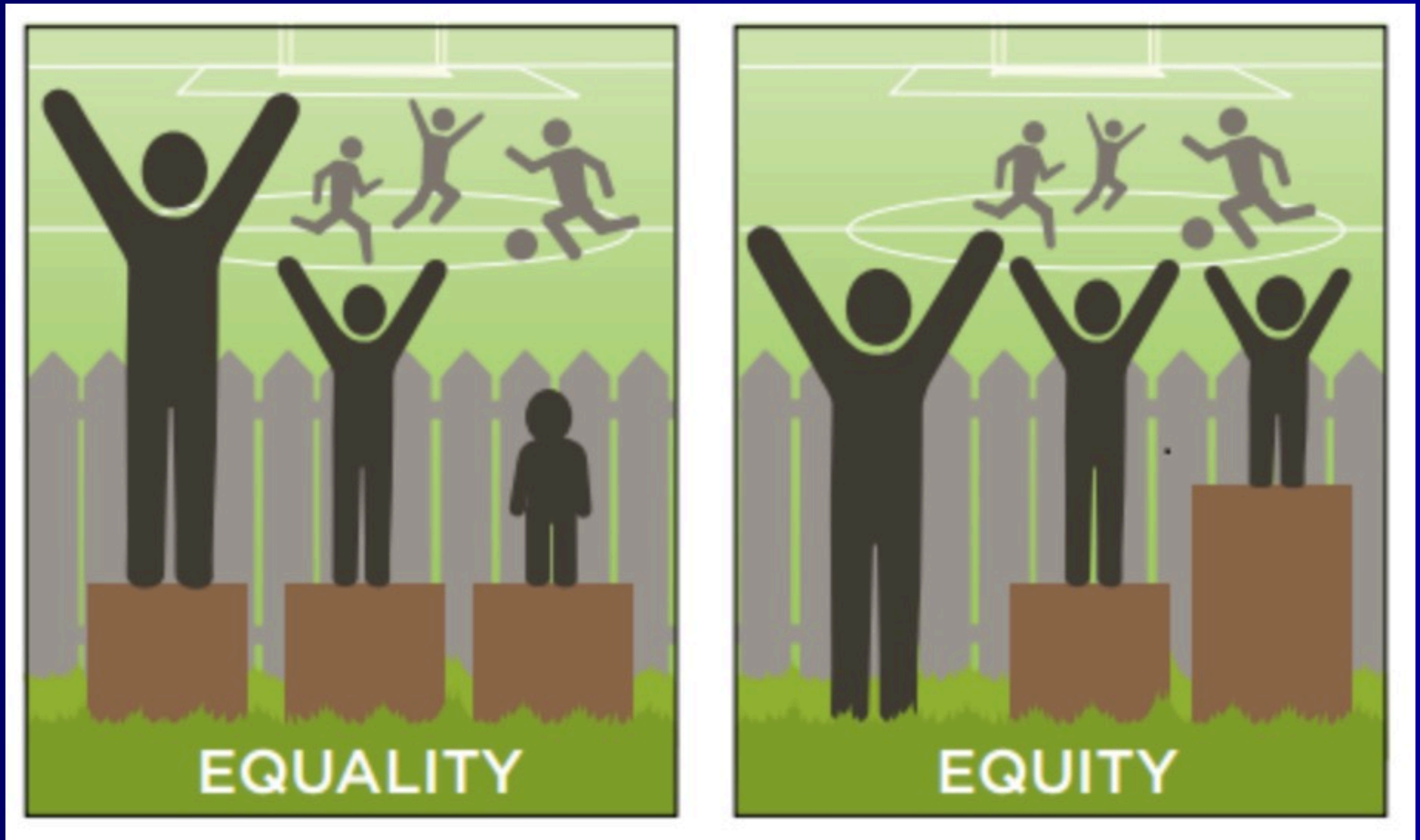
Brain Areas Implicated in ADHD: Prefrontal Cortex (PFC): Executive Function



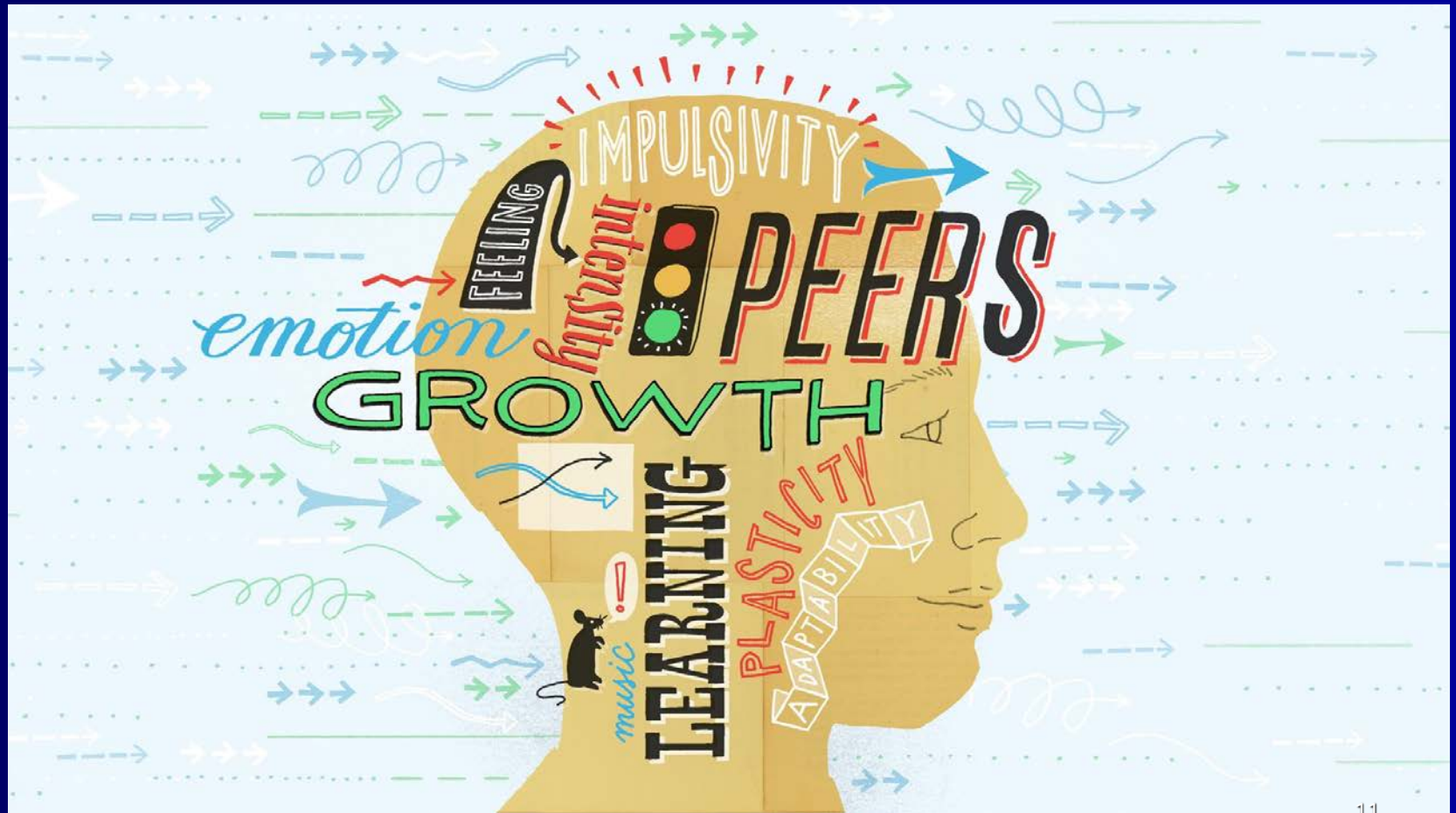
Executive functions control and regulate cognitive and social behaviors such as:

- Controlling impulses,
- paying attention and
- Responding appropriately to social situations and stressful situations
- Remembering important information – **Working Memory**
- Expressing oneself in written or spoken language
- Planning and organizing time, materials, and space
- Starting and finishing projects
- Controlling emotions
- Using internal self-talk to control one's actions
- Analyzing and solving complex problems, and
- Planning ahead for the future – **Foresight.**

ADHD is a Big Problem and *EQUITY is the Clear Solution...*



Experiences of Kids with ADHD





"Children with ADHD Are Managed
by the Moment!"

Russell Barkley Ph.D

What Kids with ADHD Cope with Daily



E-M-B-R-A-C-E



with Deliberate Practice

E – emotional-social skills

M – measure the learning

B – build cognitive capacity with high expectations

R – relationships

A – attitudes built; gratitude, hope, mindset

C – cultural responsiveness with equity

E – engagement with relevance

Discipline Problems Emerge When Teachers Expect *What They Cannot Get*

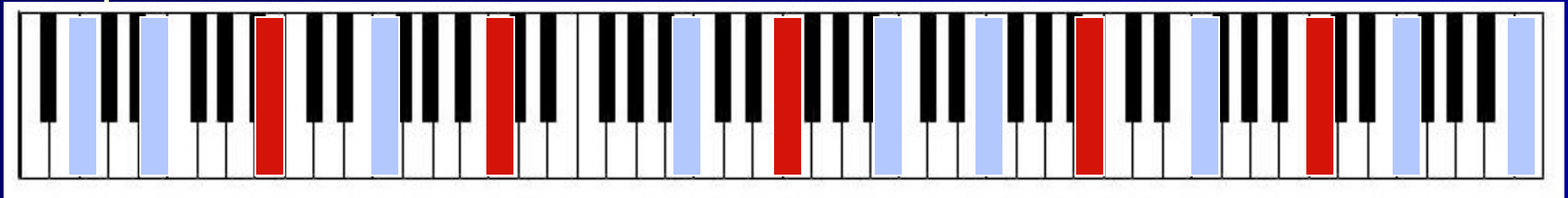


"Hey, show a little remorse about it!"



Many kids don't have the full emotional range to respond well **UNLESS** they are taught **HOW** to respond in class.

**Stop Assuming that Your Students Already
Know How to Behave; Most Don't Know!
*Teach the Blue Box Skills Daily***



TEACH:

- ✧ Humility
- ✧ Forgiveness
- ✧ Empathy
- ✧ Optimism

- ✓ Sadness
- ✓ Joy
- ✓ Disgust
- ✓ Anger
- ✓ Fear
- ✓ Surprise

TEACH:

- ✧ Kindness
- ✧ Patience
- ✧ Gratitude
- ✧ Compassion

Symptoms of ADHD & Related Interventions



- **Impulsivity:** If students lack the ability to regulate their impulses to speak while others are talking. Difficulty focusing on here and now in interactions with others
- Explicitly teach the behavior of active listening by identifying examples of active listening.
- Create a chart with what it looks and sounds like when students are engaging in active listening. Video modeling of listening activity will be helpful.



Symptoms of ADHD & Related Interventions



Short attention span:

According to Amen (1998 & 2014), kids with ADHD do not have short attention spans for everything. Often individuals with ADHD can pay attention to things that are new, novel, highly stimulating, interesting, & frightening: these provide enough intrinsic stimulation to activate the PFC so that the person can focus and concentrate.

- Give short one step directions orally and in writing where possible; use picture directions for younger students
- Demonstrate the behavior you expect as you give directions
- Present information in novel ways; get student attention first before giving directions
- Yoga for children with ADHD to support attention:
<https://www.youtube.com/watch?v=Su9i7TYnZ68>



Symptoms of ADHD & Related Interventions



Difficulty focusing and attending:

- To get a class's attention, you clap 3X. In response the class claps 3X and sends you a big positive "whoosh" of energy. OR...
- To start class, you say, "If you made it here on time, raise your hand and say, 'Yes!'"
- Now turn to your neighbor and say 'Happy Monday--it's a great day to learn!'"



Symptoms of ADHD & Related Interventions



Procrastination; poor internal supervision:

- Break tasks into short timetables with accountability at each step: avoid long term tasks or assignments.
- Foreshadow the behaviors you expect.
- Teach the student to use Mindful breathing, mindful listening etc. to help them take control of their inner states.

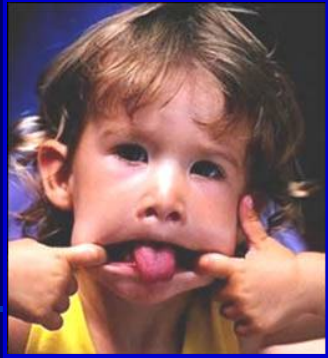




Symptoms of ADHD & Related Interventions



- **Hyperactivity, or restlessness:**
- Teach the student some cues you will use to redirect
- Teach students some movement activities they can engage in on their own to address restlessness e.g. **Activating the Brain Activities.**
- To reduce restlessness, stress, teach students **Breathing Buddies video clips.**



Symptoms of ADHD & Related Interventions



- Kids with AD/HD are experts at upsetting teachers and parents & eliciting yelling which feeds the child's unconscious need for stimulation :
- Do not serve as a stimulus for the child; remain calm and reiterate directions; provide captivating introductions to activate the student in novel ways; use movement to activate and engage the child; plan lessons that integrate activities that activate the brain



Symptoms of ADHD & Related Interventions



- Some kids with AD/HD self stimulate by **worrying or focusing on problems** (the problem with using anger, emotional turmoil & negative emotions for self-stimulation is damage to the immune system (Jensen, 2000, Amen, 2006 & 2011)).
- To reduce worrying or focusing on the negative, stay calm: do not counter aggress. Calmly redirect.
- Use ANT therapy and teach cognitive strategies to help students stop focusing on thoughts that cause them to worry
- Brain gym:
<https://www.youtube.com/watch?v=WpSBTVFgK0Y> ²³



Symptoms of ADHD & Related Interventions



- **Disorganization:** includes disorganization of personal space e.g. rooms, desks, book bags, closets as well as disorganization of time (chronically late or lose track of time etc.)
- Create schedules with the student; help the student learn to use a planner with alarms set in different tones for different activities on a watch or iPad etc.; teach organization e.g. using color coded closet.



Symptoms of ADHD & Related Interventions



- **Impaired sense of time passage:**
includes being chronically late, losing track of time, difficulty distinguishing the present from the future:
- Create schedules with the student; help the student learn to use a planner with alarms set in different tones for different activities on a watch or iPad etc.
- Cue time and deadlines, use timelines, use timers with speech to orient time.



Symptoms of ADHD & Related Interventions



- Have difficulty moving from other directed to self directed activities:
- Provide cues for getting started and transitioning; use music for transitions, let kids suggest strategies for transitioning.



Symptoms of ADHD & Related Interventions



- Have temporal myopia i.e. they are nearsighted to future problems & consequences: they do not plan for the future & therefore have difficulty handling daily responsibilities that require a sense of timing & future planning:
- Teach cause and effect relationship statements like if, then what etc.; teach students to anticipate; teach the student to use and check calendar & schedule every period, use iPad scheduler or watch.

Symptoms of ADHD & Related Interventions



- **Problems concentrating:** the harder the person tries, the worse things get. Activity in the PFC actually turns down, rather than up when there is pressure to concentrate which is often read as willful disobedience by teachers & parents etc.:
- Use activities such as cross crawl, lazy eights, and energizers that require movement & crossing the midline activity to refocus the PFC to create and then focusing activities; allow for downtime and then resume and focus through interactive instruction.
- Music for Focusing & Concentration:
<https://www.youtube.com/watch?v=CMnIsnINckU>

Kids with ADHD Can Pay Attention When Information Presented Is...

Interesting
One-on-One
Challenging
Novel
Stimulating





Symptoms of ADHD & Related Interventions



- **Distractibility:** Energy & enthusiasm of individuals with ADHD leads them to start projects but not finish. Their distractibility & short attention span derails their ability to complete tasks started.
- Have the student develop a checklist and check each activity or task as it is completed; assign peer partners that double-check each other's work list and serve as each other's coach.



Symptoms of ADHD & Related Interventions



- **Moodiness & negative thinking:** tend to be moody, irritable & negative. Since the PFC is under active, it cannot fully temper the limbic system, which becomes overactive and leads to mood control issues.
- Use music with high tempo to support mood; use foods that support mood management; teach the student strategies such as "thought interruption & thought stopping" to change negative thinking.



Symptoms of ADHD & Related Interventions



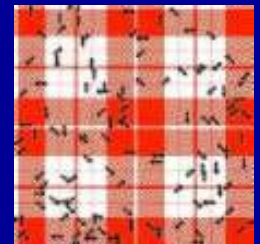
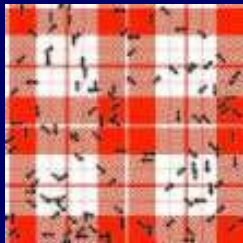
- **Inability to reflect on the past & learn from it;** lacks foresight or hindsight:
- A strategy to address executive function is using metacognitive language e.g. with a younger student, articulating the challenge could be useful. "I notice you are missing your gloves and it is ten degrees outside and it is time to leave for school." Where do you think your gloves are? Another example could be: "I see you do not have your pencil." You will need a pencil to complete the assignment. Where could you find one in the classroom?"
- Overtly & explicitly teach evaluating past actions & reflection; have the students journal; have students collect data and track their performance
- Teach planning; teach cause & effect relationship; teach problem solving



Symptoms of ADHD & Related Interventions



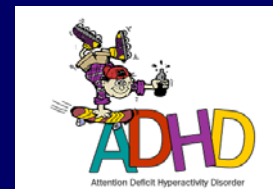
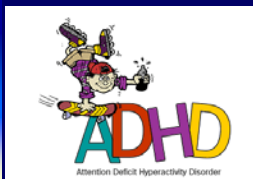
- Poor mental calculation skills:
- teach decision making; teach the student to recognize **Automatic Negative Thoughts** (ANTs) and how to eliminate these through cognitive interventions such as "thought stopping, reframing, thought interruption etc."



Symptoms of ADHD & Related Interventions

- Does not follow directions:
- Give short one step directions orally & in writing or demonstrate expected behavior when possible
- Get the student's attention before giving instructions or beginning the lesson; change the student's "state" (Jensen, 2003); engage in rituals that cause the student to attend and focus.

Symptoms of ADHD & Related Interventions



- Forgets to submit assignments even after reminders or to complete assigned tasks at school:
- Use a homework submission checklist; use learning partners that serve as coach and reminders; teach planning; teach signals to cue remembering tasks



Nutrition Can Support Better Cognition and Behavior



- Lean proteins
- Vitamin/Mineral supplements
- Complex carbohydrates
- Nibbling diets (manage glucose)
- Decrease simple sugars
- Colorful fruits/vegetables
- Increase plant fats
- Omega 3 oils
- Decrease animal fats
- Avoid high fructose corn syrup

