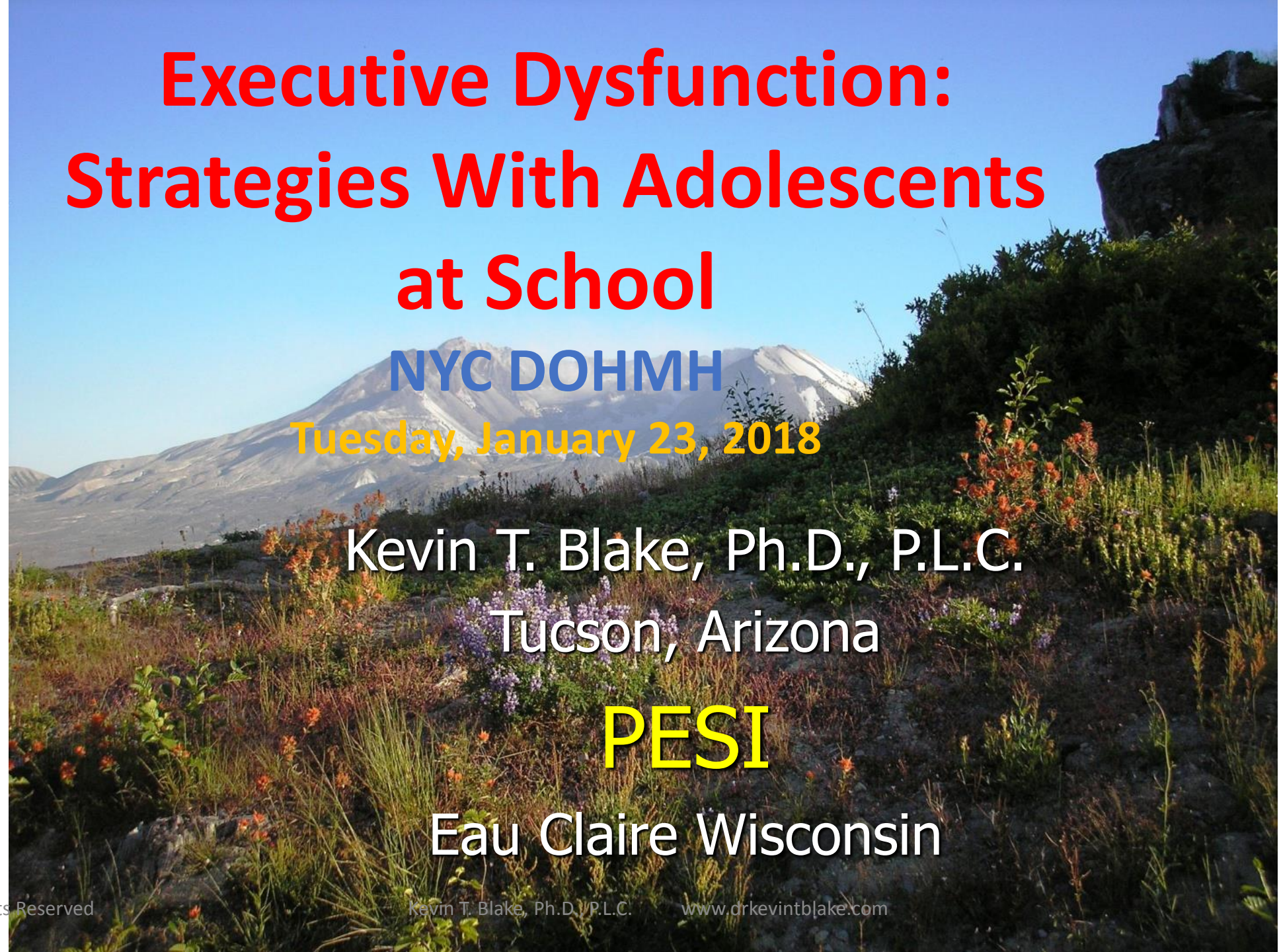

Executive Dysfunction: Strategies With Adolescents at School

NYC DOHMH

Tuesday, January 23, 2018

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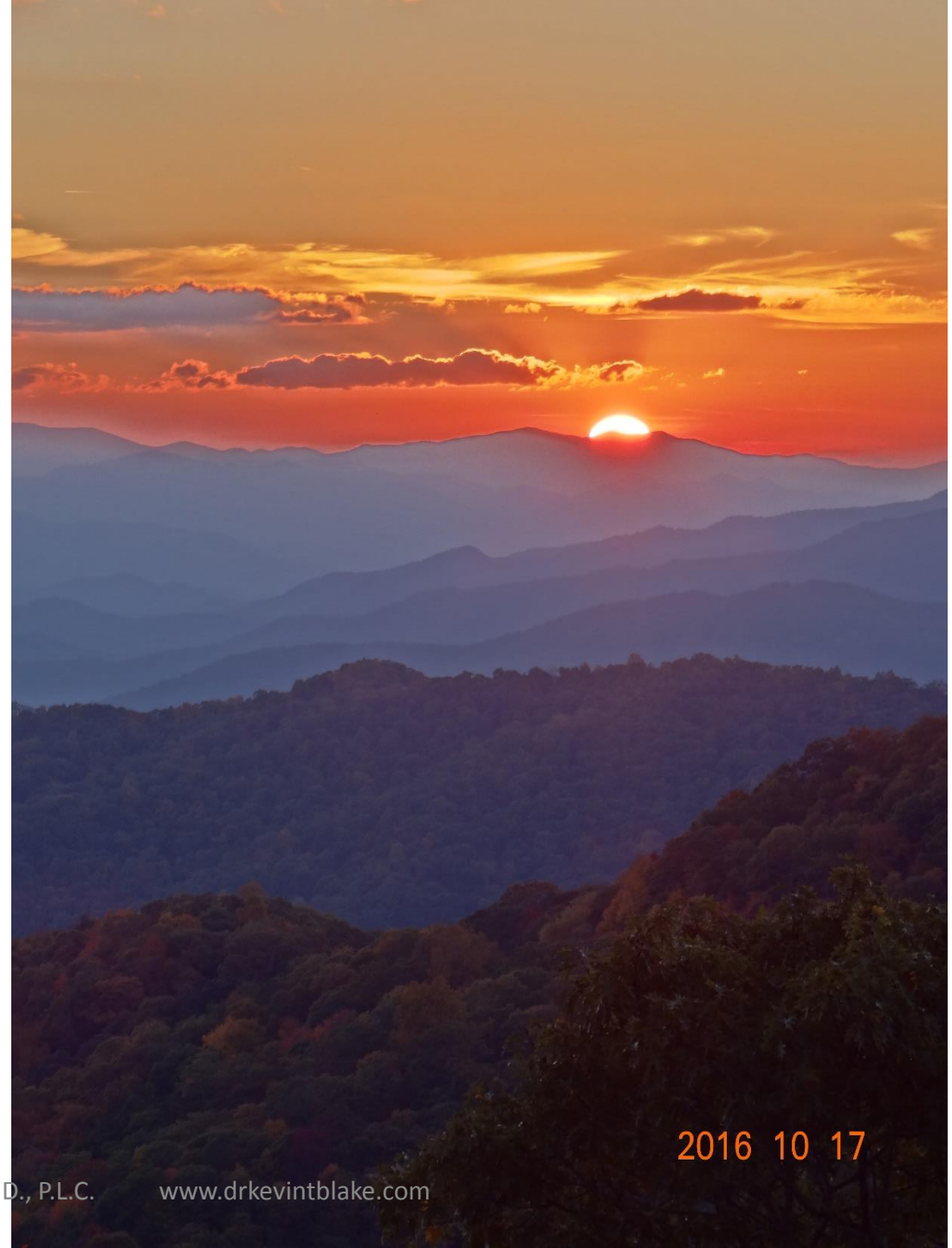
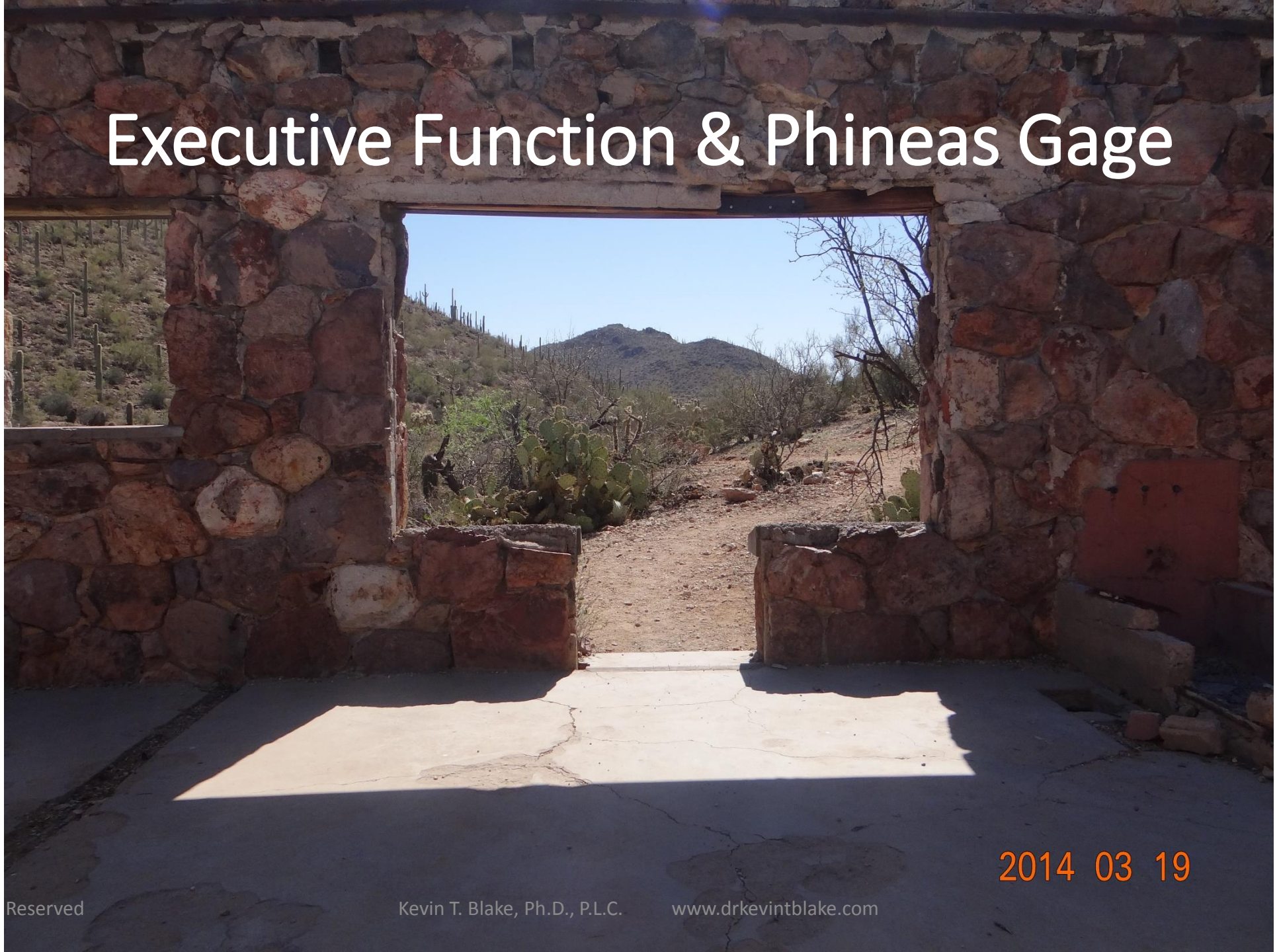
Announcements, Disclosures and Paperwork



Executive Function & Phineas Gage



Phineas Gage

- **Vermont, 1848 was 25 year old railroad working tamping gun powder in a drilled hole in rock excavation.**
- **Explosion forced 3 foot iron rod through his left cheek and out the top of his skull.**
- **Lost his left eye, but not consciousness; no focal neurological deficits; left facial weakness.**
- **Massive personality change:**
  - **Prior to accident was, "the most efficient and capable foreman"**
  - **After accident was childish, obstinate, could not control his desires, his friends did not consider him to be Phineas Gage.**
  - **He had problems with short-term memory, motor attention and inhibitory control.**

--Odriscoll and Leach (1998)

- **Damage to right & left prefrontal lobes = Problems with rational decisions and processing emotion**

--Demasio, et al. (1994)

What is Executive Function (EF)?

Executive Function Defined

Denckla defined executive functions as, "…the proactive elements of interference control, effortful and flexible organization, and strategic planning—that is, anticipatory, goal-oriented 'preparedness to act.' Executive function also may be construed to include working memory…, highlighting as it does the elements of delay between stimulus and response or maintenance of internal representations to guide actions" (p. 117-118).

--Denckla, M.B. (1994)

Frontal Lobes

- **In humans, a disproportionate expansion the frontal lobe.**
- **Prefrontal Cortex key player in vast networks of associative areas**
- **These areas also include the inferior parietal and anterior temporal regions**
- **Up to 40 times larger in humans than in macaques**
- **It allows us to read**
- **They allow us to transmit knowledge to younger generations**

--Dehaene (2009)

Theories of Executive Function

Baddeley's Executive Function Theory

- **Central Executive**: **"The central executive, which is assumed to be an attentional-controlling system, is important in skills such as chess playing and is particularly susceptible to the effects of Alzheimer's disease; and two slave systems, namely…" (p. 556).**

Baddeley's Executive Function Theory (Cont'd)

- **Phonological Loop: "The phonological loop, which stores and rehearses speech-based information and is necessary for the acquisition of both native and second-language vocabulary" (p. 556).**

- **Visual-Spatial Sketchpad: "…which manipulates visual images" (p. 556).**

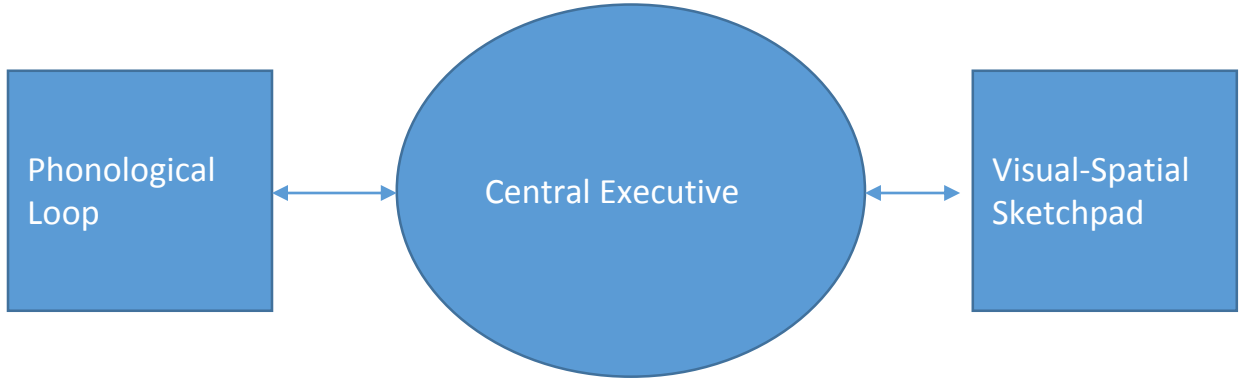
--Baddeley (1992)

Baddeley's Executive Function Theory (Cont'd)

These systems, "…allow humans to comprehend and mentally represent their immediate environment, to retain information about their immediate past, to support the acquisition of new knowledge, to solve problems, and to formulate, relate, and act on current goals"(p. 28).

--Baddeley (1992)

Baddeley's Executive Function Theory (Cont'd)



--Baddeley (1992)

Summary of Barkley's Theory Of Executive Function

Step 1: *Response Delay*

Step 2: *Prolongation*

Step 3: *Rule Governed Behavior*

Step 4: *Dismemberment of the Environment*

--Barkley (2006); (2007)

Barkley's Hierarchy of Executive Capacities

- **Spatial: Spatial distance to achieve goal & means to attain it**
- **Temporal: Time event horizon**
- **Motivational**
  - **Hot: Emotional**
  - **Cold: Informational**
- **Inhibitory: Capacity to restrain action**
- **Conceptual/Abstract: Abstractness of rules being considered**

Barkley's Hierarchy of Executive Capacities

- **Behavioral-Structural: Motor consequences and behavioral complexity to achieve a goal over time**
- **Social: Cooperating with others to achieve goal**
- **Cultural: The degree that one's culture plays a part in attaining a goal (p. 68-70)**

--Barkley (2012)

Definitions of Executive Function

Executive Function Defined

“Executive functioning is a higher level psychological process responsible for cuing, directing and coordinating multiple aspects of perception, cognition, emotion, and behavior during purposeful, goal directed, problem solving behavior” (p. 29).

--Dehn (2014)

Naglieri & Goldstein's Definition of Executive Function

"Executive Function is how efficiently you decide what to do."

--Naglieri, J.A. et al. (2012); Goldstein, S. (November 9, 2017)

"Executive Function"

- **Naglieri and Goldstein (2012) through factor analytic studies determined it is Executive Function *NOT* Executive Functions.**
- **As they put it, "Executive Function is how efficiently you decide what to do."**
- **1. Set goal; 2. gather info; 3. rate routes; 4.select route; 5. monitor; 6. change route; 7. solution**

--Naglieri, J.A. et al. (2012)

When You Have to Use EF

Those that involve planning or decision making.

➢Those that involve error correction or troubleshooting.

➢Situations when responses are not well rehearsed or contain novel sequences of actions.

➢Dangerous or technically difficult situations.

➢Situations that require the overcoming of a strong habitual response or resisting temptation.

--Goldstein, S. (November 9, 2017)

Brain Areas Involved in EF

Brain Areas Involved in EF

- **Prefrontal Cortex**
- **Basal Ganglia**
- **Amygdala**
- **Limbic System**
- **Cerebellum**

--Barkley (2012)

Neuroanatomy of Executive Function

- **Prefrontal, subcortical and brain stem**
  - **Dorsolateral Prefrontal Cortex – integrates behavior and cognition**
  - **anterior cingulate cortex emotional drives decision making and inhibition**
  - **Orbital prefrontal cortex- maintenance of set, monitor of behavior for appropriateness**

--Goldstein, S. (November 9, 2017

The Cerebellum, & Executive Function

“One such area is the cerebellum which contributes not only to motor coordination, but also to language, verbal working memory, processing of emotions, and other executive functions. Structural abnormalities have been found in the cerebella of persons with ADHD” (p. 28).

--Brown (2013)

The Cerebellum & Social Interaction

“The Cerebellum has only recently been implicated in the normal functioning of social behavior…new research has shown that the cerebellum is important as a mediator in cognition. To perceive an object or event, we must pull together the various sensory qualities and any relevant memories or thoughts in a carefully timed way…the cerebellum assists in delaying or accelerating these associations, and regulates attentional states…”

The Cerebellum & Social Interaction (Continued)

"…Coordinating associations and attention is essential to entering into a relationship with another human being. Communication, conversation and graceful social interaction all depend on being able to pay attention to another person and to one's own internal states and to alternate easily back and forth between them." (p.305)

--Ratey (2001)

Adolescent Brain Development and EF

Adolescent Brain Development

- **The Prefrontal Cortex and its connections undergo very significant changes during adolescence.**
- **These changes underlie important cognitive developments.**
- **Prefrontal Cortex development is variable across adolescents and adults; some people never attain what might be called "mature" frontal lobes (i.e., adults with AD/HD).**

--Turkstra, L.S. et al. (December 1, 2010)

Processing and Speed Executive Function Development During Adolescence

- **Processing speed increases significantly due to brain myelination and significant increase of gray matter volume development. These changes are as sweeping as are seen in children in the first two years of life. Hormone and environmental changes are particularly important during brain development in adolescence.**
- **"Executive function sees selective attention, decision-making and response inhibition skills, along with the ability to carry out multiple tasks at once, might improve during adolescence…Different aspects of executive function, therefore, may have different developmental trajectories."**

--McCalla, A. (December 11, 2017)

Down Turn in Executive Function in Adolescence

Around age 12 to 13 puberty starts and there is massive amounts of new synapses created and myelin laid down. Executive function abilities initially blossom, but between ages 15 and 17 they tend to deteriorate to prepubescent levels, because the signal to noise ratio between needed new synapses and unneeded ones is out of balance. Eventually, by about age 27 to 30 the pruning of unneeded synapses is back in balance and adult level executive function is typically achieved.

--McCalla, A. (December 11, 2017)

Executive Function Adolescent Development

- **Around age 12 there is an increase in goal setting abilities.**
- **Between ages 11 and 15 there is a significant increase of planning abilities. This is when girls executive function exceeds boys.**
- **Age 14 working memory starts to increase.**
- **About age 15 shifting attention, inhibition and working memory approaches adult levels. Planning skills reach adult levels, but pros are given more weight than cons.**
- **As the individual reaches about 19 more weight given to cons and reward system more adult-like.**
- **16 year olds do not have adult working memory spans.****

--McCalla, A. (December 11, 2017; Elif, I. et al. (May 27, 2015)**

Difference between Well Developed Adult Executive Function and Adolescent Executive Function

"Though, the teen is functioning at or near adult levels, their self-monitoring and self-reflective abilities are not fully mature. Further, when placed in highly complex situations or a situation in which one is required to integrate numerous pieces of information to make an informed decision, the teen will show shortcomings. They tend to base decisions on the advantage of a given situation versus the disadvantages.

Decisions and actions are based on the specific moment and do not consider the long-term consequences, rather making decisions based on their view of themselves at the moment and how they will be perceived by outsiders."

--McCalla, A. (December 11, 2017)

Assessment of Executive Function

Assessment of Executive Function

- **Every assessment needs:**
  - **Standardized testing of psychological processing**
  - **Informal methods**
    - **Observations**
    - **Interviews**
  - **"Assessment of attention and executive functions depends heavily on the use of rating scales, as direct measurements of these processes are limited" (p. 213).**

--Dehn (2014 A)

Abilities Accessed by Executive Function

- **Attention**
- **Emotional Regulation**
- **Flexibility**
- **Inhibitory Control**

--Goldstein, S. (November 9, 2017)

- **Initiation**
- **Organization**
- **Planning**
- **Self-monitoring**
- **Working Memory**

EF Assessment Instruments

- **WISC-V**
- **Cognitive Assessment System, 2nd Ed. (CAS-II)**
- **WJ-IV Cognitive Battery**
- **Children's Psychological Processing Scale (CPPS)**
- **Behavior Rating Inventory of Executive Function (Brief)**
- **Psychological Processing Checklist – Revised (Teachers)**
- **NEPSY-II**
- **Comprehensive Executive Function Inventory**
- **Barkley Deficits in Executive Functioning – Children and Adolescents, Daily Activities (BDEFS-CA)**

--Dehn (2014 A)

Executive Function and Gender

Executive Function is better in females than in males.

--Goldstein, S. (November 9, 2017)

Interventions for Executive Functions

Interventions for Executive Functions

- **Teach Self-Monitoring and Self-Talk**
- **COGMED**
- **Teach Metacognitive Strategies, Planning and Decision Making**
- **Teach Multisensory Memory**
- **Associate things to remember with familiar place-Loci**

--Dehn (2014 A)

Teaching Executive Function

Goldstein (2017) states, “Children can be taught to be more strategic.” Or, more efficient with executive function.

--Goldstein, S. (November 9, 2017)

Memory Difficulties

Memory Problems Everyone Has

- **Transience: problems accessing memory over time**
- **Absent-mindedness: lapses in attention**
- **Blocking: tip of the tongue experience**
- **Suggestibility: the incorporation of misinformation into memory**
- **Bias: altering memory to fit beliefs**
- **Misattribution: believing you heard something you didn't.**

Murray, B. (October, 2003); Schacter, D. (2001)

Memory Disorders

Dysnomia:

- **"…is a word-finding problem in remembering and expressing words." (p. 373)**
- **"Dyslexic people are slower at naming series of various types of familiar stimulus items– objects, colors, numbers, letters." (p. 29)**
- **This is part of the Rapid Automatized Naming Deficit, or "Double Deficit" of SLD-dyslexia.**

Lerner, J. (1997); Clark, D.B. (1988); Wolf, M., and O'Brien, B. (2001)

Two General Memory Systems

- ***Declarative Memory***: **Remembering the what, i.e. Facts and Events**
- ***Procedural Memory:*** **Knowing how to do something**
- **Proficient Reading is a skill and is a product of procedural memory.**
- **With procedural memory robust gains in knowledge are made after training is terminated.**
- **Train until the person's new behavior plateaus, stop training then allow to sleep. The next day they will have improved behavior and less errors.**

Two Memory Systems (Continued)

- **This will not happen if the person is not allowed to sleep and/or if they are then taught a competing task.**
- **If the training situation is considered novel, learning will continue to increase.**

Karni, A. (November 3, 2004); Karni, Tanne, Rubenstein, Askensay, and Saji, (1994)

Sleep and Memory

- **"…sleep allows us to process and retain new memories and skills." (p. 58)**
- **Deprive sleep/block training improvement in skill**
- **"Evidence for sleep's effect on declarative memory is much weaker than its effect on procedural memory." (p. 59)**

-- Strickgold, R., et al. (January 28, 2013); Winerman, L. (January, 2006); Stickgold, R. (2005)

Working Memory

Executive Function Memory Problems

- **Working Memory:**
  - **"…denotes a person's information-processing capacity" (p. 4-5)**
  - **Is the "memory buffer in the brain."**
  - **It allows for "theory of mind."**
  - **"Remembering so as to do."(non-informational)**

Wechsler Adult Intelligence Scale- Third Edition, Wechsler Memory Scale-Third Edition (1997); Brown, T. E. (October 11, 2001); Frith, C. D. and Frith, U. (1999); Barkley, R.A. (2008).

Possible Working Memory Computer Training Programs

Working Memory Training:

- **Cogmed:** www.cogmed.com

  --Klingberg (February, 2006); Barkley, (February, 2006); Ingersoll (October 26, 2006)

- **Posit Science:** www.positscience.com

  --Smith et al. (2009)

Literature Review of Working Memory Training:

It only works to train the person how to do better with the training program. It does not generalize.

--Shipstead, Redick, and Randall (2012)

Richard Abby on Working Memory

- **WM is the best predictor of academic success:**
  - **Reading Comprehension, Math Word Problems, Computation, Verbal Mediation, Complex Reasoning and Inhibition**

--Abby (2014)

- **Rehearsal is best for temporary storage**
- **When item in WM is lost it cannot be recovered.**
- **80% with working memory problems have significant difficulty with reading, or math, or both**

Richard Abby on Working Memory

- **Things that disrupt Working Memory:**
  - **Background noise**
  - **Distraction**
  - **Switching Attention**
  - **Too much information to encode by rote**
  - **Too much mental manipulation required to retain information**
  - **Never encoding it into Long-Term Memory**

- **What helps Working Memory:**
  - **Silent environment**
  - **White noise**
  - **Repeat over and over by rote**
  - **Associating it with something in Long-term memory**
  - **Rhyming, Mnemonics, chunking.**

--Abby et al. (October 27, 2010), (November 12, 2014)

Aids for Working Memory

Techniques that Help Memory

- **Periodically testing ones memory of things one wants to remember to weed out poor techniques**

  --Anderson, A. (January/February, 2011)

- **"Self-Imagining" in a made up story of the content you want to remember (episodic memory)**

  --Grilli, and Glisk (August 5, 2012)

Working Memory Interventions

- **Teach**
  - **N-Back**
  - **Chunking**
  - **Rehearsal**
  - **How to ask for help**
- **Reduce Cognitive Load**
  - **Match amount of information to WM limit**
  - **Repetition, Repetition…**
  - **No multitasking**
  - **Provide memory prompts**
- **Reduce Cognitive Load**
  - **Self-paced learning**
  - **Allow extended time**
  - **Provide note taker/recorder**
  - **Stay on topic**
  - **Use only Key examples**
  - **Allow step by step directions on desk**

--Dehn (2014 A)

Treatments For Memory Disorders

- Mnemonics-memory tricks
- Diaries and Social Statements
- Check for sleep disorders.*
- Nootropic Medications

Nosek (1997); Smith, and Godfrey (1995); Barkley (1998); Fawcett (October 29, 2010); Goldstein, and Goldstein (1997)

- www.doctormemory.com
- Doctor memory
- Lucas, J. and Lorayne, H. (1974). The Memory Book. New York, NY: Ballantine.

Coaching and Executive Functioning

- **Coaching can work to relieve executive function difficulties in adolescents.**
- **Coaching is more directive than counseling/talk therapy.**

--Goldstein, S. (November 9, 2017)

Helping with Executive Function Difficulties

- **Cognitive Behavioral Therapy (CBT): "Stop, Look, Listen"**
- **Must teach at the point of performance.**
- **"A strategy is a procedure that a learner uses to perform a task."**
- **It is thinking, "how do I accomplish what I want to do."**
- **Practice, practice, practice…until it is automatic**
- **Teach "Metacognition", Thinking about thinking", this works with everyone.**

--Goldstein, S. (November 9, 2017)

Classroom EF Strategies on the Net

- **Tools of the Mind: www.toolsofthemind.org**
- **ERIC Institute of Educational Sciences: www.eric.ed.gov**
- **National Dissemination Center for Children with Disabilities (NICHCY): www.nichcy.org**
- **The Power of Strategy Instruction: http://www.parentcenterhub.org/wp-content/uploads/repo_items/eestrategy.pdf**
- **Strategy Instruction Model: www. http://sim.kucrl.org/#1.**
- **EF in the Classroom.net: http://www.efintheclassroom.net/**

Technology for Memory Difficulties

- **Watchminder 2:**
  www.watchminder.com/
- **Record lectures with a digital device**
- **Time Management Organizer**
  www.FranklinCovey.com
- **Professional Organizer:**
  www.napo.org
- **California Closets:**
  www.californiaclosets.com
- **Rolodex Organizer:**
  www.franklin.com
- **Livescribe Smartpen:**
  www.livescribe.com
- **Brookstone Wireless Keyfinder:**
  www.brookstone.com/Wireless-Key-Finder.html
- **Get 168 hour desk blotter**

Professionals Who Can Help with Memory

- AD/HD Coaches: www.addbrain.com
- Professional Organizers: www.napo.net
- Psychiatrists: www.apa@psych.org
- Psychologists: www.apa.org
- Masters Level Counselors: www.nbcc.org
- Marriage and Family Therapists: www.aamft.org
- Social Workers: www.naswdc.org
- Behavioral Neurologists: www.anpaonline.org
- Speech-Language Pathologists: www.professional.asha.org

Anxiety & Executive Function

Working Memory & Anxiety

- **"Acute stress can almost halve a person's mental capacity."**

  --Klingberg (2013)

- **Anxiety can significantly reduce working memory capacity**
- **Verbal IQ can go down 20 points with anxiety**
- **Working Memory is connected to Impulse Control**
- **First grade anxiety predicts Fifth grade anxiety**
- **As anxiety goes up the ability to initiate new activities goes down.**

  --Minahan (November 12, 2014)

Working Memory & Anxiety

Problem Times for Anxious Students

- **Unstructured Time**
- **Writing Tasks**
- **Transitions**
- **Unexpected Changes**
- **Social Demands**

--Minahan (November 12, 2014)

Teach

Self-Monitoring

- **Emotional Thermometer (Body Sensation)**
- **Practice Relaxation**
- **Collect Calming Activities**

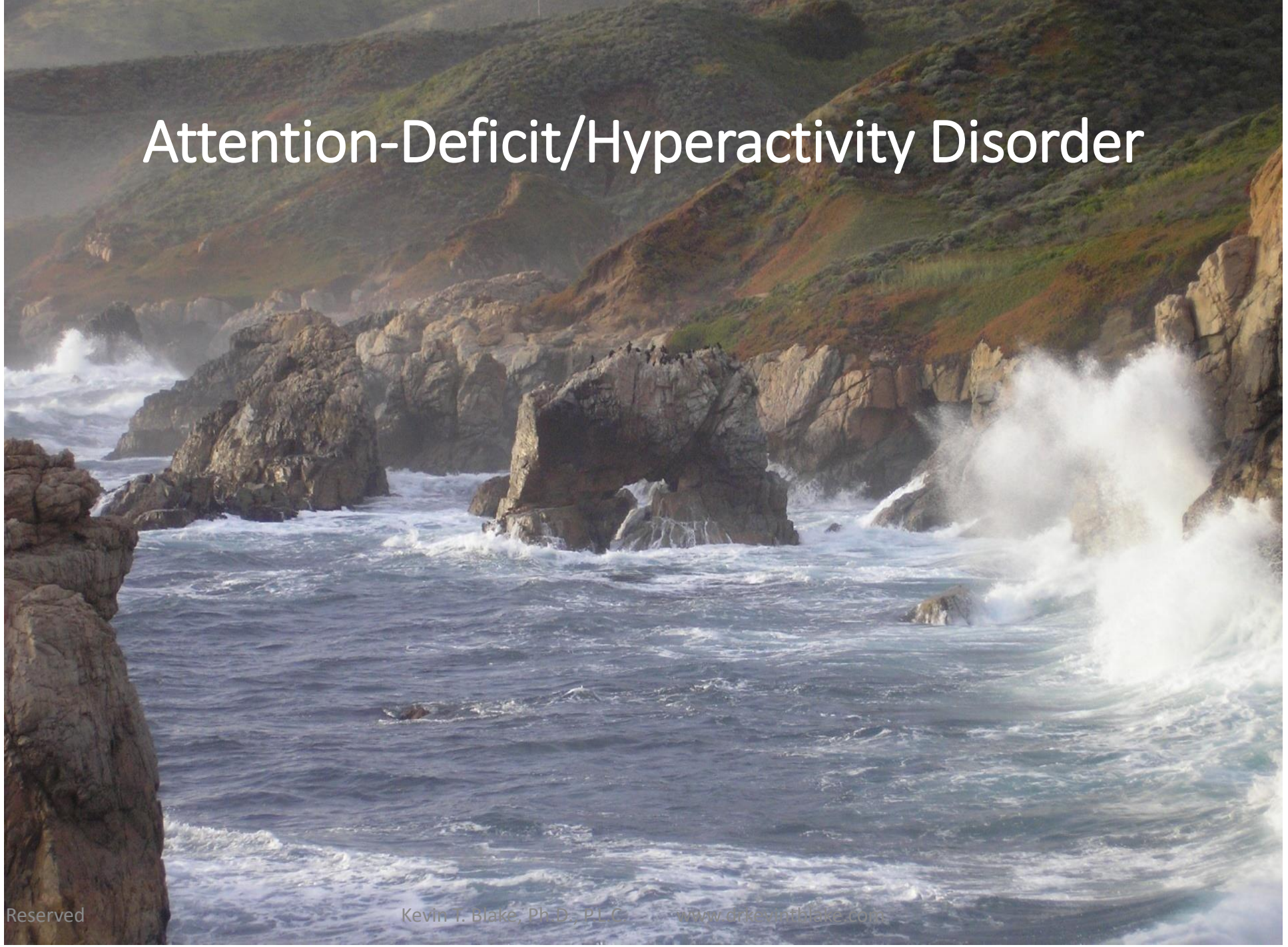
Case Study #1

CASE STUDY #1

Henry:

- **Male 14 years old Mohawk ancestry**
- **"Average student"**
- **Severe Generalized & Social Anxiety Disorder + Test anxiety**
- **Complains he has trouble remembering things on tests**
- **Thrashes about all night as he sleeps**
- **Isolated; Depressed?**
- **Can't remember assignments**
- **Has trouble with memory**
- **Parents recently divorced**
- **Teacher says he has difficulty setting and keeping to goals**

Attention-Deficit/Hyperactivity Disorder



ADHD is NOT new!

In 1775 Melchor Adam Weikart, of Germany described a syndrome very similar to AD/HD. He recommended horseback riding and exercise as treatment.

--Barkley (2012)

Brain Areas Associated with AD/HD

Neuroimaging of AD/HD Findings

- **Frontostriatal dysfunction**
- **Anterior cingulum**
- **Prefrontal cortex**
- **Orbital prefrontal cortex**
- **Superior parietal regions**
- **Caudate nucleus**
- **Thalamus**
- **Amygdala**
- **Cerebellum**

--Kasparek et al (2013)

Impulsivity and The Medial Prefrontal Cortex

- **Impulsivity appears to centered in the medial prefrontal cortex, dorsolateral prefrontal cortex, and the ventral striatum. These areas represent the daily-life system connected to reward related decision making.**

- **This area is probably dysfunctional in those with AD/HD, Parkinson's disease and pathological gambling.**

--Cho, et al. (2013)

AD/HD, Working Memory, & Reinforcement

- **Motivational deficits negatively effect visual-spatial working memory and short-term memory in AD/HD children.**

- **There is a life long problem with working memory in those with AD/HD, however, the central executive difficulties abate somewhat.**

--Dovis, et al. (2013)

--Alderson et al. (2013)

“The Dismal 5”

AD/HD & DSM-5©

In DSM-5© there is one type of Attention-Deficit/Hyperactivity Disorder and it is Attention-Deficit/Hyperactivity Disorder, Combined Type. Since DSM-IV© was published in 1994, longitudinal studies have found Attention-Deficit/Hyperactivity Disorder/Impulsive Type is the early manifestation of Combined Type AD/HD

AD/HD & DSM-5©

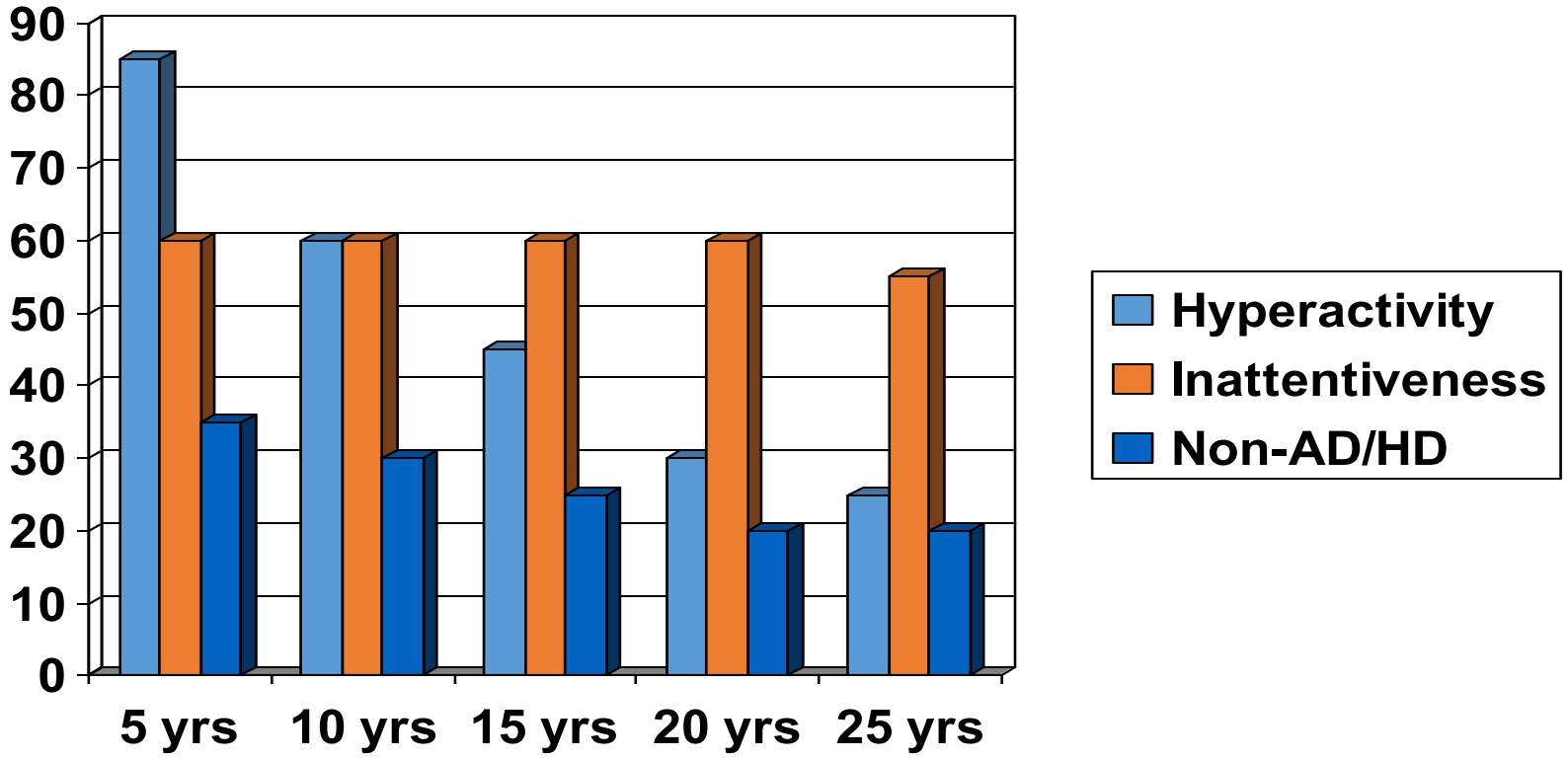
… in preschool and early grade school. As the child ages and his/her frontal lobe develops, they gain more control of their hyperactive motor movements and begin to appear as what was called (in DSM-IV© and DSM-IV, TR©) Combined Type. This process continues until their late 20's/early 30's when their frontal lobes are fully developed. By that time they appear to be the *Inattentive Type*…

AD/HD & DSM-5©

…when their current adult behavior is compared to their non-AD/HD peers. Remember, when you diagnose someone with AD/HD, you compare them to their non-AD/HD age peers.

--Swanson, Hinshaw, Hechtman, and Barkley (2012)

Longitudinal Studies of AD/HD



--Barkley, Murphy, and Fischer, M. (2008)

--Weiss, and Hechtman (1993)

Attention-Deficit/Hyperactivity Disorder, Inattentive Presentation (Restrictive)

Inattentive AD/HD?

What about Attention-Deficit/Hyperactivity Disorder, Inattentive Type? It is a separate and distinct disorder behaviorally, neuro-biologically and genetically from AD/HD. It is not included in the DSM-5. In research it may be referred to as AD/HD, Inattentive (Restrictive) Presentation, Sluggish Cognitive Tempo, Concentration Deficit Disorder and/or Crichton Syndrome.

--Author (2010) American Psychiatric Association.

--Barkley, R. A. (November 9, 2012)

Executive Function and Sluggish Cognitive Tempo

- **Sluggish Cognitive Tempo case difficulties in Executive Function, but they are different from those seen in AD/HD.**

--Goldstein, S. (November 9, 2017)

“Neurobiological”

What does *Neurobiological* mean?

- **Stephen Pinker – The Blank Slate: The Modern Denial of Human Nature or better stated, the Lie of the Blank Slate.**

  Pinker, S. (2002)

- **AD/HD is not caused by child rearing practices or environmental experience.**

  Barkley (2002)

- **65 to 75% of cases of Combined Type ADHD are caused by genetic anomalies.**

  Barkley (2008)

- **These people are said to have developmental ADHD.**

  Barkley (2008)

- **80 to 85% of the variance of those with developmental ADHD is genetic.**
- **I.Q. is 60 to 65% genetic.**

  Barkley (2002)

Acquired ADHD

- **25 to 35% of cases of ADHD are acquired/caused by brain trauma**
- **15 to 25% of cases of ADHD are acquired/caused by pre-natal and perinatal brain injuries: Maternal smoking/drinking, premature birth, etc.**
- **3 to 7% of cases of ADHD are acquired/caused by post-natal brain injuries: head trauma, infections, tumors, lead poisoning, PANDAS, etc.**

--

Barkley (2008)

Acquired ADHD

- **Most of those with acquired ADHD are males.**
- **The male brain is more prone to injury and genetic difficulties than the female brain.**

--Barkley (2008)

What does Neurobiological mean?

1. **Damage to different neural networks may cause AD/HD symptoms.**
2. **More commonly differences in Brain Development may cause them as well.**
3. **AD/HD, "…is a condition of the brain produced by genes."**
4. **ADHD has multiple causes**

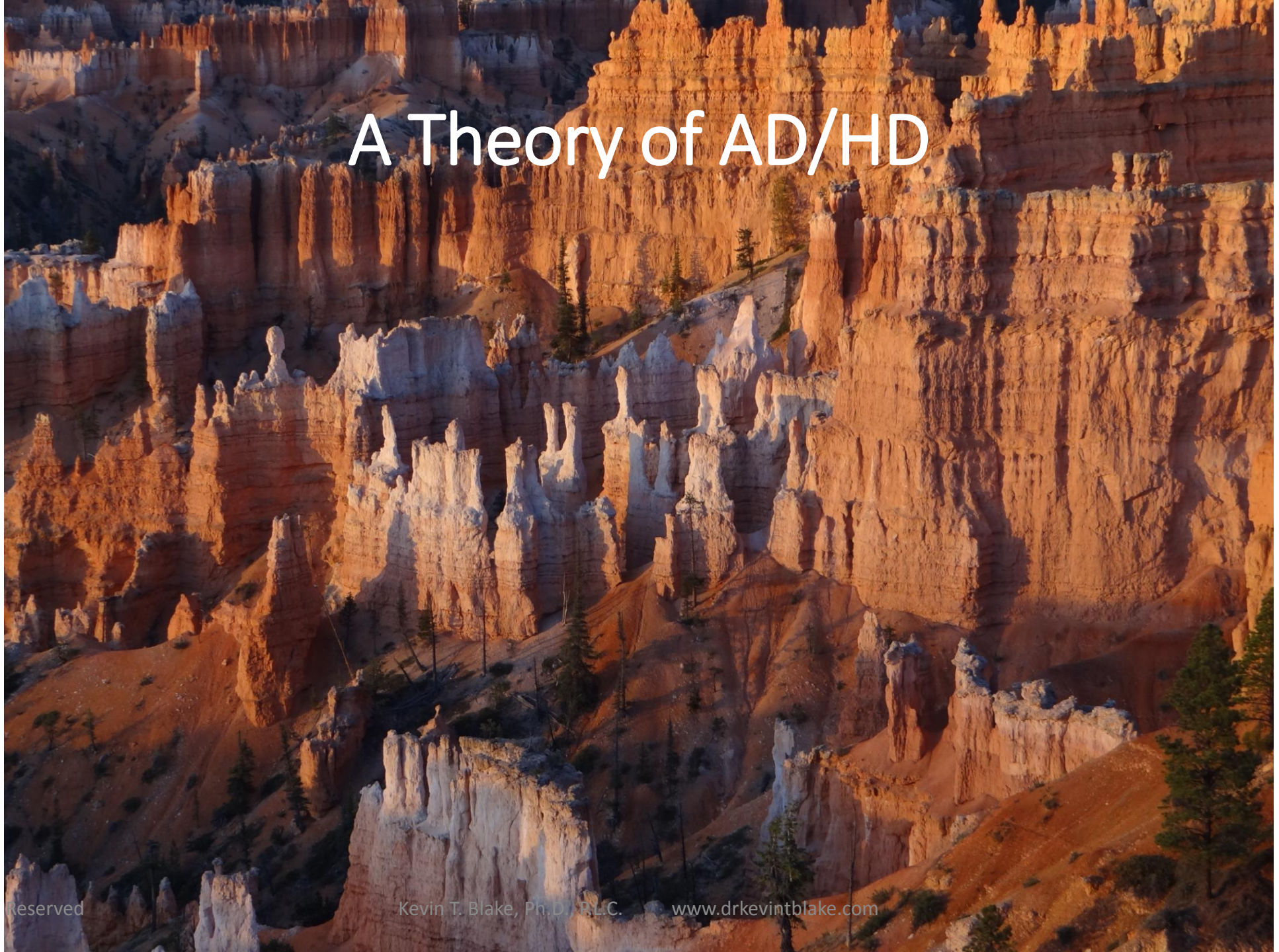
--Swanson and Castellanos (1998)

--Biederman (2006)

--Barkley (2008)

❖**Russell Barkley, Ph.D. (2008) said regarding Combined Type ADHD, "You cannot train out this disorder, period!" He went on to say the counselor is a *shepherd* of a disabled person.**

--Barkley (2008)



A Theory of AD/HD

Summary of Barkley's Theory Of AD/HD, Combined Type

Step 1: *Response Delay*

Step 2: *Prolongation*

Step 3: *Rule Governed Behavior*

Step 4: *Dismemberment of the Environment*

--Barkley (1997)
--Barkley (2006)

Barkley's 30%-40% Rule for Combined AD/HD

People with Combined Type AD/HD tend to be on average 30% - 40% less mature in controlling their hyperactivity, impulsivity, and inattentiveness than their non-disabled age peers.

--Barkley, R.A. (1998), (2008)

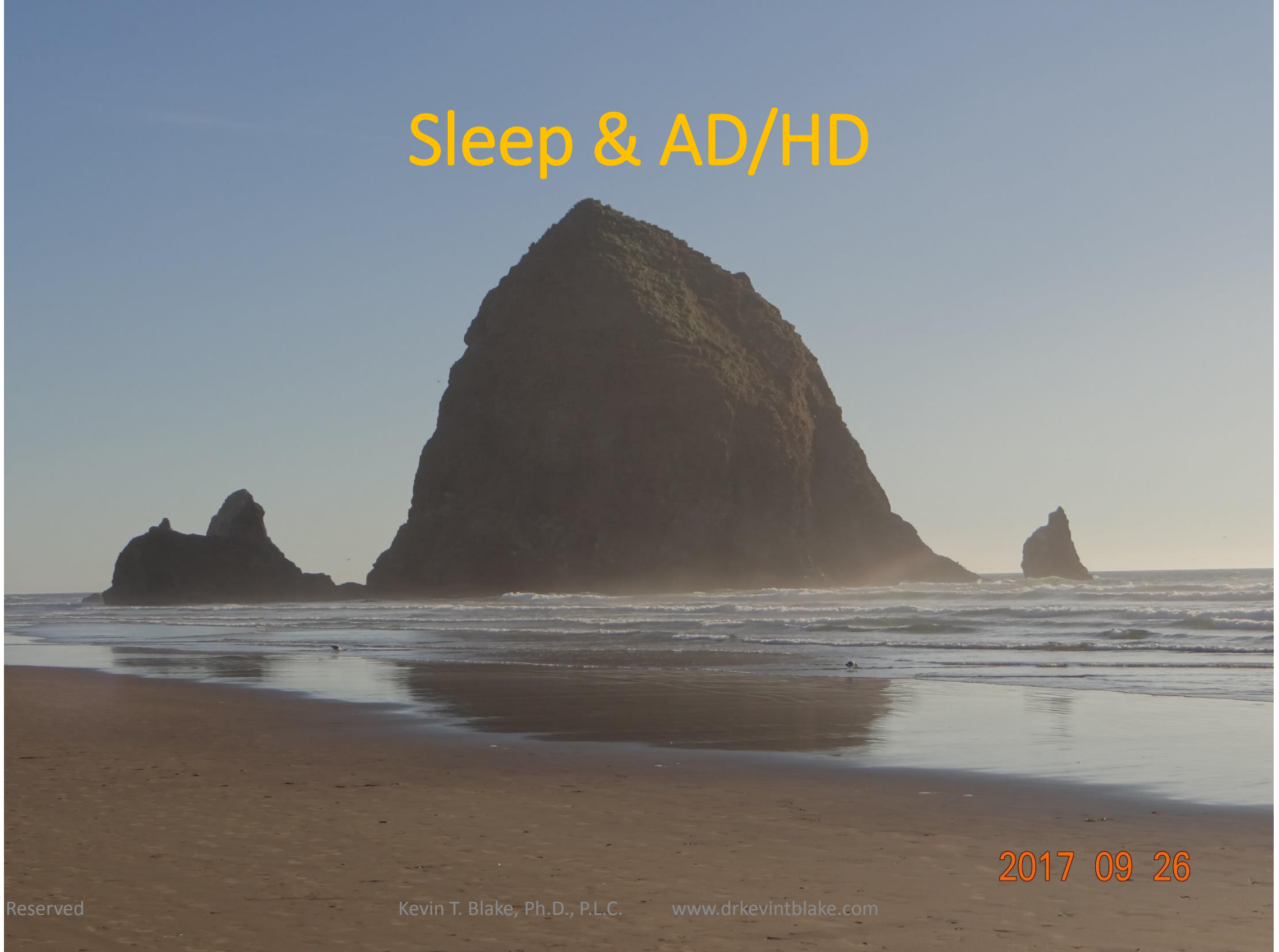
Warning for Health Class Instructors!

- **People with AD/HD may have a *significantly reduced life expectancy* due to an impulsive lack of concern for health related issues, exercise, diet, drugs, etc.**

  --Barkley (1998), (2006)

- **It is useful to spend significantly more time with them emphasizing the importance of good health and developing ways to ensure they follow through with annual check-ups, etc.**

Sleep & AD/HD



AD/HD & Sleep

- **Children with AD/HD:**
  - **Up to 39% sleep walk**
  - **56% have trouble going to sleep**
  - **Have fewer sleep hours than non-AD/HD children**
  - **Have more movement during sleep**
  - **Have more periods of sleepiness during the day**

--Barkley (2006)

- **Stimulant medications can lengthen sleep onset**
- **Sleep problems may exacerbate academic/work problems, but if academic/work problems not caused by Sleep problem, better sleep may not translate to fewer waking problems.**

--Barkley (2012)

AD/HD and Sleep Disorders

A recent study indicated children with AD/HD and comorbid sleep disorders have a significantly lower quality of life and more impairment than those that do not have such disorders. Sleep disorders were seen as common comorbidity that tended to manifest by insomnia, excessive daytime sleepiness, and variable sleep schedule.

--Craig, S.G., et al. (January 16, 2017)

Treatment of AD/HD

"ADHD is currently understood as a neurodevelopmental syndrome with symptoms that are highly heritable and neurobiological in origin. Pharmacotherapy stands alone as the single most efficacious treatment for ADHD for individuals of all ages. Medications, psychostimulants in particular are effective in reducing the core symptoms of inattention, hyperactivity and impulsivity." (p. 3)

--Ramsay (2010)

1. **Diagnosis**
2. **Psychoeducation about AD/HD**
3. **Medication**
4. **Accommodation**

--Barkley (1998), (2006)

Your Tax Dollars at Work

The Multimodal Treatment Study of Children with Attention Deficit Hyperactivity Disorder

--Jensen, et al. (2001)

(MTA Study = Multimodal Treatment Assessment of AD/HD)

1999

The MTA Study

- **Mid-1990s**
- **579 AD/HD, Combined Type Children**
- **Demographics matched the 1990 US Census**
- **Randomly assigned to one of four groups**
- **After assigned to group each child was thoroughly reassessed to make sure they were AD/HD, CT**

The MTA Study

- **Group 1: "Experimental Medication"**
  - **Three medications used**
    - **Methyltphenidate (Ritalin)**
    - **D Amphetamine (Dexedrine)**
    - **Pemoline (Cylert)****
      - **If medication one did not work or there was a side effect, changed to the next medication and so on.**
      - **Each month parent and child was seen by physician. Child checked for response to treatment and side effects. Each month questionnaires given to parents and teachers.**

The MTA Study

- **Group 2: Behavior Modification**
  - **Parents taught how to use token economies at home and daily report cards, teachers taught how to teach AD/HD child, how to use token economies in the classroom, and daily report cards, AD/HD children were sent to special camp for AD/HD kids, parents and teachers given "800" number for consultation 24/7, continued on for 14 months!**

The MTA Study

- **Group 3: "Experimental Medication Plus Behavior Modification Group"**
- **Group 4: "Community Services"**
  - **The parents are told their child has Combined Type AD/HD and they are encouraged to go out to their community and get what services they want for their child…This was the "Control Group."**
    - **Medication, aroma therapy, etc.**

MTA Study

- **Medication Management Treatment Group did best with a 50% decline in symptoms.**
- **Medication with Behavioral Modification Group did no better.**
- **Behavior Modification Group did better than placebo.**
- **Community Treatment had only a 25% decline in symptoms.**
- **Medication helps with social interaction.**

NIMH Research Treatment for Attention Deficit Hyperactivity Disorder (ADHD) (No Date): The Multimodal Treatment

MTA Study

“In that study (MTA Cooperative Group, 1999) psychosocial treatment alone was very poor compared to medication effects and psychosocial treatment with methylphenidate was no better than methylphenidate alone…Medication was found to reduce negative social interactions both by the treated children and by their peers toward the child with ADHD.” (p. 55)

--Semrud-Clickman (2007)

AD/HD Response Rate to Stimulant Titration

"If methylphenidate (sic., Ritalin) is not effective or if there are side effects then the next alternative is dextroamphetamine (sic., Dexedrine)…If the diagnosis has been appropriately made, the response rate is about 80% to 96%."

--Mahoney (2002)

"When the discussion is specifically reserved to symptom relief and impairment reduction for ADHD, this series of articles adds to an impressive body of scientific literature demonstrating that medication treatment, in the case of methylphenidate, is cost efficient and may be all that is needed for good responders." (p. 3)

--Goldstein (December, 2004)

What the Longitudinal Studies & The MTA Study 8 Year Follow-Up Say About AD/HD Treatment

By far the best results come from uninterrupted treatment with medication and behavioral techniques throughout life.

--Swanson, Hinshaw, Hechtman, and Barkley, (November 9, 2011)

AD/HD Persistence in Follow-Up Study of Subjects from the MTA Study

Researchers recently conducted a follow-up study of the children, now adults (average age 25) who were in the MTA AD/HD study in the 1990's. They found those who persisted in their impairing AD/HD symptomatology in adulthood were the ones who had more symptom severity in childhood, more childhood comorbidities, and more parents with mental health issues than did non-persisters.

--Hecthman, R.A., et al. (November, 2016)

German MTA Study of AD/HD

- **The Cologne Adaptive Multimodal Treatment (CAMT) study of AD/HD initially found the same results as the American MTA study and at the 18 month follow-up.**
- **The same was true of the German's 8 year follow up.**

--Dopfner, M. et al (February 2015); Dopfner, M. et al. (July 22, 2017

Long-Term Medication Treatment and Adult AD/HD

Researchers found that adults with AD/HD between the ages of 18 and 54 have structural changes in their cool executive functioning network. It is thought to demonstrate an improvement in this type of executive functioning. This appears to be due to long-term treatment with stimulant medication. Hence, this is another study that demonstrates that stimulant treatment for AD/HD in neuroprotective.

--Moreno-Alcazar, A. et al. (August 30, 2016)

GeneSight for AD/HD, & Mood Disorder

Developed through research at the Mayo and Cleveland Clinics. Swab inside of your cheek for DNA. Sample sent to GeneSight lab. Within 36 hours doctor gets report. Can choose appropriate medication and dose by your genes.

- **www.genesight.com**
- **http://mayoresearch.mayo.edu/center-for-individualized-medicine/drug-gene-testing.asp**

Non-Medical AD/HD Treatments

ADULT AD/HD & TREATMENT

- **Cognitive Behavioral Therapy works with AD/HD adults because they have better developed frontal lobes than children. They still need medication, however.**
- **This means adults with AD/HD can get some good out of social skills training whereas AD/HD children typically do not.**

--Barkley (2006); Ramsay, (2010)

AD/HD Coaching and Professional Organizing

AD/HD Coaching

"Coaching is a supportive, pragmatic, and collaborative process in which the coach and adult with ADHD work together via daily 10-to-15 minute telephone conversations to identify goals and strategies to meet those goals." (p. 590)

--Murphy (1998)

- **Coaching is more directive than counseling/talk therapy.**
- **Coaching can work with AD/HD.**

--Goldstein (November 9, 2017)

Professional Organizers and AD/HD

“Generally speaking a professional organizer differs from a coach by providing on-site, hands-on help with organizing. Typically, the primary focus is on helping a client to organize her environment, rather than teaching her how to remain organized.” (p. 256)

--Nadeau (2002)

Exercise & ADHD

Exercise and AD/HD

- **After 20 minutes of exercise AD/HD children:**
  - **Greater response accuracy**
  - **Better regulation**
  - **Seated longer**
  - **Duration of reading**
  - **Better reading and math**
  - **Better inhibitory control**
  - **Sign. Bigger than controls**

--Pontifex, Saliba, Raine, Picchetti, and Hillman(March, 2013)

- **Have children with ADHD take their toughest classes in the morning after aerobic exercise.**
- **After the more difficult class take fun/easier class.**
- **If they have a choice to cram 20 extra minutes for an exam or exercise 20 minutes, it would be better to exercise.**

Mindfulness Training

Mindfulness Training and AD/HD

“Our study shows preliminary evidence for the effectiveness of mindfulness for children with ADHD and their parents, as rated by parents. However, in the absence of substantial effects on teacher-ratings, we cannot ascertain effects are due to specific treatment procedures.” (p. 139)

--Van der Oord, Bogels, and Peijnenburg (February, 2012)

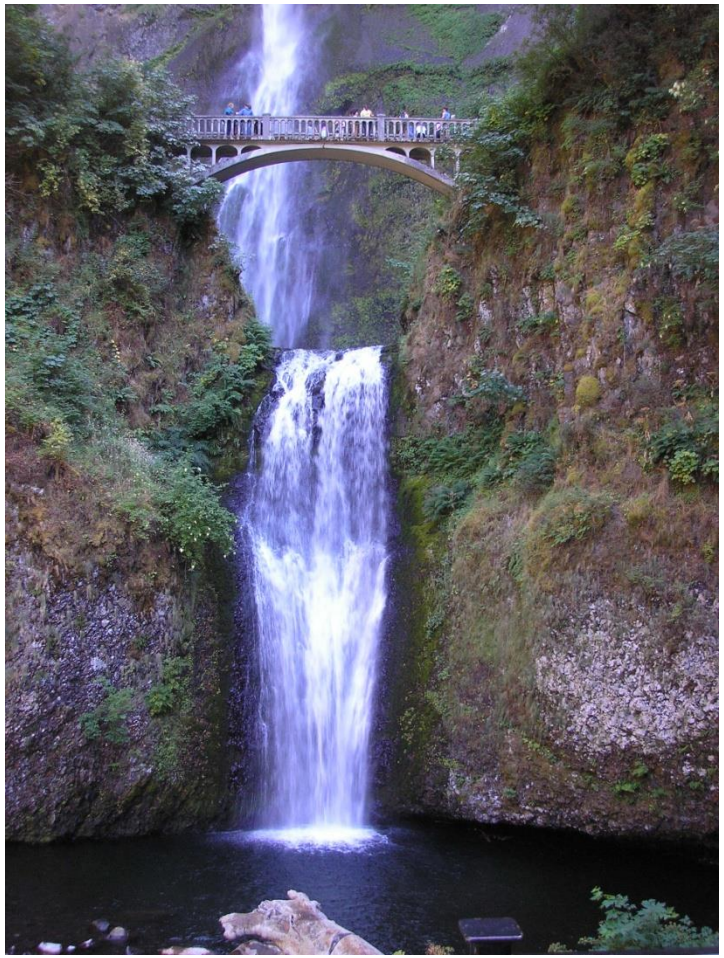
Dogs & AD/HD

Canine Assisted Therapy and AD/HD

Researchers from California created a 12 week cognitive behavioral intervention to AD/HD children with and without canine assisted therapy. The children were randomly assigned to groups and their parents simultaneously attended weekly parenting groups. Both groups saw a significant decline in the AD/HD symptomatology, but the group that also received canine assisted therapy saw a more significant decline in symptom severity than that control group.

--Schuck, SE et al. (February 19, 2015)

Classroom Management For Adolescents With AD/HD



What Works Clearinghouse

- **The U.S. Department of Education, through the Institute of Education Sciences has created the *What Works Clearinghouse* to provide the latest research to classroom teachers with what works with all kind of kids in the classroom.**
- **http://ies.ed.gov/ncee/wwc/**

AD/HD

Stimulants in the Classroom

"In general, classroom behavior is significantly improved as is work productivity, although there is less of an impact on academic accuracy…which is usually not as problematic for children with ADHD as is productivity."

--Barkley (February 22, 2013)

Teacher Behavior

"The major implications of this research is that the behavior of the students with BD (Behavior Disorders, sic.) in general education settings is more dependent on setting factors and teacher practices than is the behavior of students without BD." (p. 236)

--Bevda, Zentall, and Ferko, (2002).

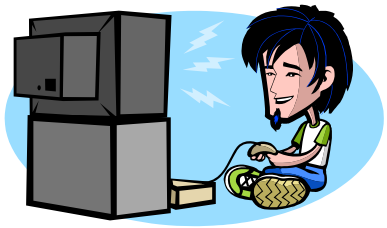
Barkley's Rules for Classroom Management

Barkley's 80%- 20% Rule

- **Using Barkley's theory of AD/HD and his theory of executive functioning he concludes that AD/HD, "…has disconnected the knowing from the doing brain."**
- **Thus, he says 80% of the effort to manage a person's behavior with AD/HD must be done with environmental modifications (token economies, timers, etc.) The remaining 20% of the management effort goes into training of skills.**

--Barkley, R.A. (November 12, 2010),(in press), (2011)

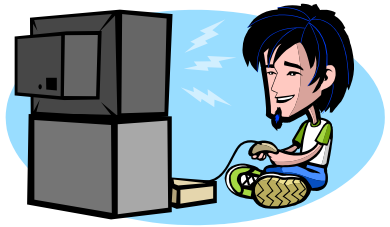
Students Over Age 13



- **Use written behavioral contracting**
  - **If you do this, I will do this…**
- **Work out a correction signal.**
  - **“If I drop a pencil in front of you it a signal to you to shape up.” One chance.**
- **Get them an in school coach to work with every day.**
- **Extra set of books at home.**

Students Over the Age of 13

- **Daily report cards**
- **Give copy of PowerPoint/notes and audio-recorded lectures**
- **Give parents syllabus**
- **Use study-buddies**
- **Bucks-for-Bs**
- **Teach them about their disorder and how to self-advocate**



--Barkley, R.A. (February 22, 2013)

Case Study #2

CASE STUDY #2

Adolfo

- **16 year old male Puerto Rican American (grade 10) (Third generation)**
- **Diagnosed with AD/HD age 6; placed on Concerta at time**
- **Has 504 plan.: time & ½ on exams and in class assignments + behavioral contracting**
- **On academic probation**
- **Potential 5 star football recruit and track star, but cannot compete due to grades**
- **Started smoking marijuana, so he can sleep**
- **Was in the 4th Street Gang until age 14 when parents moved to new neighborhood**

CASE STUDY #2

- **Says he is not engaged in gang activity**
- **Has steady girlfriend – sexually active**
- **Active in church youth group and sings in choir**
- **Is the youngest child of four; two older sisters, one older brother (22) in prison for gang activity**
- **Parents happily married**
- **Father is a welder and has steady employment**
- **Mother works in home and does work out of home as a part-time tailor**
- **Paternal grandmother lives in home and has dementia**

Specific Learning Disorder - Dyslexia

What Does "Neurobiological" Mean?

- **Stephen Pinker – "The Blank Slate: The Modern Denial of Human Nature" or better stated, "The Lie of the Blank Slate."**

  --Pinker, S. (2002)

- **"Although learning disabilities (specific learning disorder, sic.) may be exacerbated by other variables, such as ineffective teaching strategies or socioeconomic barriers, this paper supports the position that the essence of learning disabilities is neurobiological in nature." (p. 61)**

  --Fiedorowicz, C., et.al. (2001)

What Does "Neurobiological" Mean?

"Of particular relevance to this review is the compelling evidence in support of the neurobiological basis of learning disabilities. Studies employing widely divergent methodologies, e.g. research using genetic analysis, neuroanatomical neuroimaging, electrophysiological recording, pathological analysis of brain tissue at autopsy, and neuropsychological evaluation have yielded highly convergent conclusions in support of a neurobiological etiology." (p. 70)

--Fiedorowicz, C., et.al. (2001)

Specific Learning Disorder with Impairment in Reading/"Dyslexia" is *NOT* new!

- **Sally Shaywitz (2003) Reported that Rudolf Berlin a physician from Stuttgart, Germany wrote of "dyslexia" in 1887.**

Shaywitz, S. (2003)

- **70% of Dyslexia is genetic**
- **If you have an anomaly on the DCDC2 gene you are 19 times more likely to be dyslexic**
- **If you have an anomaly on the FOXP2 gene you are twice as likely to be dyslexic**

Wilcke (November 14, 2014)

Differences in the Dyslexic Brain

Differences in the Dyslexic Brain

Duane (1993); Riccio, and Hynd (1996); Fiedorowicz, et. al. (2001); Richardson (1994); Filipek, et.al. (1999); Livingstone (1999) Fawcett, and Nicolson (2001); Quinghua, et al. (July 31, 2013); Evans, eta al (April 13, 2013)

- **An irregularity in the cellular architecture of the posterior planum temporale region of Wernike's area in the left temporal lobe**
- **They have ectopias and dysplasias in far greater numbers**
- **2/3rds of normals have asymmetry of planum temporale (Lt> Rt)$_3$**
- **Dyslexics' planum temporale are symmetrical**
- **Increased posterior symmetry$_4$**
- **Dyslexics with severe language delay have reversed parietal-occipital asymmetry – RT planum > LT**
- **Dyslexics tend to have a larger right hemisphere than left in adulthood**
- **"…several studies on low-level visual processing have found that people with dyslexia show visual abnormalities that implicate a deficit in the transient (magnocellular) subdivision of the visual pathway" (p. 81)**
- **…differences in cell size and cell-size distribution in posterior and anterior cerebellar cortex, and inferior olive with no differences in the output areas (the dentate nucleus)"(p. 98-99)**
- **Dyslexic female brains differ from Dyslexic male brains**

SLD: Dyslexia and The Cerebellum

- ***80% of dyslexics show signs of cerebellar problems!***
- **Automaticity is the problem!**
- **When multitasking and rapid processing are needed**
- **Thinking is a frontal lobe function**
- **It is a problem of fluency**
- **"…fluency is in essence the ability to repeat previous actions or thoughts more and more quickly without conscious thought." (p. 101)**

--Fawcett, and Nicolson (2001); Fawcett (August 11, 2010)

SLD: Dyslexia and The Cerebellum

Nicolson Said Bottom Line:

"…That means if you have a task that takes 4 hours for the non-dyslexic kid to learn, it will take twice as long for the dyslexic kid; 8 hours. But, its not linear. You have a task which takes 100 hours it will take 10 times as long..."

Nicolson, and Fawcett (November, 2000)

"…If you have a task that takes 10,000 hours it will take 100 times as long, and so on. Therefore if you have something like reading, writing and spelling which takes 100s of hours that's the sort of thing in which dyslexic children are particularly adversely affected."

SLD: Dyslexia and Procedural Training

- The ***Square Root Rule:***

  "The extra time needed for a dyslexic child to master a task is proportional to the square root of the time a non-dyslexic child takes."

  --Fawcett (November 5, 2004)

SLD: Dyslexia and Automaticity

- **DAD: Dyslexia Automaticity Deficit**
- **Dyslexics get tired more quickly when learning and/or performing a new skill than the norm.**
- **CC: "This states that, despite their more limited automaticity of skill, dyslexic children are able to perform at apparently normal levels most of the time by 'consciously compensating,' that is consciously concentrating (controlled processing) on performance that would normally be automatic." (pp. 68-69)**

--Nicolson and Fawcett (2008)

- **Dyslexics are slower at unlearning than non-dyslexics.**

--Nicolson and Fawcett (November 14, 2014)

Dyslexia, Automaticity, & Sleep

Automaticity, Sleep, & Dyslexia

- **Approximately 50% of dyslexics have failures of overnight sleep procedural memory consolidation of a simple motor skill.**

  --Nicolson, Fawcett, Brookes, and Needle (August, 2010)

- **Bruni and colleagues discovered dyslexics have irregular EEGs during non-REM sleep that appear to be related to their disability. The hippocampus is involved in this difference.**

  --Bruni et al. (2009)

Your Tax Dollars at Work

RESEARCH PROGRAM IN READING DEVELOPMENT, READING DISORDERS, AND READING INSTRUCTION

Initiated 1965

Fletcher, J.M., Lyon, G.R., Fuchs, L.S. and Barnes, M.A. (2007). Learning Disabilities: From Identification to Intervention. New York, NY: Guilford.

Your Tax Dollars At Work

- **Run by the National Institute of Child Health and Development (NICHD)**
- **Which is part of the National Institute of Health (NIH)**
- **Study began in 1965 and continues today!**
- **As of 1999 over *$150,000,000.00* has been spent!**
- **Study now budgeted for *$15,000,00.00* per year!**

Your Tax Dollars At Work

- **Conducted at 42 sites in the U.S. and Europe**
- **Follow-up studies for over 14 years**
- **Much of the neurological research in this presentation comes from this study.**
- **China, England, Israel, Russia, Sweden and Turkey have conducted similar studies…**

--Lyon, G.R. (1999)

Your Tax Dollars At Work

- **30,000 scientific works from NICHD research**
- **44,000 studied, 5 years old and up; with 5 year follow-ups**

--Lyon (Thursday, February 27, 2003)

Your Tax Dollars At Work

- 30,000 scientific works from NICHD research
- 44,000 studied, 5 years old and up; with 5 year follow-ups
- 8,000 children have been in the study as of 2004. The follow-up study is now 21 years.
- 3,800 in new adult study
- "2 to 6% of the population are the 'Hard Core' Dyslexics that will not improve with 'Good Instruction'. They have the full dyslexic neurology and need multi-sensory approaches."

--Lyon, G.R. (March 19, 2004).

Your Tax Dollars At Work

- **7% of the population will meet criteria for Major Depressive Disorder in any year**
- **Persistent Depressive Disorder (Dysthymia) is 0.05.**
- **3 to 13% Social Anxiety Disorder (Social Phobia) is 7%**
- **0.9% in teens & 2.9% in adults Generalized Anxiety Disorder**
- **Bipolar Disorder 0.6%**

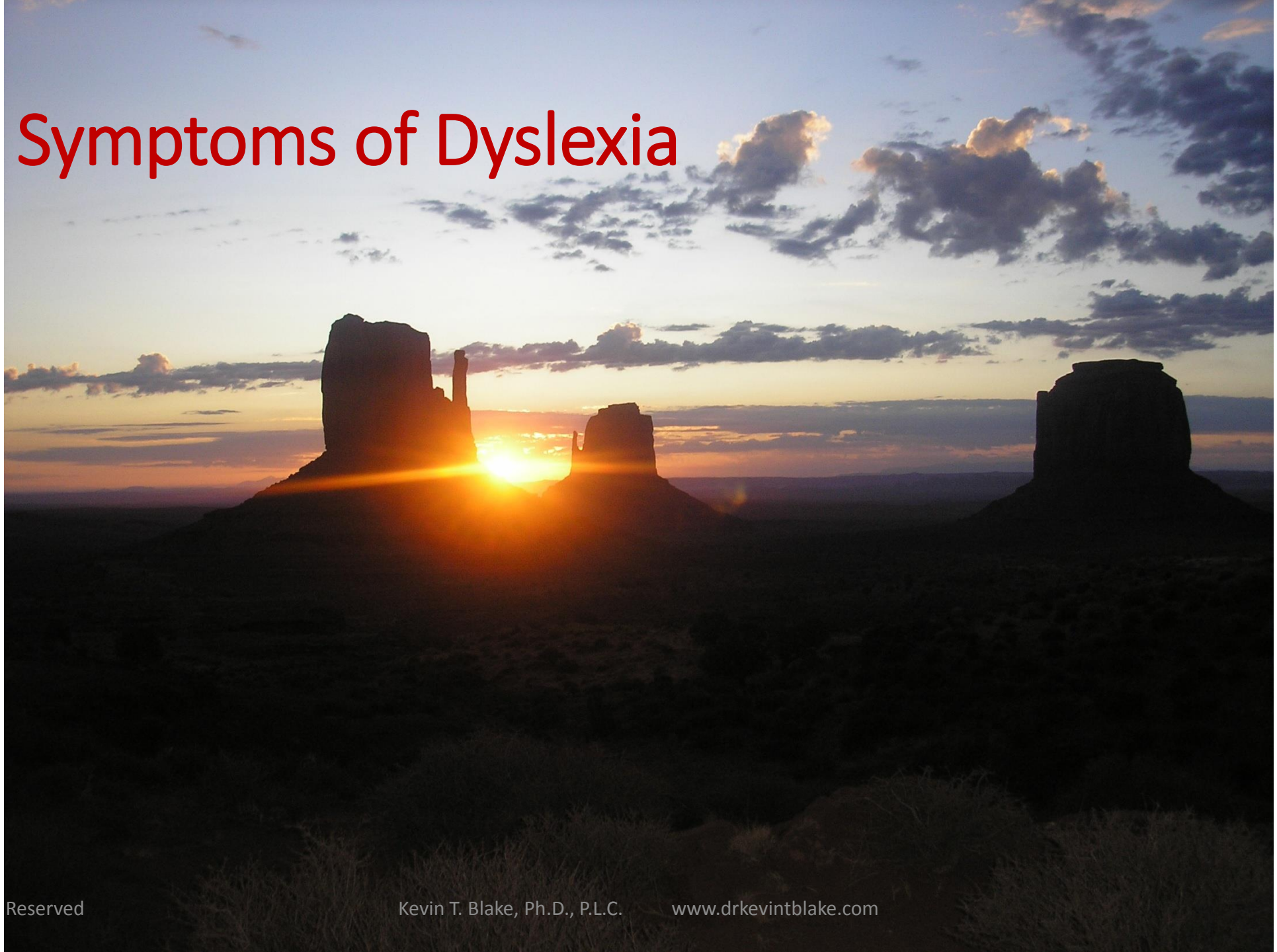
--Author (2013)

Reading Disorder-Dyslexia

"The idea that learning to read is just like learning to speak is accepted by no responsible linguist, psychologist, or cognitive scientist in the research community." (pp. 285-286)

--Stanovich (1994)

Symptoms of Dyslexia



SLD-Dyslexia

The Symptoms of Dyslexia are:

1. Weak Phonemic Awareness

2. Slow, Rapid Automatized Naming (WM deficit: Fluency)

3. Poor Orthographic Processing

4. Exceptionally Poor Automatization

5. Poor Coordination

--**Fawcett (2001); Blake (2003); Berg (November 12, 2014)**

- **Some Dyslexics had all the symptoms.**
- **Some only had one.**
- **Four had none of the aforementioned deficits.**

--Reid (November 11, 2006)

Definition Of Dyslexia

“Dyslexia is a specific learning disability that is neurological in origin. It is characterized by difficulties with accurate and/or fluent word recognition as well as by poor spelling and decoding abilities. These difficulties typically result from a deficit in the phonological component of language that is often unexpected in relation to other cognitive abilities and the lack of provision of effective classroom instruction. Secondary consequences may include…

Definition Of Dyslexia

…problems in reading comprehension and reduced reading experience that can impede growth of vocabulary and background knowledge."

Adopted by the National Institutes of Health (NIH) and the International Dyslexia Association (IDA) 2002

--International Dyslexia Association (April 20, 2005)

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Aoccrdnig to rscheearch at Cmabrigde Uinervisy, it deosn't mttaer in waht oredr the ltteers in a wrod are, the olny iprmoatnt tihng is taht the frist and lsat ltteer be in the rghit pclae. The rset can be a taotl mses and you can sitll raed it wouthit a porbelm.

--Davis (2003); Rawlinson (1999)

The “Dyslexia bd pq Phenomenon”

“When children learn to read they must “unlearn” mirror generalization in order to process ‘b’ and ‘d’ as distinct letters. In some children, this unlearning process, which goes against the spontaneous abilities inherited from evolution, seems to present a specific source of impairment.” (p. 253)

“Mirror writing occurs in all cultures, including China and Japan. It appears for a short period of time at the age when children first begin to write, and then it promptly vanishes. Unless this phenomenon extends beyond the ages of eight to ten, there is no cause for alarm. At this age, mirror errors are indeed more frequent in dyslexic children, though they can disappear later.” (p. 265)

--Dehaene (2009)

"LEXDEXIA"

"reversals" (seeing "was" as "saw") and "rotations" ("b" as "p"; "p" as "d", etc.) occur in most children up through fourth grade. This is typical in the development of visual orthographic memory.

- The brain automatically learns what something looks like in mirror image (this is an instinct).
- Only about 7% of adult dyslexics have this concern.
- Dyslexics are slower at unlearning than non-dyslexics.

❖ Dyslexia is <u>not</u> seeing the word "WAS" as "SAW".

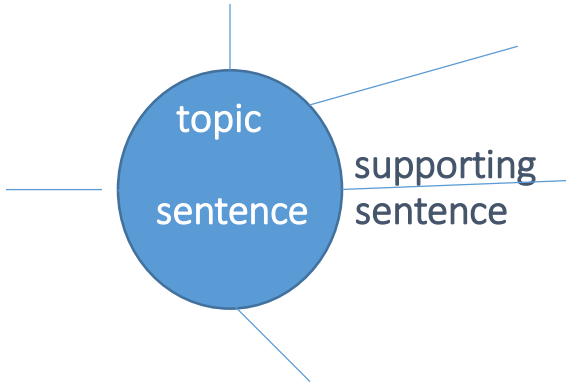
--Anderson (January 23, 2006); Dehaene (2009); Badian (2005); Nicolson and Fawcett (November 14, 2014)

Dyslexia and EF

- **People with dyslexia have weaknesses in the central executive and phonological loop.**
- **The visual-spatial sketchpad controls orthographic processing**
- **Spelling involves phonological loop, visual-spatial sketchpad and central executive- All weaknesses in dyslexics**
- **Dyslexics-STM & WM problems**
- **Can predict if Dyslexic by WM scores**
- **WM predicts reading fluency and comprehension**
- **WM independent of IQ, as is Dyslexia**

--Berg (November 12, 2014)

EF Treatments for Dyslexia



- Develop automatic decoding of letters
- Teach using guided response interactions
- Use an explicit, systematic, and strategically focused teaching model

--Berg (November 12, 2014)

- Teach how to read with graphic organizers and rules for highlighting to chunk information
- Teach logic and visualization strategies to reduce burden on WM and to compensate for rote memory weaknesses

Multisensory Teaching Techniques

- Orton-Gillingham Approach
- Alphabetic Phonics
- Association Method
- Language!
- Lexia-Herman Method
- Lindamood-Bell

International Dyslexia Association (2005)

- Project Read
- Slingerland
- Sonday System
- Sounds in Symbols
- Spalding Method
- Starting Over
- Wilson Foundations & Wilson Reading

Technology for Dyslexia

- **Intel Reader:** www.intel.com/pressroom/kits/healthcare/reader/
- **Kreader Mobile:** http://www.knfbreader.com/index.php
- **Kurzwiel 1000:** www.kurzweiledu.com/kurzweil-1000-v13-windows.html
- **Dragon NaturallySpeaking:** www.nuance.com/dragon/index.htm
- **Ginger:** www.gingersoftware.com
- **WizcomTech Reading Pen 2TS:** http://www.wizcomtech.com/eng/catalog/a/rp/
- **Franklin Spelling Ace:** www.franklin.com
- **LearningAlly:** www.learningally.org

Teaching Resources

What Works Clearinghouse

http://www.w-w-c.org

Established by the U.S. Department of Education to provide, "…a central, independent and trusted source of scientific evidence of what works in education."

www.ed.gov/rchstat/research/pubs/rigorousevid/guide_pg9.html

The Promising Practices Network

http://www.promisingpractices.net

Highlights programs and practices that scientific research indicates works with children, adolescents and families.

www.ed.gov/rchstat/research/pubs/rigorousevid/guide_pg9.html

Teaching Resources
Campbell Collaboration

http://www.campbellcollaboration.org/frallbrary.html

- **"…Registry of systematic reviews of evidence on the effects of interventions in the social, behavioral, and educational arenas."**

www.ed.gov/rchstat/research/pubs/rigorousevid/guide_pg9.html

Focus of Treatment for LD and AD/HD

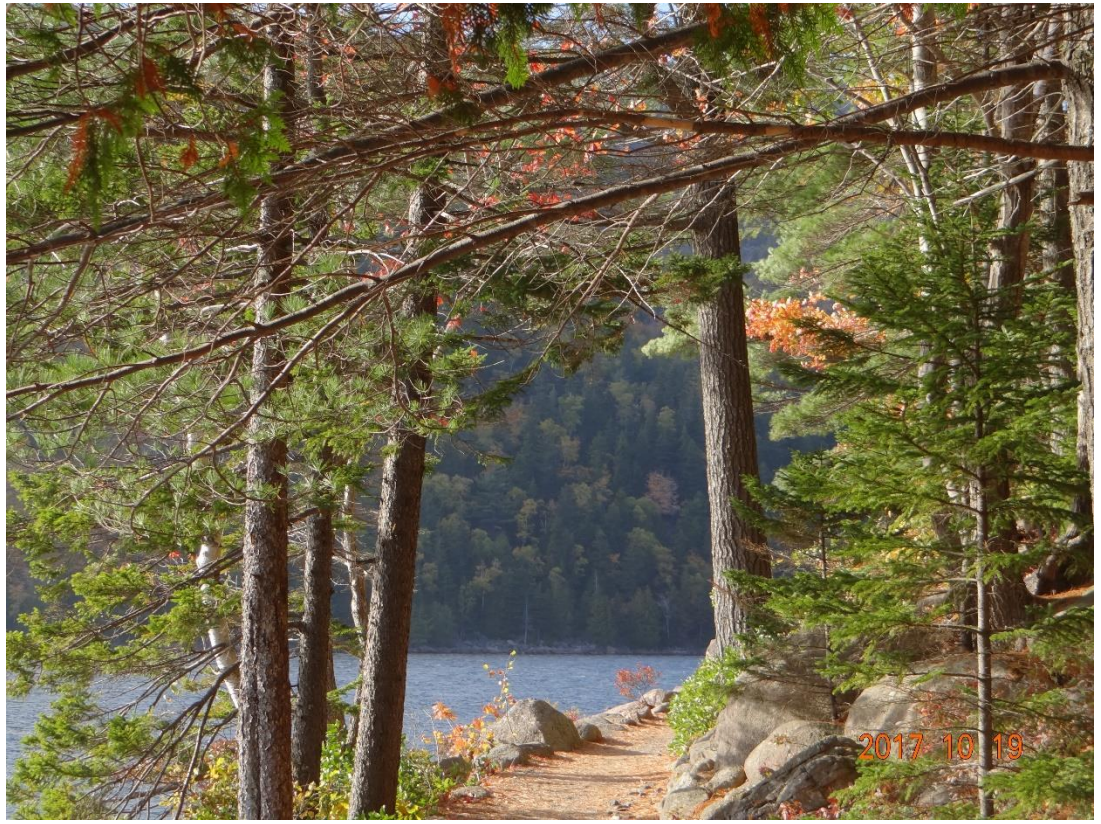
- **Prolonged Grief**
- **Interpersonal Role Disputes**
- **Role Transitions**
- **Developing Necessary Interpersonal Skills**
- **Family Issues**

--Goldstein, S. (1998)

LD Life Insight

- **"The school system never felt compelled to educate me on how having a LD would impact my life"-Garett Day**

--McGrady, H., Lerner, J., and Boscardin, M.L. (2001)



LD Life Insight

“One final ongoing issue that is worthy of mention for many with LD/ADHD is the problem of fatigue. The extra effort to cope with the continued social and academic demands of schooling can be chronically exhausting” (p. 217).

--Roffman, A. (2000)

Psychotherapy and LD

Psychotherapy and LD

- **Why most LD adults seek therapy**

➢**–Stress and anxiety coping with life issues affected by the disability**

➢**–Low self-esteem**

➢**–Unresolved grief**

➢**–Sense of helplessness**

--Barton, R.S., and Fuhrmann, B.S. (1994)

Psychotherapy for LD

Growth for LD Clients Relies On:

- **A strong therapeutic relationship and bond;**
- **The therapist helping the client to understand their disability as well as his/her cognitive processing style(strengths and weaknesses); and**
- **Interventions that fit the social, emotional and cognitive needs of the client.**

--Barton, R.S., and Fuhrmann, B.S. (1994)

Psychotherapy and LD

Secondary features of Dyslexia

- **Problems remembering facts, figures, sequences, names, and with working memory**
- **Problems with organization**
- **Problems with following conversation**

--McLoughlin, D., Fitzgibbon, G., and Young, V. (1994)

Psychotherapy and LD

- **Those with learning disabilities may have more difficulty with everyday adult living than they did when they were in school.**
- **They may not be able to make a good living, have a social life, run a family, etc.**

--Wren, C., and Einhorn, J. (2000)

Psychotherapy and LD

“Many adults with dyslexic difficulties develop coping and compensatory strategies and usually can become quite adept at disguising the presence of dyslexia. Due to this many remain unfulfilled, often underestimating their abilities, perhaps working in an occupation that does not use their real abilities or even declining promotion for fear that their dyslexic difficulties are exposed” (p. 292).

--Kirk, J., McLoughlin, D., and Reid, G. (2001)

Psychotherapy and LD

"As psychotherapists working with persons with learning disabilities, we are presented with the results of the damage due to misunderstanding and mistreatment, and we have to help our clients heal from that damage. Helping our clients to understand what their learning disabilities are, how they have been affected by them, how their strengths and …weaknesses have helped or hindered them in school, and how they help or hinder them in life beyond school—these tasks are at the heart of psychotherapy with persons with learning disabilities" (p. 187).

--Einhorn, J. (2000)

Psychotherapy and LD

Some LD People:

- **Are not aware of there disability and do not know how to compensate for it;**
- **Are aware of their disability and do not know how to compensate for it;**
- **Are aware of their disability and unconsciously compensate for it;**
- **Are aware of their disability and consciously develop compensation strategies.**

--McLoughlin, D., Fitzgibbon, G., and Young, V. (1994)

Psychotherapy and LD

Often the Dyslexics biggest fear is being "found out"–That others will learn they cannot read…

They fear change because they fear they will not be able to compensate…

They are frustrated with their literacy difficulties and social problems…

--McLoughlin, D., Fitzgibbon, G., and Young, V. (1994)

Psychotherapy and LD

“It has been well documented in the childhood literature that psychotherapy for symptoms of ADHD and LD is ineffective in changing the core problems of these disorders. However, clinicians are also well aware that the comorbid, or accompanying, problems that the adult ADHD and LD populations experience are similar to the problems other adults experience and will likely respond to general therapeutic approaches”.

--Goldstein, S. (1997)

Psychotherapy and LD

“Further, while there may be some benefit to short-term information-focused counseling when an adult is initially diagnosed with ADHD or LD, there is no data to suggest that long-term counseling concentrating on the symptoms of these disorders is particularly helpful” (p. 264).

--Goldstein, S. (1997)

Counseling Rules of Thumb

Counseling Rules of Thumb

- ***NEVER*** **use bibliotherapy, even with "high functioning" dyslexics. A "little book" that may take you 2 hours to read may take them 20 and they may have low comprehension.**
- **Time is the LD adult's most valuable commodity.**
- **Leisure or fun reading are oxymorons for dyslexics.**
- **Remember most mental health professionals are "eulexics". Dyslexics by definition are not!**
- **Options-Reading Ally, Audible, videos, audio recodings, read to your client, etc.**

Counseling Rules of Thumb

NEVER **have your dyslexic client journal. You have asked them to take a massive spelling and written expression test that is horridly time consuming. Many dyslexics have comorbid Developmental Coordination Disorder-Dysgraphia and/or Disorder of Written Expression.**

Options–do an audio taped journal, allow word processing, allow them to dictate to another person, voice activated word processors

(Note: Computers don't work for everyone!)

Counseling Rules of Thumb

- **Help client complete intake forms, insurance forms, checks, etc.**
- **Give them information about support groups and helpful organizations.**
- **Don't brush over their, "…little reading problem".**
  - **Their disabilities have been discounted for years by significant people in their lives.**
  - **Don't say things like, "Oh, I don't like to read either. I must be dyslexic too".**
- **Ask if they have diagnostic evaluations of their disabilities. Ask for authorization to get copies of reports and speak to evaluators. Follow through with this if you ask for these.**

Counseling Rules of Thumb

- **Do you read the newspaper?**
- **If not how do you get your news?**
- **Do you eat in ethnic restaurants?**
- **What do you say when someone asks you, “what do you like to read?”**
- **When someone asks you such a question how do you feel?**

Counseling Rules of Thumb

- **How do you feel when someone gives you a book as a gift.**
- **What do you say when they ask you later about what happened in the book?**
- **Are you afraid of making mistakes when completing "official forms" (i.e. school forms, job applications, etc.).**

Counseling Rules of Thumb

- **Does it take you longer to get familiar with changes at school/work.**
- **Have you not taken a "special" job at school, or job promotion because you fear you could not do it?**
- **Can you read a map?**
- **Do you get lost often?**
- **If so, how do you get found?**
- **What do you do when you are asked to read aloud?**

Counseling Rules of Thumb

- **Who reads to you?**
- **Do you avoid traveling because of your reading concerns?**
- **How do you know it is safe to tell others of your reading problems?**
- **How do you know it is safe to tell an teacher/employer about your reading problem?**

Counseling Rules of Thumb

- **How are you manifesting your learning difficulties in this therapy session?**
- **How will you understand and remember what goes on in therapy?**
- **Tell me the name of your disability, how you manifest it and what kinds of academic and work accommodations you need.**
- **How do you cover your dyslexia?**

Counseling Rules of Thumb

- **How do you compensate?**
- **What technology do you use to compensate?**
- **Do you want to learn more about your disability and hoe to make life with it easier?**
- **Do you have difficulty expressing yourself emotionally?**
- **Do you have problems recalling names?**
- **Can you ride a bike, dance? How were/are you at sports?**
- **Does it take you longer to learn than your peers?**

Counseling Rules of Thumb

- **Do you have problems following conversations?**
- **Do you have problems understanding facial expressions, body language, and/or gestures?**
- **Do you have problems dating, flirting, maintaining relationships, marriage, etc.**
- **Do you have problems parenting**
- **Other questions?**

Case Study #3

Case Study #3

Mesa

- **15 year old African American female (9th grade)**
- **Was born in Slapout, OK**
- **Family moved to NYC when she was 10 due to father's work**
- **IQ test indicates she is in the very superior range**
- **Three weeks ago she was diagnosed as Dyslexic**
- **She was reading on the 3rd grade level**
- **Says she cannot keep up in class**
- **Very low self-esteem**
- **Keeps to herself and says she fears being "found out"**

Case Study #3

- Says she has no friends; never dates
- Major Depression?
- Fears what her Dyslexia diagnosis means for her future and does not understand it
- Has great difficulty remembering your name
- Appears tired in your office
- Describes herself as a “spaz”; cannot ride a bike, clumsy, had trouble learning to tie shoes
- Father is a machine tool operator
- Says he cannot read
- Mother is a nurse’s assistant and veracious reader
- No Siblings

Developmental Prosopagnosia

Developmental Prosopagnosia Defined

- **"Developmental prosopagnosia is defined by severe face recognition difficulties due to the failure to develop visual mechanisms for pace processing."**
- **There are two parts to developmental prosopagnosia:**
  1. **Failure of the innate face detection neuro-mechanism to develop**
  2. **Failure of the facial I.D. neuro-system to develop**

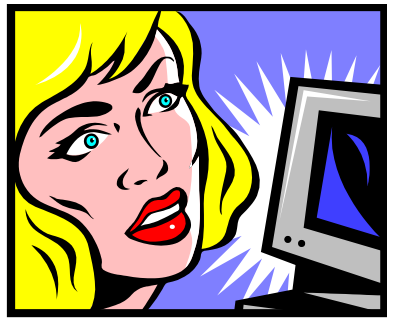
--Dalrymple, K.A., et al. (2015).

Subtypes of Prosopagnosia

- **Acquired Prosopagnosia: Caused by insult to the brain; what Bodamer wrote about in 1947.**
- **Developmental Prosopagnosia: "…characterized by severely impaired face recognition. Individuals with this disorder, which runs in families, have no history of brain damage and intact early visual systems" (p. 166).**

--Grueter, T. (August/September, 2007); Duchaine, B.C., and Nakayama, K. (2006)

Prosopagnosia of Facial Expressions



“Face perception can be subdivided into two general types – recognition of person identity via the structures of the face, and recognition of internal affective state on the shape of individual features and changes in their relative distance from one another during the expression” (p. 128).

--Schultz, R.T. (2005)

Subtypes of Prosopagnosia

Possible Associated Conditions:

- **Problems with recognition of facial expression of emotion**
- **Problems with gender of face discrimination**
- **Problems with age of face discrimination**
- **Problems with TOPOGRAPHAGNOSIA: difficulty with personal navigation; getting lost easily**
- **Autism Spectrum Disorder**

--Galaburda, A.M. and Duchaine, B.C. (2003)

Prosopagnosia

Remembering Faces:

- **This is an important ability for survival.**
  - **It lets you know "friends and foes".**
  - **It helps you maintain relationships.**
  - **It helps you remember the social status of others.**

--Ratey, J.J. (2001)

Developmental Prosopagnosia

- Affects 2 to 3 percent of the population
- That equates to 6,000,000 Americans!
- Those affected often know something is wrong, but they don't know exactly what.

--Grueter, T. (August/September, 2007)

Symptoms of Prosopagnosia

- **Extreme difficultly recognizing faces. Even with a person who is well known by the sufferer (i.e., a parent, spouse, best friend, etc.).**
- **Appears aloof/arrogant, does not respond to people they "know" when they see them.**
- **Often complain they cannot follow movies or TV shows because they cannot remember the identity of characters.**
- **They tend to recognize people by hair, gait, clothing, voice, context, or other information.**

--Author (August 14, 2007)

Additional Symptoms of Prosopagnosia Found in Children

- It may take months to recognize their classmates.
- School transition may be a problem.
- Extreme separation anxiety and stranger wariness
- Changes in people's appearance (i.e., new glasses, new hair style, etc.) may be a problem.
- Feelings of frustration, isolation and embarrassment

--Grueter, T. (August/September, 2007)

Development of Facial Recognition

- **The face processing system continues to develop through adolescence and until about age 30.**

-Bate, S. (2013)

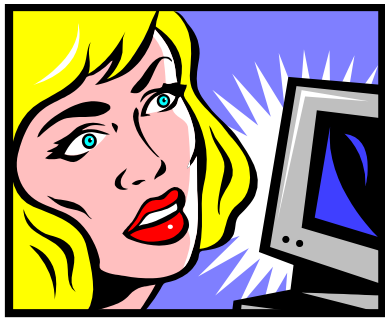
"…investigations suggest that adult-like face recognition performance is in fact reached by five years age, but lower levels of attention, concentration and memory, and a greater susceptibility to demand characteristics, explain why children perform at a poorer level in face recognition experiments" (Bate, 2013, p. 121).

Developmental Prosopagnosia

- **"The hereditary type of prosopagnosia has an autosomal dominant type of inheritance. This means that men and women are affected in equal numbers. In our experience women are more willing to talk about their face recognition problems, though" (Thomas Grueter, M.D.).**
- **If one parent has Prosopagnosia their child has a 50% chance of having it.**

--Grueter, T. (August 14, 2007); Grueter, T. (August/September, 2007); Kennerknerht, I., Grueter, T., Wellinh, B, Wentzek, S, Horst, J., Edwards, S. and Gueter, M. (June, 2006)

Whose at Risk for Prosopagnosia?



Those with Learning Disorders,

AD/HD, Nonverbal Learning

Disorders and Autism Spectrum Disorder

--Roffman, A.J. (2000); Liddell, G.A. and Rasmussen, C. (August, 2005); Attwood, T. (2007); Schultz, R.T. (2005)

Face Processing Assessments

- Benton Facial Matching Test (BFRT)
- Cambridge Face Perception Test (CFPT)
- Glascow Face Matching Test (GFMT)
- Cambridge Face Memory Test (CFMT)

-Bate, S. (2013)

- ***Simon Baron-Cohen's Tests:***
- Faces Test
- Eyes Test (Adult)
- Eyes Test (Child)
- Cambridge Mindreading (CAM) Face-Voice Battery
- Empathy Quotient (EQ) (Adult)
- Empathy/Systemizing (EQ-SQ) (Child)
- And many others…
- Downloadable from: www.autismresearchcentre.com/tests/default.asp

FACE READING ASSESSMENT

Diagnostic Analysis of Nonverbal Behavior 2 (DANVA2)

- Adult faces and voices
- Child faces and voices
- African American faces and voices
- Postures

Available from: Steven Nowicki, Ph.D., Emory University – www.snowik@emory.edu

Comprehensive Affect Testing System (CATS)

"This ensemble of tests enables clinical psychologists, neuropsychologists, neurologists, educators, speech therapists and other related disciplines to assess dysfunctional processing of affect expressed by the human face and voice" (p. 1 of 4).

--Froming, K., Levy, M. and Ekman, P. (2003).

Recognizing Emotional Facial Expressions

Emotional Facial Expression Recognition:

- **"Does this mean we come into the world expecting to see human faces and ready to respond with our own prewired facial expressions? Yes!" (Ratey, 2001, p. 300).**

--Ratey, J. J. (2001)

Universal Facial Expressions and Display Rules

"Ekman and colleagues proposed the existence of six basic emotional expressions that are common to all cultures: anger, disgust, fear, happiness, sadness and surprise…Further work suggests that although these expressions might be universal, we interpret the expressions displayed by individuals in our in-group more accurately than those…This effect may be explained by non-verbal accents, which are subtle differences in the expression of emotions between groups" (p. 45-46).

Bate, S. (2013). Face Recognition & Its Disorders. New York, NY: Palgrave Macmillan.

Treatment of Prosopagnosia

- "Prosopagnosics cannot be cured, but they can and do learn ways to recognize people" (p. 70).

Grueter, T. (August/September, 2007). Forgetting Faces. Scientific American: Mind, 18 (4), 68-73.

Decoding Skill and Facial Expression

- **Positive emotions are the easiest to decode.**
- **Negative emotions are the most difficult**
- **Poor interpreters of facial expression have less social acceptance and poorer adjustment.**

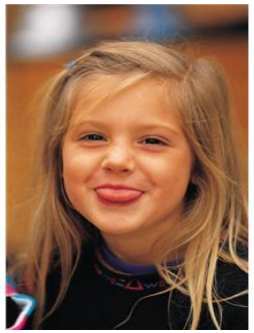
--Semrud-Clikeman, M. (Spring, 2003); Semrud-Clickman, M. (2007)

AD/HD and Facial Expressions

Research indicates there may be altered neurological functioning of identifying affect anger and fear recognition in those with AD/HD that appear to be reduced by methylphenidate (Ritalin). Those with ADHD had left amygdala overactivation when viewing neutral faces.

Brotman, M.A., Guyer, A.E., Lunsford, J.R., Horsey, S.E., Reising, M.M….Leibenluft, E. (2010).

AD/HD and Making Facial Expressions



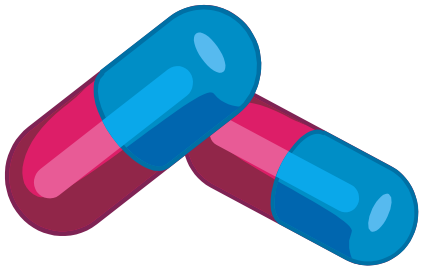
- **AD/HD childrens' eyes drift away from those they are in conversation with.**
- **This usually interrupts the flow and their comprehension of the conversation.**
- **Often parents feel rejected by AD/HD children when they do this.**

--Kuehle, H.J., Hoch, C and Jansen, F. (2002)

Possible Treatment of Problems with Facial Expression and AD/HD

- Optimal dosing of a stimulant medication causes a significant reduction in visual attention loss.
- Facial expressions will become smooth and variable.
- Too high a dose can cause a return of the symptoms.
- Can properly ID 80% of the AD/HD children with video procedure.

--Kuhle, H.J., Hoch, C., Rautzenberg, P. and Jansen, F. (2001)



Computer Programs to Treat Prosopagnosia

- **"Let's Face It!" – Face Recognition Program and workbook for children and adolescents with Autism Spectrum Disorders (University of Victoria Brain and Cognition Lab & the Yale Child Study Center)**
- **Teaches facial recognition and emotion recognition in 20 hours!**
- **It is *FREE!***

From: http://web.unic.ca/~letsface/letsfaceit/index.php

Computer Programs to Treat Prosopagnosia

- **Baron-Cohen, S. (2003). Mind Reading: An Interactive Guide To Emotions. Philadelphia, PA: Jessica Kingsley.**

  "Harry Potter" teaches facial expressions.

- **Baron-Cohen, S., Drori, J., Harcup, C. (2009). The Transporters (USA Version). London, England: Changing Media Development: www.thetransporter.com**

  "Thomas the Tank-Engine" teaches faces.

Computer Programs to Treat Prosopagnosia

- **"Gaining Face": www.StoneMountainSoftware.com**
- **Paul Ekman, Ph.D. ("Lie to Me"/SPOT – Surveying Passengers by Observational Techniques) CD ROMS:**

  Micro Expression Training Tool (METT)

  Subtle Expression Training Tool (SETT)

  Repeated presentations of METT & SETT to those with Autism Spectrum Disorders

  Available from: www.paulekman.com

Treating Problems Making & Reading Facial Expressions

- **Cognitive Affective Training-Faces and Feeling Words: www.CAT-kit.com**
- **Student Handout: Emotions and Facial Expressions – From: McAfee, J. (2002). Navigating the Social World. Arlington, TX: Future Horizons, pp 83-84.**

Other Methods of Learning Facial Expressions

- **Watch children's shows like *Barney* and *Sesame Street* and observe the difference between the facial expression reactions of children and adults.**
- **Watch TV with the sound turned off and look at the face.**
- **You can see extreme emotions on soap operas, animated movies (i.e., Toy Story) claymation (*Wallace and Grommit*).**

--Garcia Winner, and Crooke (2011)

Case Study #4

Case Study #4

Margo

- **17 year old white female in 9th grade**
- **Diagnosed Dyslexic age 8; diagnosed AD/HD age 14 placed on Adderall at the time**
- **Has IEP for Dyslexia; RTI model level 3 – Orton-Gillingham; 504 plan for AD/HD**
- **Reads at 5th grade level**
- **Sexually active; many partners**
- **6 arrests; shoplifting & Minor drug offenses**
- **Conduct Disorder?**
- **4 months pregnant; smoking and abusing prescription opioids**

Case Study #4

- **Serious Suicide attempt 1 year ago**
- **Stopped counseling 3 months ago**
- **Says she has no future**
- **At second appointment with you she did not appear to recognize you before you spoke to you**
- **Says she does not watch TV because she "…can't keep track of everybody.**
- **Parents are divorced; never sees father; mother rarely pays attention to her – wealthy socialite; Margo is raised by "staff"**

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