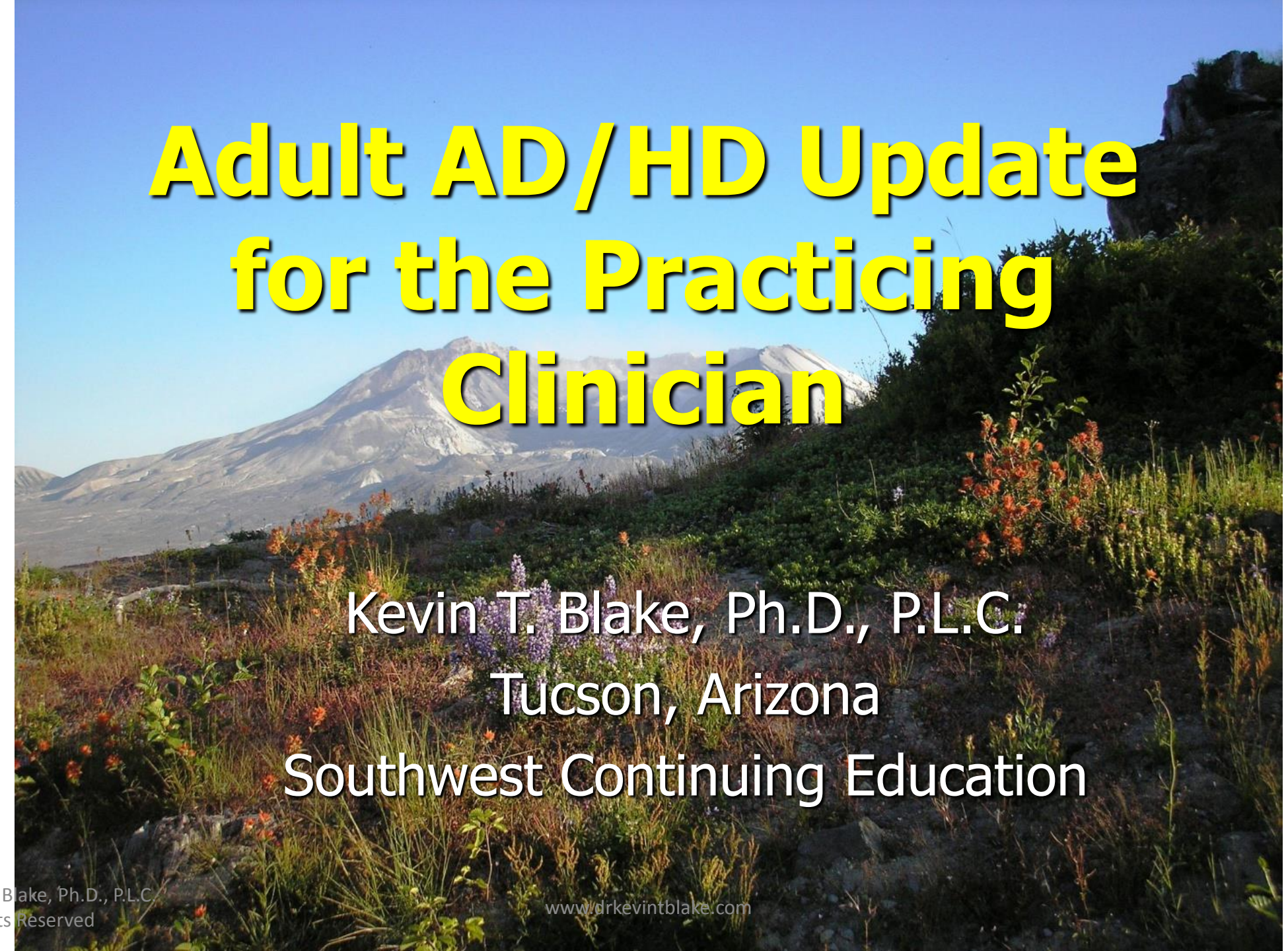

Adult AD/HD Update for the Practicing Clinician

Kevin T. Blake, Ph.D., P.L.C.
Tucson, Arizona

Southwest Continuing Education

In the effort to comply with the appropriate boards/associations, I declare that I do have affiliations with or financial interest in a commercial organization that could pose a conflict of interest with my presentation.

Adult AD/HD Update for the Practicing Clinician

Kevin T. Blake, Ph.D., P.L.C.

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What is a Disorder?

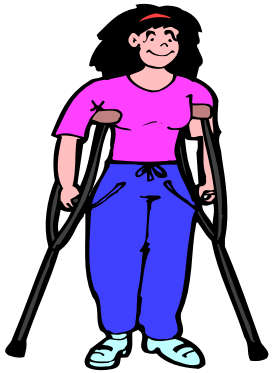
- A disorder is a ***harmful dysfunction*** of a naturally selected mechanism.

  Wakefield, J.C. (1999). Evolutionary Versus Prototype Analysis of the Concept of Disorder. Journal of Abnormal Psychology, 108 (3), pp. 374-399.

- It must cause a dysfunction in a trait every human develops and create impairment in a major life activity.

Barkley, R.A. (2006). Attention-Deficit Hyperactivity Disorder, Third Edition. New York, NY: Guilford, p. 86, 92-93.

What is a Developmental Disorder?



- It is disorder characterized by a significant delay in the rate a normal human trait develops in an individual.
- It takes the individual longer to develop this trait than their age peers.

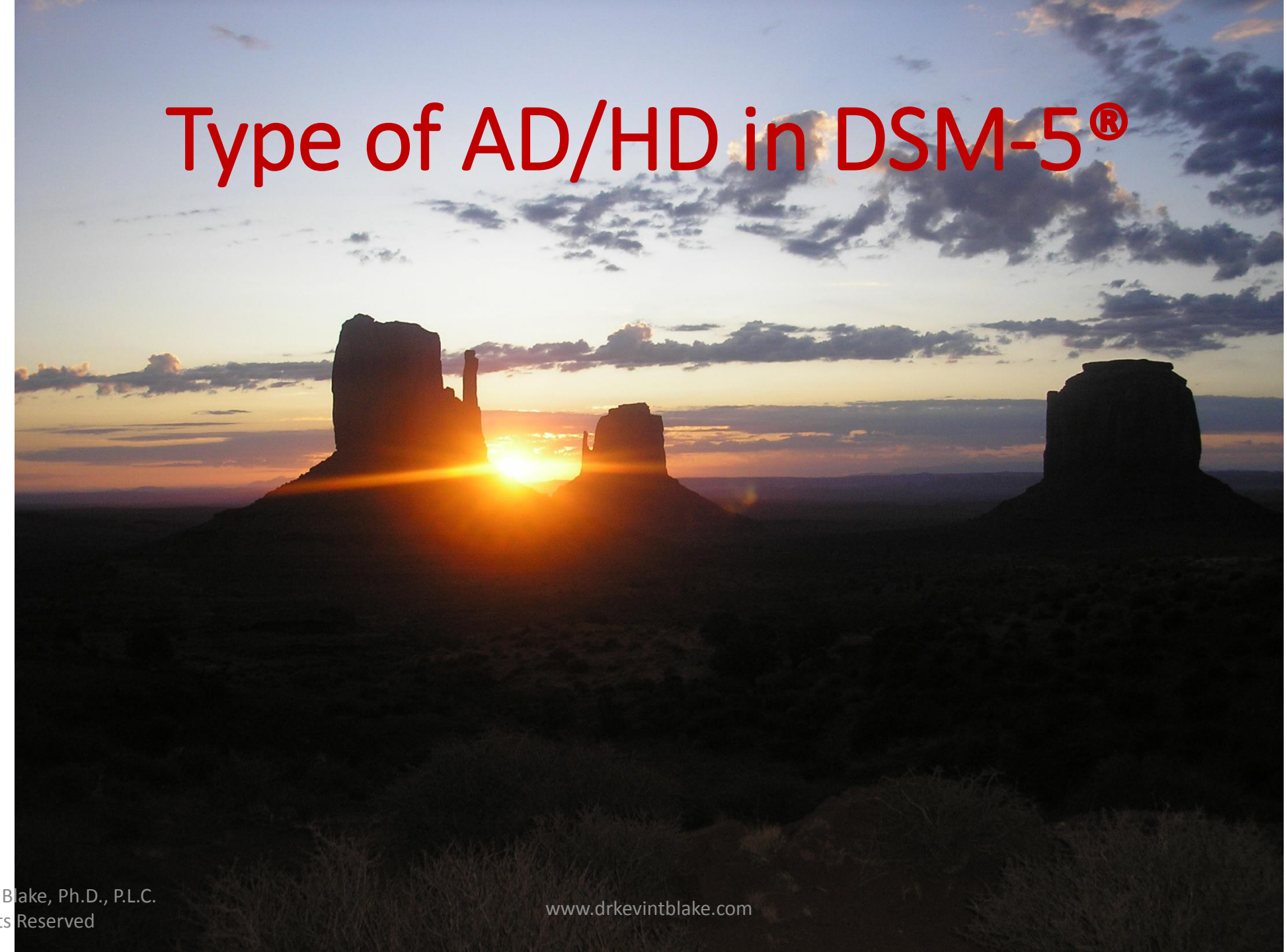
Barkley, R.A. (2006). Attention-Deficit Hyperactivity Disorder, Third Edition. New York, NY: Guilford., P. 92-93.

ADHD is NOT new!

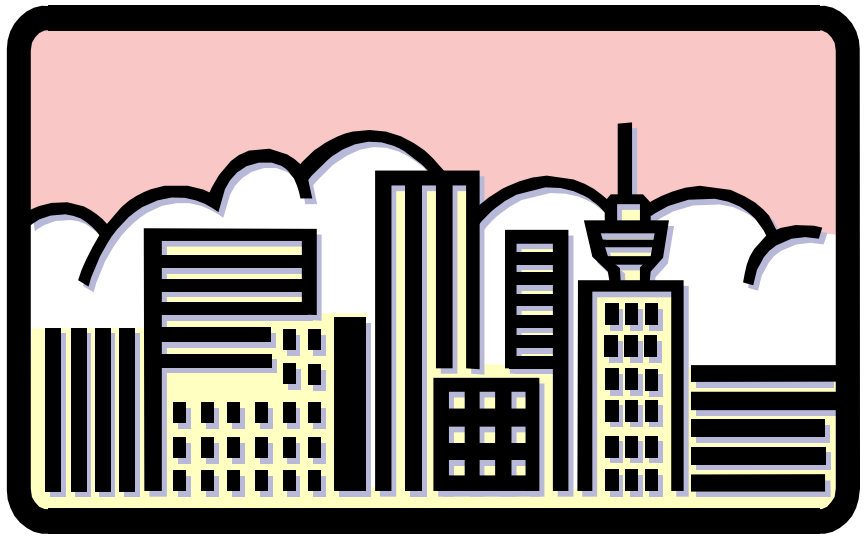
- **In 1775 Melchor Adam Weikart, of Germany described a syndrome very similar to AD/HD. He recommended horseback riding and exercise as treatment.**

Barkley, R.A. (2012). ADHD: Cutting Edge Understanding and Management. Seminar sponsored by J&K Seminars, L.L.C., 1861 Wickersham Lane, Lancaster, PA 17603-2327, p.1.

Type of AD/HD in DSM-5®



And now the *INSIDE Story* of the DSM-IV®, and AD/HD



"Don't forget DSM-IV® was voted on in a hotel room in New York City." *(Ratey, 1996)*

--Ratey (1996)

And now the *INSIDE Story* of the DSM-IV, TR® and AD/HD (Continued)

- **The DSM-IV® field trial included 4 to 16 year olds, primarily males.**
- **Until two week prior to going to press there were 24 symptoms of AD/HD in the DSM-IV®.**
- **The field trial study was completed after DSM-IV® was printed.**

Ratey, J. (1996). ADD and Other Brain Based Disorders. Paper presented at the International Conference of the Orton Dyslexia Society, Boston, MA.

And now the *INSIDE Story* of the DSM-IV, TR® and AD/HD

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- **DSM-IV® is not based on research done on AD/HD adults or females.**
- **The *Sluggish Cognitive Tempo* items were not included.**
- **The symptoms prior to the age of 7 criteria was an arbitrary number not established by science.**

-- Ratey, J. (1996)

And now the *INSIDE Story* of the DSM-IV®, and AD/HD (Continued)

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--Ratey (1996)

DSM-5®

- **Attention-Deficit/Hyperactivity Disorder**
- **Specify based on current presentation—**
  - **Combined Presentation**
  - **Predominately Inattentive Presentation**
  - **Predominately Hyperactive/Impulsive Presentation**

DSM-5®

- ❖Attention-Deficit/Hyperactivity Disorder
- ❖Specify based on current presentation—
  - ➢Combined Presentation
  - ➢Predominately Inattentive Presentation
  - ➢Predominately Hyperactive/Impulsive Presentation

- ➢Need to have symptoms prior to age 12.
- ➢18 symptoms of AD/HD ….child and adult equivalents
- ➢9 symptoms of inattention: need 6 for significance (may need only 5 if over age 17)
- ➢9 symptoms of hyperactivity/impulsivity: need 6 for significance (may need only 5 if over age 17)

DSM-5®

- Need to have symptoms prior to age 12.
- 18 symptoms of AD/HD ….child and adult equivalents
- 9 symptoms of inattention: need 6 for significance (may need only 5 if over age 17)
- 9 symptoms of hyperactivity/impulsivity: need 6 for significance (may need only 5 if over age 17)

DSM-5®

- ❖Other Specified Attention-Deficit/Hyperactivity Disorder
- ❖Unspecified Attention-Deficit/Hyperactivity Disorder
- ❖This may the best diagnosis for Restrictive Inattentive AD/HD (AKA) Sluggish Cognitive Tempo (SCT) (AKA) Crichton Syndrome
- ➢Severity will be specified:
  - ➢Mild
  - ➢Moderate
  - ➢Severe

ASD And AD/HD

DSM-5® says that Autism Spectrum Disorders can be comorbid with AD/HD however most will have the *Restrictive* Inattentive/Sluggish Cognitive Tempo Type.

-- Author (May 3, 2012), Author (May 18, 2013); Goldstein, S. and Naglieri, J.A. (August, 2011)

- **26% of children with PDD-NOS, or ASD have comorbid Combined Type AD/HD**
- **33% of children with PDD-NOS, or ASD have comorbid Inattentive AD/HD**
- **59% of Children with PDD-NOS, or ASD have some type of AD/HD**

--Goldstein, S. and Naglieri, J.A. (August, 2011)

AD/HD & DSM-5®

In DSM-5® there is type of Attention-Deficit/Hyperactivity Disorder and it will be 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…

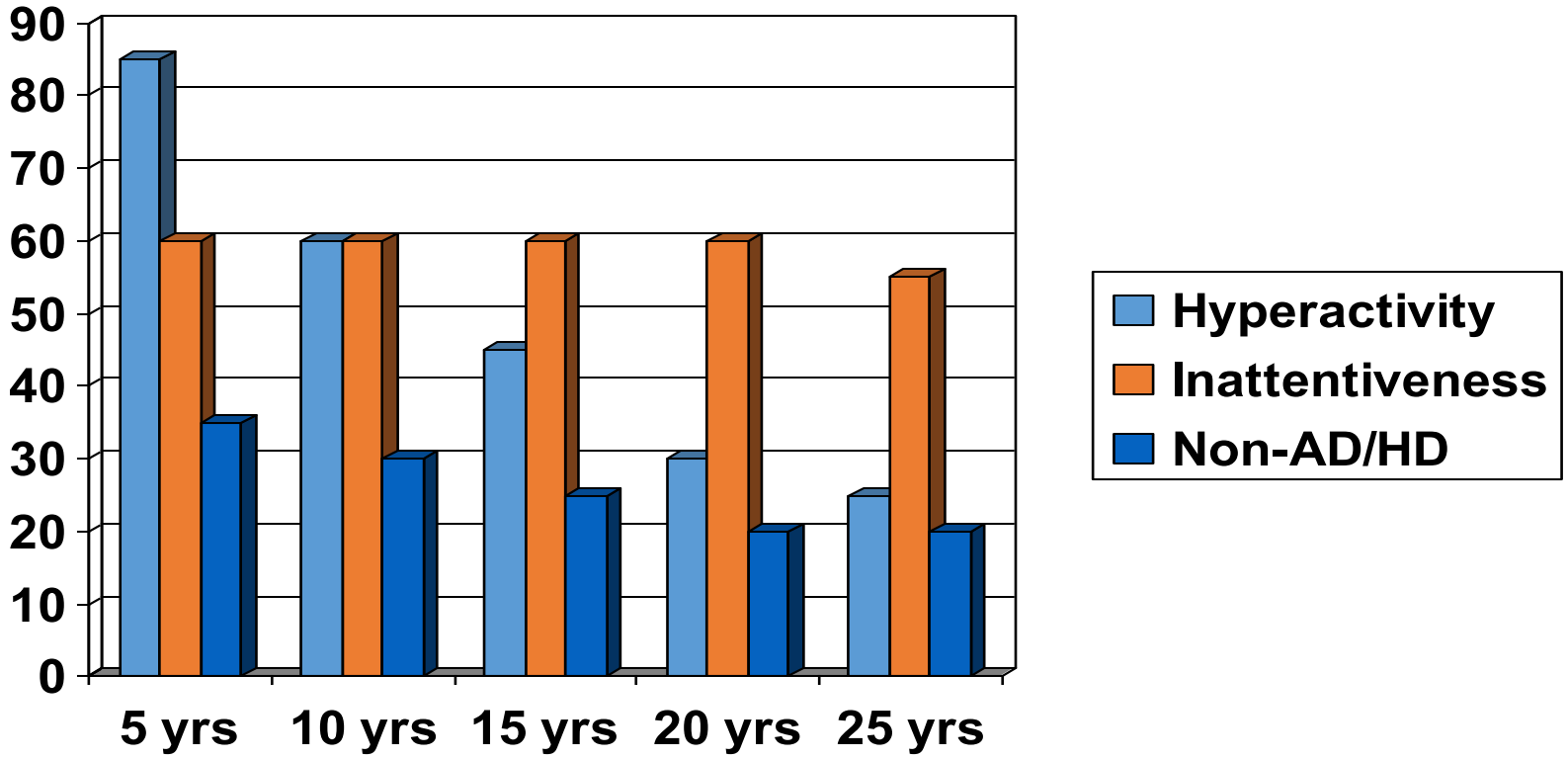
… in preschool and early grade school. As the child ages and his/her frontal lobe develops, they gain more control of their hyperactive motor movements and begin to appear as what was called (in DSM-IV® and DSM-IV, TR®) Combined Type. This process continues until their late 20's/early 30's when their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

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)

Important Numbers

- **65 to 86 percent of children diagnosed with AD/HD in childhood will meet criteria for it on adulthood.**
- **Boys out number girls with AD/HD, but there is a 1 to 1 correspondence male to female in adulthood and we don't know why.**
- **3 to 4 percent worldwide prevalence of adult AD/HD.**

--Barkley, R.A. (2012)

Researchers in Amsterdam gave 231 older adults structured AD/HD interviews and AD/HD rating scales to complete. They found that 4.2 percent of adults between the ages of 60 and 70 met criteria for AD/HD, and 2.8 percent of adults between that ages of 74 and 94 met criteria for AD/HD.

--Michielsen, Semeijn, Van de Ven, Deeg, and Krooij (August 9, 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)

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)

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)

Neuropsychology & Persistent AD/HD

“These data confirm the presence of neuropsychological deficits in late childhood/early adolescence among those previously diagnosed with ADHD. The data also suggest that greater cognitive impairment is a feature of persistent ADHD” (p. 154).

--Robinson and Tripp (2013)

“Acquired AD/HD”

- **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)

- **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**

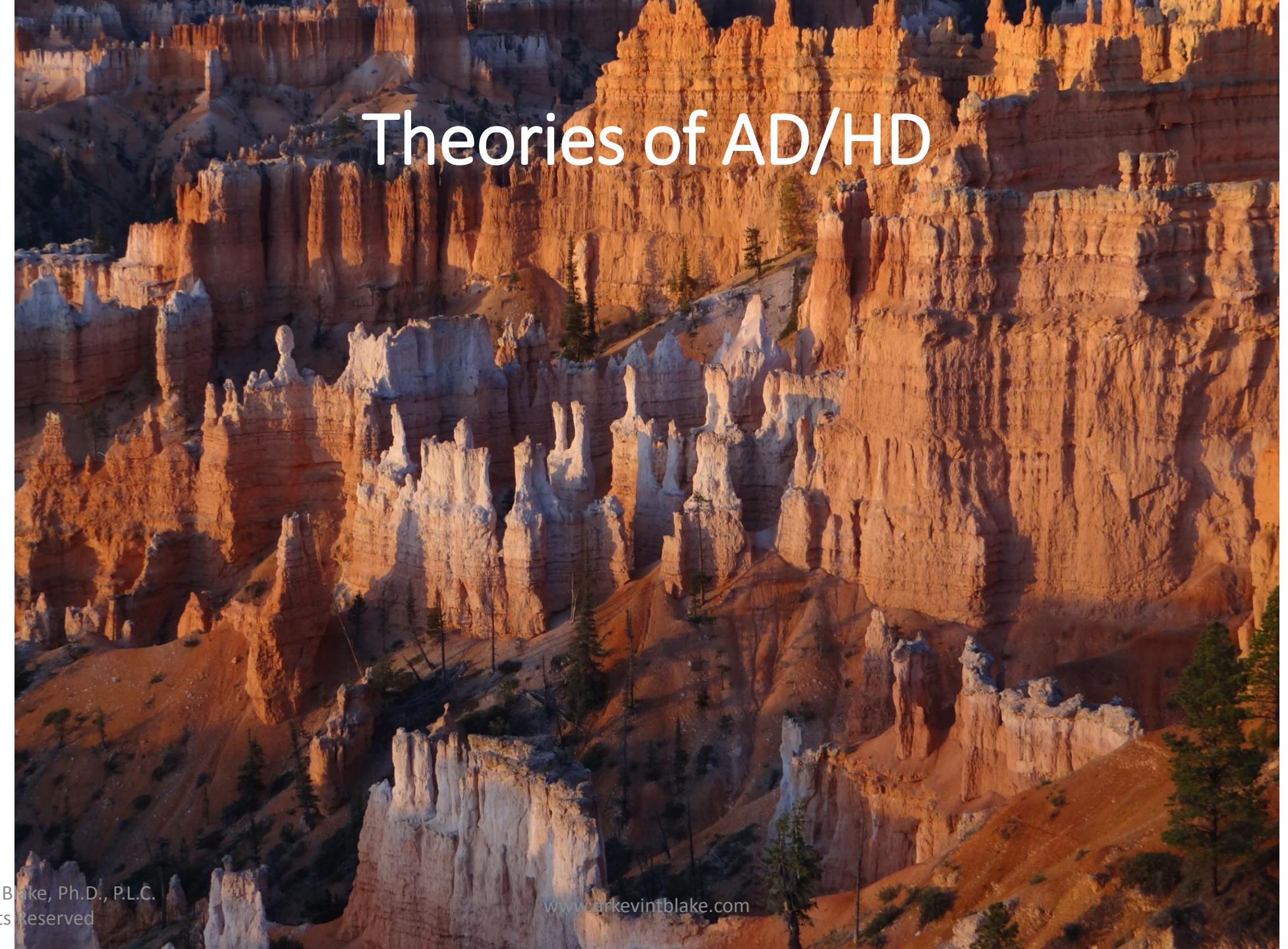
--Swanson and Castellanos (1998)

--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)



Theories 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)

Summary of Tom Brown's Theory of AD/HD

- **Organizing and activating for work**
- **Sustaining attention and concentration**
- **Sustaining energy and effort**
- **Managing affective interference**
- **Utilizing working memory and accessing recall**
- **Being able to predict the reaction of others due to their behavior (Forethought)**

--Brown (1995)
--Brown (2013)

AD/HD, Life and The 30 to 40 % Rule

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, (1998), (2008)

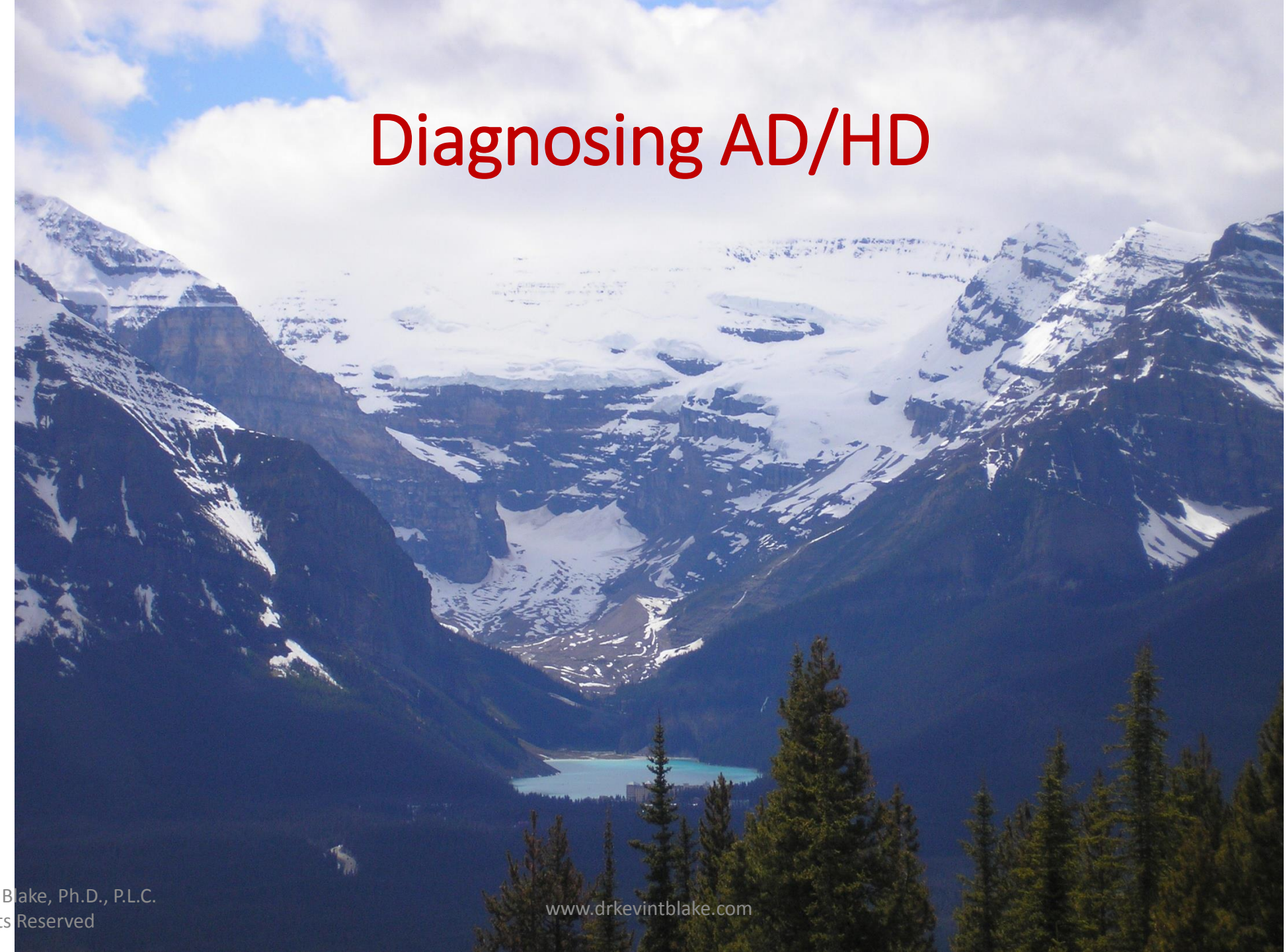
People with AD/HD Have a Significantly Shorter Life Expectancy

- **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.**

Diagnosing AD/HD



Neuro-Imaging for AD/HD Diagnosis

"While non-imaging features gave highest performance in cross-validation, the addition of imaging features in sufficient numbers led to improved generalization to new data."

--Bohland, J.W., Saperstein, S., Francisco, P., Rapin, J. and Grady, L. (December, 2012)

Barkley's take on the previous slide, " Results suggest that neuro-imaging features alone may not yet be satisfactory for clinical diagnosis" (p. 9).

-- Barkley, R.A. (March, 2013)

DNA Test for AD/HD

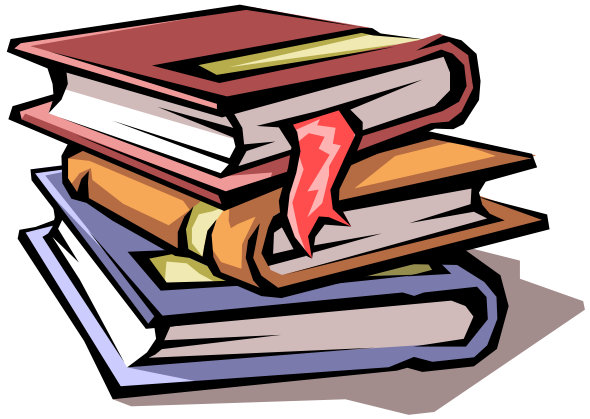
On the basis of these results, Molano is proposing a DNA chip with these 32 polymorphisms, which could be updated with new polymorphisms, as a tool not only for diagnosing but also for calculating genetic susceptibility to different variables (responding well to drugs, normalization of symptoms, etc.). The study has also confirmed the existence of the 3 ADHD subtypes: lack of attention, hyperactivity and a combination. "It can be seen that on the basis of genetics the children that belong to one subtype or another are different," explains Molano.

--Molano (January 21, 2013)

Barkley stated:

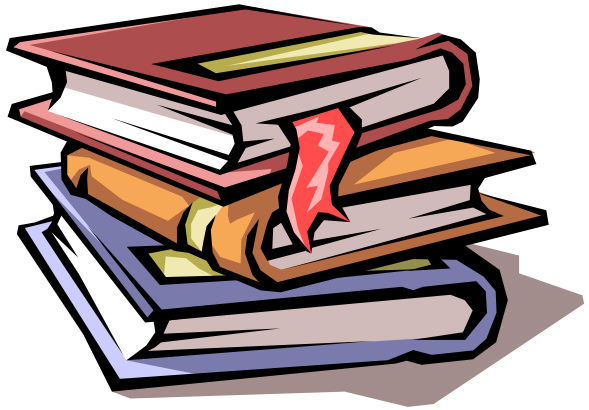
Those who diagnose AD/HD should have training in the differential diagnosis of Mental Disorders and in AD/HD using either the DSM® and/or ICD® format(s).

--Barkley (1998)



THE THREE MOST IMPORTANT THINGS IN DIAGNOSING AD/HD:

- ***HISTORY***
- ***HISTORY***
- ***HISTORY***



--Barkley, R.A. (1998)

Get Extensive Information From Collaterals

- **Parents**
- **Significant Others/Spouses**
- **Employers**
- **Teachers/Professors**
- **Friends**

--Barkley (1998)

Diagnosing AD/HD

- **Have them complete information relating to client's past and present history and behavior using:**
- **Checklists**
- **Questionnaires**
- **Semi-structured Interview**

--Barkley (1998)

Diagnosing AD/HD

- **Review Teacher's Comments on Past Report Cards**
- **Review Past Reports of Evaluations**
- **Contact Past Mental and Medical Health Professionals Who Worked with Client**

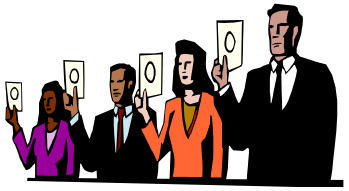
--Barkley, (1998)

Diagnosing AD/HD

- **Client Completes Questionnaires, and checklists about past and present history and behavior**
- **Client completes Inventory(s) to Screen Mental Health Status (i.e., SCL-90R, MMPI-2, etc.)**

--Barkley (1998)

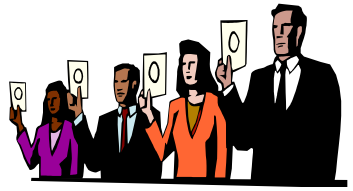
Diagnosing AD/HD



Client and at least one collateral participates in a semi-structured interview with mental health professional.

--Barkley (1998)

Why Use a Collateral in AD/HD Evaluations?



- **Follow-up studies of AD/HD children as adults:**
- **Interview Patient-5% still AD/HD**
- **Interview Parents-66.7% still AD/HD (Age adj. DSM)**
- **When both are compared to driving records, criminal records, insurance records, transcripts, interviews about social life, and employer interviews, the parents' reports correlate; patient's do NOT!**

--Barkley (2002)

Barkley On Collaterals

"Nevertheless, the combined results of these studies suggest that agreement between self-reported information and that given by others about ADHD may increase with age and be of acceptable levels especially by the early 30s. Such information should not be trusted as reliable (agreeing with others), however, in those with ADHD in their teens and early 20s." (p. 127)

--Barkley, Murphy, and Fischer (2008)

Does this mean 30% outgrow their AD/HD?

- **No, a large group were at the 90%ile in terms of impairment. i.e. *Shadow Syndrome***
- **Barkley estimated about 15% *outgrow* AD/HD**

--Barkley, R.A. (2002)

"We found that 36% of the Hyperactive group met these two criteria and would be considered to have recovered or to have outgrown their disorder—that is, placing within the normal range in both symptoms and impairment." (p. 69)

--Barkley, R.A., Murphy, K.R. and Fischer, M. (2008)

Diagnosing AD/HD & Feigned Disability

Conners, et.al. suggested administering the Pauhus Deception Scales to control against socially desirable responding by client to questionnaires, checklists, and semi-structured interview items.

--Conners, C.K., et. al. (1999).

Robert Mapou recommended:

- **Word Memory Test (WMT)- www.wordmemorytest.com/**
- **Test of Memory Malingering (TOMM)— http://www.pearsonassessments.com/HAIWEB/Cultures/en-us/Productdetail.htm?Pid=015-8070-836&Mode=summary**

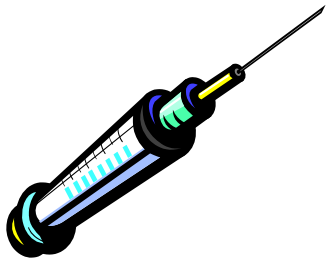
--Mapou, R. L. (2009).

Diagnosing AD/HD

DO NOT DIAGNOSE WITH STIMULANT RESPONSE!

"…stimulants improve attention and improve impulse control regardless of diagnosis or normality, and fail to help a few patients who really have ADHD." (p.40)

--Arnold (2002)



Diagnosing AD/HD In Teens and Adults

- **Wilens, Spencer and Biederman wrote, "Because alcohol and drug-use disorders are frequently encountered in adults with ADHD, a careful history of substance abuse should be completed." (p. 170)**
- **Barkley suggested a drug screening urine test if medications are to be used.**

--Wilens, Spencer, and Biederman (1995); Barkley (1998)

Barkley On Continuous Performance Tests (CPTs)

"Continuous-performance Tests (CPTs) are the most evidence based of the currently available psychological tests. They have demonstrated reasonable sensitivity and specificity, as well as promising positive predictive power. As for almost all such measures, however, a high false-negative rate can limit the validity of CPTs in certain clinical settings." (p. 384)

--Barkley (2006)

I.Q. and Setting

- **"Thus 2% of the ADHD population demonstrate sub-borderline intellectual skills, and 2% demonstrate gifted intelligence." (Goldstein, 1997, p. 44)**
- **Ackerman, et. al. wrote, "115 used to be considered the lower limit for probability of success in college." (p. 76)**

--Goldstein (1997); Ackerman, McGrew, and Dykman (1987)

Barkley On EF Tests

"In view of the information provided in this book, clinicians and researchers can no longer be content with simply evaluating EF (executive function, sic) at the rather myopic traditional psychometric level using a testing battery.

Assessments using EF tests as the sole means of evaluating EF may be substantially incomplete and highly inaccurate. And using EF tests alone as endophenotypes for neurobiological research…"

"…on disorders may also prove equally limited. Ratings and observations of EF constructs have proven to be as or more useful than endophenotypes in neuroimaging…and molecular/behavioral genetic studies…than have EF tests." (p. 197)

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

Rating Scales and Semi-Structured Interviews

- **Barkley, R.A., (February, 2011). Barkley Adult ADHD Rating Scales IV (BAARS-IV). New York, NY: Guilford.**
- **Barkley, R.A. (February, 2011). Barkley Functional Impairment Scale (BFIS). New York, NY: Guilford.**
- **Barkley, R.A. and Murphy, K.R. (2005). Attention-Deficit Hyperactivity Disorder: A Clinical Workbook, Third Edition. New York, NY: Guilford.**

Rating Scales and Semi-Structured Interviews

- **Brown, T.E. (1996). Brown Attention-Deficit Disorders Scales (for Adults). San Antonio, TX: PsychCorp.**
- **Brown, T.E. (2001). Brown Attention-Deficit Disorder Scales (for Children and Adolescents). San Antonio, TX: PsychCorp.**
- **Brown, T.E. (2006, 2001). Brown ADD Diagnostic Forms (Children, Adolescents and Adults. San Antonio, TX: PsychCorp.**

Rating Scales and Semi-Structured Interviews

- **Conners, C.K. (2008). Conners Comprehensive Behavior Rating Scales. North Tonawanda, NY: MHS.**
- **Conners, C.K. (1998). Conners Adult ADHD Rating Scales (CAARS). North Tonawanda, NY: MHS.**
- **Penny, A.M., Waschbusch, D.A., Klien, R.M., Corkum, P. and Eskes, G. (2009). Developing a Measure of Sluggish Cognitive Tempo for Children. Psychological Assessment, 21(3), 380-389.**

The Americans with Disabilities Act of 1990

Civil rights law is *NOT* an all inclusive one like IDEA (IDEA does not apply to adults)

- ***Must have impairment in a major life activity***
- ***Disorder does not equal disability***
- ***Must be impaired compared to the average American***

--Gordon, and Keiser (EDS.) (1998)

Americans with Disabilities Act, Amendment Act of 2008

The new act makes it easier for a person to establish they have a disability. It directed the U.S. Equal Opportunity Employment Commission to redefine the term *substantially limits*. The list of major life activitie" was expanded to include reading, bending, walking, communicating, etc. The bill included bodily functions like difficulties with the immune system, bowel functions, etc. If a person has 20/20 vision while wearing glasses they are now still considered disabled. People with *episodic disabilities* are now better protected.

Equal Opportunity Employment Commission: www.eeoc.gov/laws/statutes/adaaa_notice.cfm.

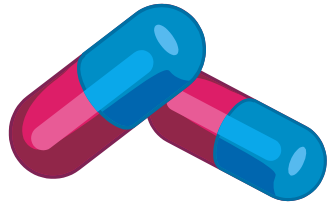
DSM-5® Assessment Measures & Impairment Rating Scale in DSM-5®

- **DSM-5® Self-Rated Level 1 Cross-Cutting Symptom Measure-Adult (p. 738-739)**
- **Parent/Guardian-Rated DSM-5® level 1 Cross-Cutting Symptom Measure-Child 5-17 (p. 740-741)**
- **Clinician-Rated Dimensions of Psychosis Symptom Severity (p. 743-744)**
- **World Health Organization Disability Assessment Schedule 2.0 (WHODAS2.0) (p. 745-748).**
  - **Self-Administered impairment rating in DSM-5®.**
- **Barkley has one for adults with AD/HD**

--Author (May 18, 2013); Barkley, R.A. (February, 2011)

AD/HD Treatment

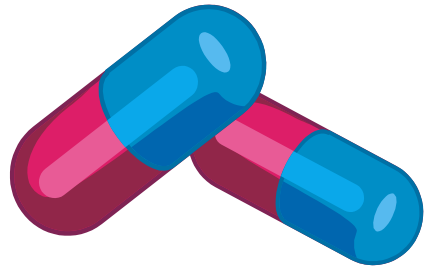
Treatment of AD/HD



"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)

Treatment of AD/HD



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

--Barkley (1998), (2006)

Medical Conditions & ADHD

Eating Disorders, Obesity, & AD/HD

- **30% of overweight adults have significant AD/HD symptoms.**
- **May also be the same for binge eating disorder and bulimia**

--Fleming, and Levy (2002)

"…Self-reported ADHD symptoms were associated with adult BMI and change in BMI from adolescence to adulthood, providing further evidence of a link between ADHD symptoms and obesity" (p. 852).

--Fuemmeler, Ostbye, Yang, McClernon, and Kollins (June, 2011)

AD/HD and Anxiety

- **Children with AD/HD and Anxiety do not differ in AD/HD from Children with AD/HD w/o Anxiety.**
- **Children with AD/HD and Anxiety do not differ from children with Anxiety in terms of Anxiety.**
- **Children with AD/HD and Anxiety are more impaired in cognitive functioning and working memory.**

--Jarrett (August, 2013)

AD/HD & Sleep

- **People 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)

Solar Intensity, Circadian Rhythms, & AD/HD

"In this study we found a lower prevalence of ADHD in areas with high SI for both U.S. and non-U.S. data. This association has not been reported before in the literature. The preventative effect of high SI might be related to an improvement of circadian clock disturbances, which have recently been associated with ADHD. These findings likely apply to a substantial subgroup of ADHD patients and have major implications in our understanding of the etiology and possibly prevention of ADHD by medical professionals, schools, parents, and manufacturers of mobile devices."

--Arns, van der Heijden, Arnold, and Kenemans (March 25, 2013)

"Cortisol rhythms were significantly phase delayed in the ADHD group. These findings indicate that adult ADHD is accompanied by significant changes in the circadian system, which in turn may lead to decreased sleep duration and quality in the condition. Further, modulation of circadian rhythms may represent a novel therapeutic avenue in the management of ADHD" (p. 988).

--Baird, Coogan, Siddiqui, Doney, Thorne (October 17, 2012)

AD/HD and Allergic Rhinitis

“Our data showed that ADHD patients had an increased rate of AR. Therefore, psychiatrists should be more aware of the comorbidity of AR when treating ADHD patients.”

--Chou, Lin, Lin, Loh, Chan, and Lan (December, 2012)

Frontal Lobe Epilepsy & AD/HD

"Analysis of epilepsy and ADHD-related factors indicated that the incidence of ADHD was 89.4% (76/85) in children with abnormal electroencephalogram (EEG) discharges on the most recent EEG, which was significantly higher than the ADHD incidence of 25% (19/76) in children with normal readings on the most recent EEG (*P* < .01). Children with frontal lobe epilepsy have a high incidence of ADHD. Sustained abnormal discharge on the electroencephalogram is associated with increased comorbidity of ADHD with frontal lobe epilepsy."

-- Zhang, Li, Zhu, Sun (December 26, 2012)

AD/HD & Thyroid Disorder

Resistance to Thyroid Hormone (RTH):

- **Usually autosomal dominant trait caused by one gene**
- **Rare disorder; usually show LD and cognitive difficulties**
- **AD/HD in RTH patients usually subclinical**
- **Liothyronine may be helpful with such patients**

--Barkley (1998)

Strabismus and Combined Type AD/HD

- **Convergent Insufficiency = Lack of coordination between the eye muscles**
- **2% to 8% of the population has strabismus.**
- **Rate 3 times higher in those with AD/HD Combined Type**
- **Symptoms: Trouble with near work, headaches, "swimming words"**
- **Treatment: At home eye exercises**
- **Neuro-Ophthalmologists (M.D./D.O.): www.anpaonline.org**
- **Behavioral Optometrists www.optometrist.org**
- ***NOTE: This does NOT cure AD/HD!***

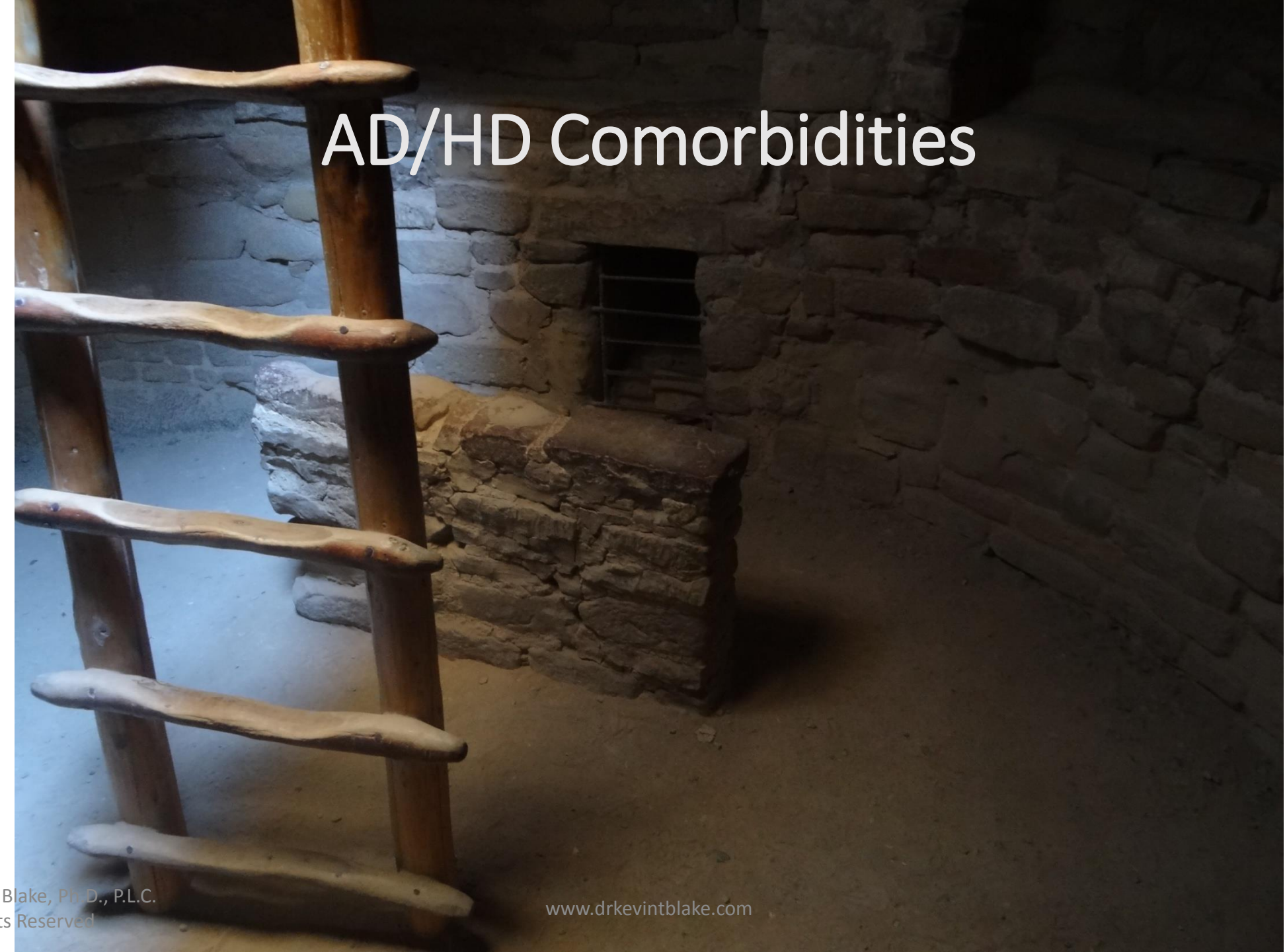
--Ingersoll (October 26, 2006); Garnet, Ventura, and Miller-Scholte (December, 2005)

AD/HD and Lewy Body Dementia

- **Second most common form of dementia in the elderly**
- **"We found a higher risk of DLB in patients with preceding adult ADHD symptoms. To date, there is no clear explanation for the association found; however, further investigation will widen our understanding about both disorders" (p. 78).**

Golimstok, A., Rojas, J.I., Romano, M., Zurru, M., Doctorovich, D. and Cristiano, E. (January, 2011). Previous adult attention-deficit and hyperactivity disorder symptoms and risk of dementia with Lewy bodies: a case–control study. European Journal of Neurology, 1, 78-84. From Website: http://onlinelibrary.wiley.com/doi/10.1111/j.1468-1331.2010.03064.x/abstract.

AD/HD Comorbidities



Comorbidity & AD/HD

- **75% of AD/HD Adults Referred to Clinics have a Comorbidity**

  --Barkley, R.A. (1996).

- **20% of AD/HD Adults have Two or More Comorbidities**

  --Hechtman (2000)

Weiss and Hechtman after a 15 year follow-up study came up with the following groups that AD/HD adult fall into:

1. **30 to 40% Fairly Normal Group**
2. **40 to 50% Significant Hyperactivity, and Social/Emotional/Interpersonal Problems**
3. **10% Severely Antisocial and/or Mentally Disturbed**

--Weiss, G., and Hechtman, L. (1993)

Comorbidities and AD/HD

Pliszka indicated the following regarding Comorbitities of adults with AD/HD:

Prevalence rates of adults with ADHD

➢ **Antisocial Personality Disorder**	**12% to 27%**
➢ **Alcohol and Drug Dependence**	**27% to 46%**
➢ **Major Depressive Disorders**	**17% to 31%**
➢ **Anxiety Disorders**	**32% to 50%**

--Pliszka, S.R. (2000)

Psychiatric Comorbidity

Brown Indicated that 88.6% of those with AD/HD are at risk of having a comorbid psychiatric disorder in their lifetime which is 6.3 times higher than the general public.

Brown, T.E. (2013). A New Understanding of ADHD In Children and Adults: Executive Function Impairment. New York, NY: Routledge, p. 133.

Comorbidity and AD/HD

"In general, there appears to be convincing evidence that ADHD increases the risk for certain psychiatric disorders. More than 80% of our ADHD groups had at least one other disorder, more than 50% had two other disorders, and more than one third had at least three disorders, these being markedly higher than our control groups in both studies" (p. 241)

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

"Clinicians need to be aware of and specifically assess for high comorbidity of ADHD with other psychiatric disorders, particularly dysthymia, depression, ODD (Oppositional Defiant Disorder, sic.), conduct disorder, alcohol use disorders, and drug use disorders more generally. The elevated risk for suicidal ideation and attempts associated with the disorder is driven largely by comorbid disorders and not so much by ADHD specifically" (p. 243)

AD/HD and Comorbidity (Continued)

Goldstein wrote, "Adult outcome of individuals with ADHD has not been proved to be solely tied to particular ADHD variables or treatment but likely interacts with a variety of life factors, with family issues paramount" (p. 73).

Goldstein, S. (1997). Managing Attention and Learning Disorders in Late Adolescence and Adulthood: A Guide for Practitioners. New York, NY: John Wiley and Sons.

Adult ODD/CD and AD/HD

"Just as do children and adolescents diagnosed with ADHD, adult given the clinical diagnosis of ADHD have considerably higher amounts of comorbid ODD and CD than do either clinical control groups without diagnosis of ADHD or, typical nonreferred adults. Approximately, 24 –35% of clinic-referred adults, diagnosed with ADHD have ODD and 17—25% manifest CD, either concurrently or over the course of their earlier development" (p. 277).

Barkley, R.A. (2006). Attention-Deficit Hyperactivity Disorder: A Handbook for Diagnosis and Treatment, Third Edition. New York, NY: Guilford.

Adults with AD/HD + CD

- **Those with both AD/HD and CD are most likely to have Antisocial Personality Disorder and psychopathic traits in adulthood**
- **Those with both disorders have a much earlier onset and worse out come in adulthood than those with one or the other disorder alone**

Barkley, R.A., Murphy, K.R. and Fischer (2008). ADHD In Adults: What The Science Says. New York, NY: Guilford.

Depression and AD/HD

NORMAL FORMS OF DEPRESSION

1. **"The Blues"- Less than two weeks of depressed mood associated with an environmental event.**

   *** Ratey and Johnson spoke of "Shadow Syndromes" which appear as, "…behavior that fits only part of a syndrome or disorder, but not all" (p. 13).**

--Ratey, and Johnson (1997)

Grief and AD/HD

Goldstein spoke of adults with LD and/or AD/HD who struggle with.. "prolonged grief. It has been reportedly suggested that adults with AD/HD and LD struggle with grief over their perceived incompetence and a lifetime difficulty with meeting everyday expectations" (p. 260).

--Goldstein, S. (1997)

Grief and AD/HD (Continued)

Murphy and LeVert wrote of the stages of coping with being diagnosed AD/HD:

Stage 1- Relief and Optimism

Stage 2- Denial

Stage 3- Anger and Resentment

Stage 4- Grief

Stage 5- Mobilization

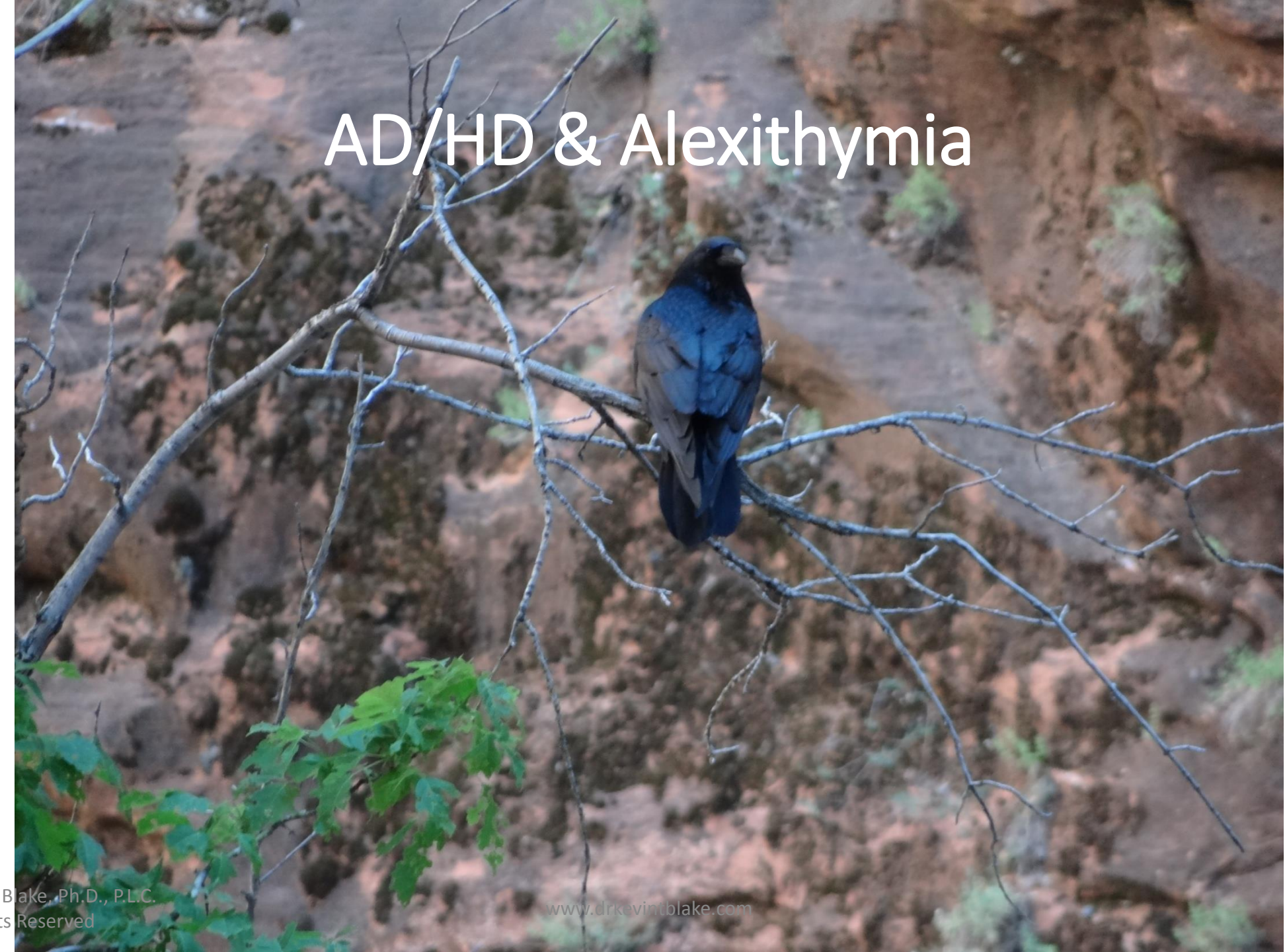
Stage 6- Accommodation

Murphy, K.R., and LeVert, S. (1995). Out of the Fog. New York, NY: Hyperion.

Grief and AD/HD

Some AD/HD adults may not be able to find the words to express their grief due to *"ALEXITHYMIA".*

AD/HD & Alexithymia



AD/HD & Alexithymia

1. **Tend not to have fantasies, no feelings, and sharply limited emotional vocabulary.**
2. **They have colorless dreams.**
3. **They cannot tell bodily sensations from emotions and are baffled by them.**
4. **They cannot make decisions because they have no "Gut Feelings"**

   --Goleman (1995).

- **22% of adults with AD/HD meet criteria for alexithymia**

--Edel, et al. (September 24, 2010)

AD/HD and Mood Disorders

Brown indicated that those with AD/HD have a 38.3% chance of having a mood disorder during their lifetime which is 5 times more likely than in those without AD/HD.

Brown, T.E. (2013). A New Understanding of ADHD In Children and Adults: Executive Function Impairment. New York, NY: Routledge, p. 133.

AD/HD and Mood Disorders

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--Brown (2013)

Spencer et. al. reported, "The rate of major depressive disorder among the adults with ADHD was similar to the rate in children…" (p. 97).

<u>With Major Depressive Disorder</u>

1. **Adult ADHD group 31%**
2. **Child ADHD group 29%**
3. **Adult Control group 5%**

--Spencer et. al. (2000).

Major Depressive Disorder

"The Milwaukee Study did not find an elevated risk for MDD (Major Depressive Disorder) in those with persistent ADHD into adulthood but did find an elevated risk for mood disorders more generally and depressive personality disorder, both of which suggest some link between ADHD and some level of depressive symptoms, even if not with full syndromal MDD" (p. 241)

Barkley, R.A., Murphy, K.R. and Fischer (2008). ADHD In Adults: What The Science Says. New York, NY: Guilford.

Major Depression and AD/HD

- **Only the AD/HD children with Major Depression have problems with Low Self-Esteem**
- **Most AD/HD Children have inflated Self-Esteem.**
- **Adults with AD/HD may become demoralized.**

Barkley, R.A. (2002) Mental and Medical Outcomes of AD/HD. Pre-Conference Institute, # TPA1, Thursday October 17, 2002, 14th Annual CHADD International Conference, Miami Beach, FL.

Suicide & AD/HD

- **10% will have attempted in the last 3 years**
- **5% will die from attempts (Barkley, 1998)**
- **There is even a higher rate with those with comorbid Antisocial Personality Disorder (Weiss and Hechtman, 1986).**

--Barkley, R.A. (1998); Weiss, and Hechtman (1986)

A recent 10 year longitudinal study of girls with inattentive AD/HD and Combined Type AD/HD indicated those with Combined Type AD/HD had significantly more suicide attempts and self-injurious behavior than inattentives. Both groups were significantly more impaired globally than controls.

--Hinshaw et al. (2012).

Anxiety, Depression, Age & AD/HD

"Both ADHD diagnosis and more ADHD symptoms were associated with more anxiety and depressive symptoms cross-sectionally as well as longitudinally. The longitudinal analyses showed that respondents with higher scores of ADHD symptoms reported an increase of depressive symptoms over six years whereas respondents with fewer ADHD symptoms remained stable…"

"…It appears that the association between ADHD and anxiety/depression remains in place with aging. This suggests that, in clinical practice, directing attention to both in concert may be fruitful."

-- Michielsen M., Comijs H.C., Semeijn E.J., et al. (December 22, 2013)

AD/HD and Bipolar Disorder

- **The rate of Bipolar Disorder in general population adults is about 1%**
- **If one includes subsyndromal Bipolar Disorder in the general population the rate is 6%**
- **Rates of Bipolar in AD/HD adults have ranged from 3 to 17 percent**
- **Rates of Bipolar in AD/HD children have ranged from 2.4 to 21%**

-- T.E. Brown (2013)

"In any case, the overlap of ADHD with bipolar disorder appears to be unidirectional – a diagnosis of ADHD seems not to increase the risk for bipolar disorder, whereas a diagnosis of childhood bipolar disorder seems to dramatically elevate the risk of a prior or concurrent diagnosis of ADHD".

--Barkley, R.A. (January 25, 2013)

Anxiety Disorders and AD/HD

Brown wrote that those with ADHD have a 47.1 percent chance of having an anxiety disorder during their lifetimes. This is 3 times more than the general population.

--Brown, T.E. (2013).

- **Barkley reported 24% to 43% of AD/HD adults have "GAD".**
- **Barkley reported 50% of AD/HD adults will have trouble with GAD in their lifetimes.**

Barkley (1998), (1996)

Social Phobia, PTSD, & AD/HD

- **Murphy stated AD/HD adults are at risk for Social Phobia.**
- **Tzelepis, Schubiner, and Warbasse reported 12% of AD/HD adults meet criteria for Social Phobia.**

--Murphy, and LeVert (1995); Tzelepis, Scherbiner, and Warbasse (1995)

Thus growing up as a hyperactive (ADHD) child conveys a greater risk for specific phobias by adulthood, but persistent ADHD into adulthood further elevates the risk for GAD and PTSD beyond that conveyed by childhood hyperactivity status alone" (p. 221).

--Barkley (2006)

OCD and AD/HD

- **AD/HD and OCD can be comorbid states.**
- **AD/HD typically manifests first.**
- **The comorbidity may lower functioning.**
- **Both disorders need to be treated and the AD/HD may make the behavioral treatments for OCD not as effective.**

--Author (February, 2003)

"In contrast, individuals with obsessive-compulsive disorder (OCD) or TD (Tourette's disorder, sic.) have a marked elevation in risk for ADHD, averaging 48% or more… Complicating matters is the fact that the onset of ADHD often seems to precede that of TD in cases of comorbidity."

-- Barkley, R.A. (January 25, 2013)

Personality Disorders and AD/HD

Brown indicated that 24.4% of those with AD/HD have at any one time a DSM-IV Cluster B disorder (Borderline, Antisocial, Histrionic and/or Narcissistic Disorder) compared to 9.3% of the general population.

--Brown, T.E. (2013).

- **Brown (2013) indicated 24.4% of those with AD/HD have comorbid DSM-IV Cluster C Personality Disorders (avoidant, dependant and/or obsessive compulsive disorders) compared to 9.5% of controls.**
- **Brown (2013) continued, there was no difference between controls and those with AD/HD in Cluster A Personality Disorders (paranoid, schizoid and/or schizotypal).**

Personality Disorders and AD/HD

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Brown, T.E. (2013). A New Understanding of ADHD In Children and Adults: Executive Function Impairment. New York, NY: Routledge.

ADHD and Criminality

"The ADHD group showed higher proportions of physical aggression, substance use, previous problems including aggression, sexual offences and property offences, birth problems and abuse in childhood. Effect sizes were small…Attention deficit hyperactivity disorder with conduct disorder is associated with a greater degree and history of problematic behaviour in offenders with intellectual disability" (p. 71).

--Lindsay, W.R. et al. (December 18, 2012)

"Among patients with ADHD, rates of criminality were lower during periods when they were receiving ADHD medication. These findings raise the possibility that the use of medication reduces the risk of criminality among patients with ADHD" (p. 2006).

-Lichtenstein, Halldner, Zetterqvist, Sjolander, Serlachius, Fazel, Langstrom, and Larsson (November 22, 2012).

AD/HD, Specific Learning Disorder, and/or Developmental Coordination Disorder

Barkley stated:

- **15% to 30% have Reading Disorder**
- **26% have Spelling Problems**
- **10% to 60% have Mathematics Disorder**
- **Developmental Coordination Disorder-Dysgraphia 60%**

--Barkley, R.A. (2002A), (2002B), (January 25, 2013)

An anomaly in the left frontal gyrus, which is connected to atypical hippocampal, parahippocampal, and prefrontal function when compared to dyslexics and controls when processing low frequency words. It appears those with Specific Learning Disorder with Impairment in Reading Comprehension are significantly impaired in lexical-semantic representations during the processing and recognition of low frequency words when compared to dyslexics and controls.

--Cutting, et al. (2013)

AD/HD and Speech and Language Disorders

Brown (2013) indicated 11.8% of those with AD/HD have speech and language disorder compared to 2.5% of controls.

--Brown, T.E. (2013)

ASD & AD/HD

- **26% of Children with PDD-NOS, or ASD have comorbid Combined Type AD/HD**
- **33% of Children with PDD-NOS, or ASD have comorbid Inattentive AD/HD**
- **59% of Children with PDD-NOS, or ASD have some type of AD/HD**

--Goldstein and Naglieri (August, 2011)

Sluggish Cognitive Tempo

DSM-5® AD/HD From 2010 Through May 1, 2012

- **Age**
- **Symptom**
- **Inattentive Presentation (Restrictive)**

Author (2010). Attention-Deficit/Hyperactivity Disorder®. Washington, DC: American Psychiatric Association: http://www.dsm5.org/ProposedRevisions/Pages/proposedrevision.aspx?rid=383.

Author (May 3, 2012). DSM-5® Development, Attention Deficit/Hyperactivity Disorder, Rationale. Washington, DC: American Psychiatric Association; From website: http://www.dsm5.org/ProposedRevision/Pages/proposedrevision.aspx?rid=383#

SCT is *NOT* new!

Alexander Crichton may have written about what we call SCT in 1798!

Crichton, A. (2008). An inquiry into the nature and origin of mental derangement: On attention and its diseases. Journal of Attention Disorders, 12, 200-204 (Original work published 1798).

Barkley, R. A. (November 9, 2012). The Other Attention Disorder: Sluggish Cognitive Tempo (ADD/SCT) Vs. ADHD– Impairment and Management. Paper presented at the 24th Annual CHADD International Conference on ADHD, Burlingame, CA, November 8 – 10, 2012.

Mild Combined Type vs. Inattentive Type/SCT

30% to 50% of those with Inattentive AD/HD have the Sluggish Cognitive Tempo (SCT) subtype. The remainder are Shadow Syndrome (Mild) Combined Type.

Barkley, R.A. (2002) Mental and Medical Outcomes of AD/HD. Pre-Conference Institute, # TPA1, Thursday October 17, 2002, 14th Annual CHADD International Conference, Miami Beach, FL.

Barkley, R.A. (2006). Attention-Deficit Hyperactivity Disorder, Third Edition. New York, NY: Guilford, p. 37.

CHADD Conference 2012

Barkley (November 9, 2012) stated the ADHD and Disruptive Behavior Disorders Workgroup of the DSM-5® had decided in October 2012 not to include Attention-Deficit/Hyperactivity Disorder, Inattentive Presentation (Restrictive) in the manual's revision. He also mentioned the committee would probably not have adult norms and cutoffs for AD/HD…

--Barkley (November 9, 2012); Author (May 1, 2012)

Barkley (November 9, 2012) continued that the DSM-5® committees had been told by a large group of health insurance companies, the Administration, the Department of Health, Education and Welfare as well as the Social Security Administration not to add new disorders or do anything that would increase the prevalence of disorders. Hence, the decisions of the previous slide.

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Theories of Sluggish Cognitive Tempo
2013 10 16

Brown's Theory of SCT

Brown believes the Inattentive Type has all the symptoms of the Combined Type except Hyperactivity-Impulsivity. Recently he has backed away from this somewhat.

--Brown, T.E. (1995), (2013)

Brown believes the following are the areas of difficulty in the Inattentive Type:

1. **Difficulty organizing and activating for work**
2. **Problems sustaining attention and concentration**
3. **Problems sustaining energy and effort**
4. **Problems managing affective interference**
5. **Problems utilizing working memory and accessing recall**

SCT

Brown continued the only difference between Inattentive AD/HD and Combined Type AD/HD was *ACTION*. Those with Combined Type AD/HD have significant impairment with ACTION, which is being able to predict with reasonable accuracy how their personal actions could negatively effect others and how that could come back to haunt them in the future. They have, as Barkley calls, time blindness. Those with Inattentive AD/HD do not have time blindness.

--Brown (1995); Brown (2013); Barkley (2006)

Barkley's 2013 SCT Symptoms

- **Daydreaming excessively**
- **Trouble staying alert or awake in boring situations**
- **Easily confused**
- **Spacey or *in a fog*; mind seems to be elsewhere**
- **Stares a lot**
- **Lethargic, more tired than others**
- **Underactive or have less energy than others**
- **Slow moving or sluggish**
- **Doesn't seem to understand or process information as quickly or accurately as others**

Barkley's 2013 SCT Symptoms

- **Apathetic or withdrawn; less engaged in activities**
- **Gets lost in thought**
- **Slow to complete tasks; needs more time than others**
- **Lacks initiative to complete work or effort fades quickly**

--Barkley (November 9, 2012)

SCT

SCT & Processing Speed

- More problems with math achievement than Combined Type and controls.
- More Internalizing Problems than Combined Type/Few, if any Externalizing Problems
- Significant Processing Speed Problems

--Willcutt, Chhabildas, and Pennington (2001)

Processing Speed: SCT Vs. ADHD

- The processing speed difficulties for those with SCT is related to slow response time and processing. They are prone to error on speeded tasks.
- The processing speed difficulties for those with AD/HD is related to variability in reaction time which is 3 times more than those without AD/HD.

--Barkley (November 9, 2012).

Sluggish Cognitive Tempo

“These results fill an important gap in the literature by (a) confirming SCT to be distinct from ADHD in emerging adulthood, (b) demonstrating SCT to be strongly linked to college student adjustment, and (c) providing support for the hypothesis that SCT is associated with psychosocial functioning in both individuals with and without ADHD”.

Becker, S.P., et al. (September 24, 2013). Sluggish Cognitive Tempo is Associated With Academic Functioning and Internalizing Symptoms in College Students With and Without Attention-Deficit/Hyperactivity Disorder. Journal of Clinical Psychology. DOI: 10.1002/jclp.22046.

SCT Demographics

- **Sluggishness/Lethargy**
- **Daydreaming**
  - **These are correlated to each other .40 to .50**
- **Symptoms and severity are stable throughout life. Prevalence in children 4.7%; in adults 5.1%**
- **SCT is as common in males as in females.**
- **The average age of onset for SCT is 8 to 10 years old. Two to 3 years older than those with AD/HD.**

--Barkley (November 9, 2012).

Barkley On SCT

Adults with SCT have symptoms distinctly different from those with Combined Type ADHD. This has been demonstrated with children as well. These differences were not caused by the subject's age, sex or ethnicity.

--Barkley (2011, May 23), (October, 2011)

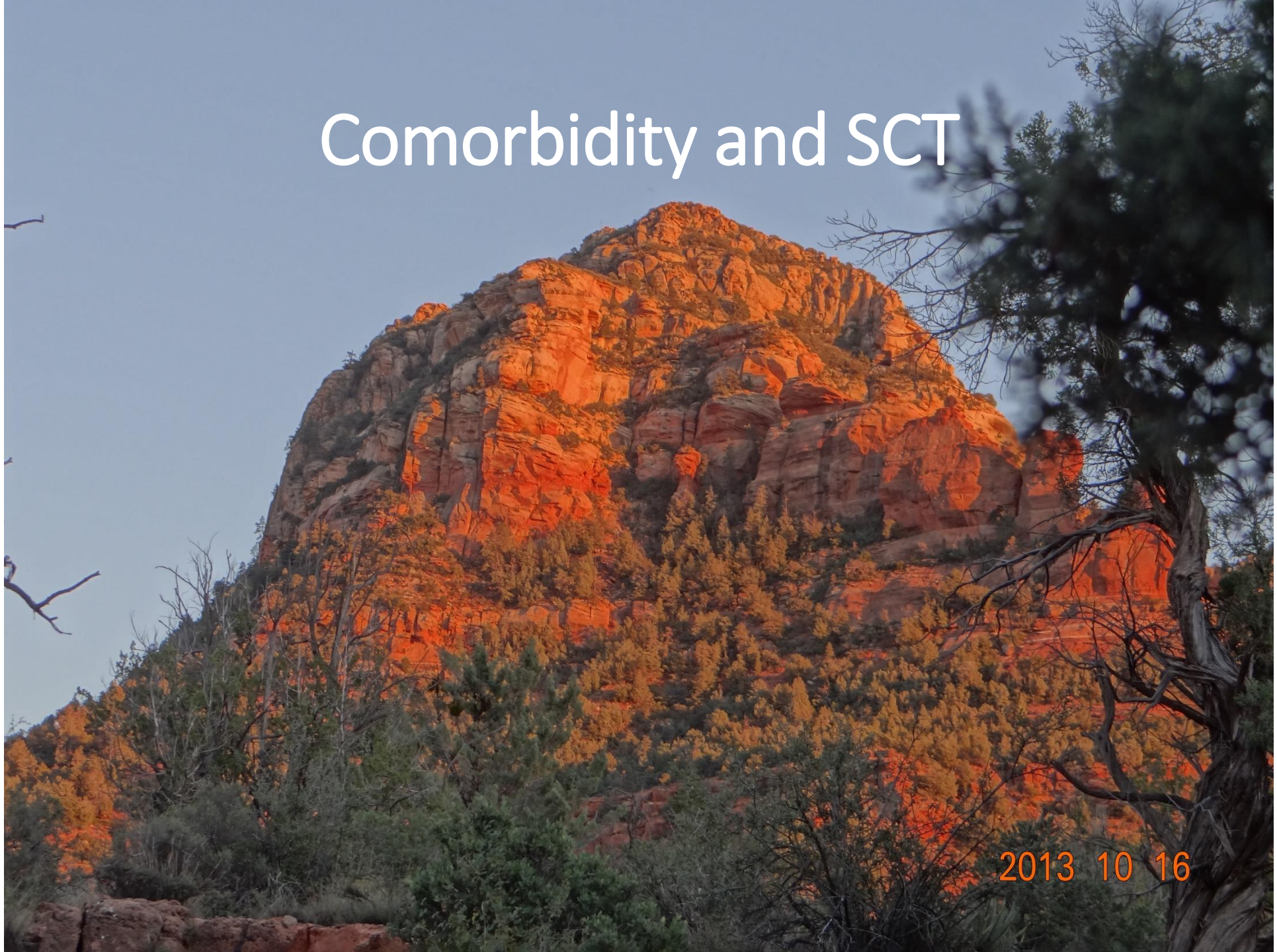
- **Those with SCT and comorbid ADHD were the most impaired. Their group had the most unemployment.**
- **Some believe Inattentive ADHD is a mild form of Combined Type ADHD.**
- **SCT may be a separate and distinct type of disorder from the Inattentive Type ADHD.**
- **SCT may be comorbid with Inattentive ADHD.**

Executive Function and SCT

- **Barkley (2012) found those with SCT have no problems with Executive Functions whereas those with AD/HD have it in all areas.**
- **The only area of impairment SCT children have that is more severe that those with AD/HD is in sports. AD/HD children are more impaired in all other areas.**
- **Those with ADHD and comorbid SCT are the most impaired overall.**
- **About 50% with AD/HD have comorbid SCT.**

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

Comorbidity and SCT



Major Depression and AD/HD

Hynd indicated 4% of those with Inattentive AD/HD will meet criteria for Major Depression.

--Hynd, G. (2002)

Generalized Anxiety Disorder

Roffman wrote, "Adults with LD/ADHD often experience pressure as they work to cope with their symptoms. Anxiety develops out of such day-to-day occurrences as the loss of yet another set of keys…" (p. 49).

--Roffman (2000)

Brown indicated anxiety is a common symptom experienced by adults with Inattentive AD/HD.

--Brown (1996)

Avoidant Disorder

Hynd indicated 4% of those with Inattentive AD/HD will meet criteria for Avoidant Disorder.

--Hynd (2002)

AD/HD and Learning Disorders

- **Barkley stated 35% to 50% of adults with AD/HD have Specific Learning Disorder.**
- **Hynd reported that 60% of those with Inattentive AD/HD have Specific Learning Disorder.**
- **AD/HD is not a Specific Learning Disorder. In DSM-5® AD/HD is a Neurodevelopmental Disorder.**

--Barkley (1996); Hynd (2002); Author (May 18, 2013)

Hynd indicated of those with Inattentive AD/HD:

- **21% have Reading Disorder**
- **33% have Mathematics Disorder**
- **4% have Spelling/Disorder of Written Expression**

--Hynd (2002)

Inattentive ADHD and Dyslexia

- **"Using an unselected general population sample, we confirmed previous reports that reading difficulties show higher phenotypic and genetic correlations with ADHD inattention symptoms, compared to hyperactivity-impulsivity symptoms".**
- **There maybe a disrupted neurocognitive process specific to cases with inattentive ADHD and cormorbid reading disorder.**

--Paloyelis, Rijsdijk, Wood, Asherson, and Kuntsi (2010)

SCT & Auditory Processing Disorder

- **Inattentive AD/HD is often confused with LD.**

  --Barkley, R.A. (1998)

- **Inattentive Type *MAY* be related to Central Auditory Processing Disorder (CAPD)**

  --Barkley (2002B)

- **What appears to be comorbid CAPD in those with AD/HD may be a problem with inhibition and subsequent distraction leading to uncertainty of what was heard.**
- **There may only be a symptom overlap with CAPD.**

  --Author (February, 2003)

Executive Function and SCT

- **Barkley (2012) found those with SCT have no problems with Executive Functions whereas those with AD/HD have it in all areas.**
- **The only area of impairment SCT children have that is more severe that those with AD/HD is in sports. AD/HD children are more impaired in all other areas.**
- **Those with ADHD and comorbid SCT are the most impaired overall.**
- **About 50% with AD/HD have comorbid SCT**

--Barkley (November 9, 2012)

Adults with SCT & Impairment

- **Adults with SCT are more significantly impaired in the following areas than are those with AD/HD and the non-disabled:**

  - **Work**
  - **Education**
  - **Sexual behavior**

--Barkley (2011, May 23)

Brown, Inattentive AD/HD & Executive Function

Brown believes those with inattentive AD/HD have problems with executive function those with AD/HD have without the problems with Action (Time Blindness).

--Brown (2013)

The Genetics of the Inattentive Type

- **Brown believed it is a genetically separate and distinct disorder form the Combined Type, but changed his mind about this recently.**

--Brown (1997), (2013)

- **Barkley has believed SCT is a separate and distinct disorder from AD/HD for some time .**

--Barkley (1998A), (January, 2014)

Possible Etiology of SCT

Barkley said the Inattentive Type involves the posterior cortex, especially the parietal-occipital-thalamus complex. Abnormal evoked potentials have been found in the initial phase, but not the P-300 like in the Combined Type. BEAM scans suggest the anterior lobes.

--Barkley (1998)

ADHD, Combined Type…, "may be a problem in the functional level of prefrontal-limbic pathways, particularly the striatum…whereas ADHD-PI (SCT, sic.) may involve more posterior associative cortical areas and/or cortical-subcortical feedback loops, perhaps including the hippocampal system" (p. 204).

--Barkley (2006)

Possible Etiology of SCT

AD/HD appears to involve the neurotransmitter dopamine and SCT appears to involve norepinephrine. Epinephrine urine excretion may be significantly correlated with inattention in SCT children.

--Barkley (2006)

"Lab studies suggest that children with SCT may manifest significantly more errors with information processing, set shifting, focused attention, and possibly memory retrieval that are not evident in ADHD-C" (sic., ADHD, Combined Type) (p. 80).

--Barkley (2006)

Possible Etiology of SCT

"These findings intimate that children with ADHD-PI (sic., SCT) may have more of a problem with memory, perceptual-motor speed, or even central cognitive processing speed, whereas children with ADHD-C (sic., Combined Type) manifest more problems with behavioral disinhibition and poor attention to tasks, in addition to their over activity." (p. 203)

--Barkley (2006)

- **It may be caused by anomalies in the attentional area at the rear of the brain**
- **Or, it may be cause by brain differences in the brain stem.**

--Barkley (2012)

Joel Nigg on the Inattentive Type

- **Those with Inattentive ADHD have more problems with response inhibition than controls, but less than those with Combined Type ADHD.**
- **Those with Inattentive ADHD have an abnormal attentional blink that indicates they have a neurologically different frontal-parietal system than those with Combined Type ADHD.**
- **However, ADHD subtypes are unstable over time and this applies somewhat to the Inattentive Type.**

--Nigg (November 11, 2010), (November 11, 2010)

CHADD Conference, Martha Denckla, and Sluggish Cognitive Tempo

- **During the question and answers portion of her keynote address I asked Dr. Denckla for her insights into SCT.**
- **She said she believes SCT exists and it is a form of extremely slow processing that is often found to be associated with AD/HD. These people have extremely slow response times. They are starting to perform electrophysiology studies of SCT because fMRI is too slow.**

Denckla, M.B. (November 10, 2012). Closing Keynote: Understanding the Neurobiological Basis of ADHD: 25 Years of Innovation in Research. Paper presented at the 24th Annual CHADD international Conference, Burlingame, CA; November 8-10, 2012.

Causes of SCT

- **Currently the causes of SCT are not known. However, we do know:**
  - **SCT is more common in children with low SES parents who have less education and lower levels of employment.**
  - **SCT may be caused in some children who have been treated for childhood leukemia. It is due to the chemotherapy and radiation, not the leukemia.**

--Barkley (November 9, 2012)

Children with Fetal Alcohol Syndrome attentional problems may be caused by SCT.

--Graham, Crocker, Roesch, Coles, Kable, May, Kalberg, Sowell, Jones, Riley, and Mattson (July 20, 2011)

Causes of SCT

- **SCT may be a form of hypoarousal almost like narcolepsy.**
- **It may be a dysfunction of the orientation-action attention network at the back of the brain.**
- **It may be related to an anxiety disorder. Anxiety Disorders are highly comorbid with SCT.**

--Barkley (November 9, 2012)

Tzelepis (Tzelepis and Maypou, 1997) stated that Inattentive AD/HD may in reality be an anxiety disorder. She observed there was an extraordinarily high rate of anxiety disorders among those with Inattentive AD/HD.

--Tzelepis, and Mapou (May, 1997).

Causes of SCT

SCT may be related to Pathological Mind Wandering. The following may be the cause of the mind wandering:

- **They cannot inhibit their mind from wandering.**
- **They are trying to avoid boredom.**
- **They are trying to avoid anxiety.**
- **They have some obsessive component of Obsessive Compulsive Disorder.**

--Barkley (November 9, 2012)

Inattentive AD/HD Rating Scales

- **Barkley, R.A. (February, 2011). Barkley Adult ADHD Rating Scales IV, (BAARS-IV). New York, NY: Guilford.**
- **Barkley, R.A. (February, 2011). Barkley Functional Impairment Scale, (BFIS). New York, NY: Guilford.**
- **Barkley, R.A., Murphy, K.R. (2005). Attention-Deficit Hyperactivity Disorder: A Clinical Workbook, Third Edition. New York, NY: Guilford.**
- **Brown, T.E. (1996). Brown Attention-Deficit Disorder Scales (for Adults). San Antonio, TX: PsychCorp.**
- **Brown, T.E. (2001). Brown Attention-Deficit Disorder Scales (for Children and Adolescents). San Antonio, TX: PsychCorp.**
- **Brown, T.E. (1996,2001): Brown ADD Diagnostic Forms (Children, Adolescents and Adults). San Antonio, TX: PsychCorp.**

Inattentive AD/HD Rating Scales

- **Conners, C.K. (2008). Conners Comprehensive Behavior Rating Scales. North Tonawanda, NY: MHS.**
- **Conners', C.K. (1998). Conner's Adult ADHD Rating Scales (CAARS). North Tonawanda, NY: MHS.**
- **Penny, A.M., Waschbusch, D.A., Klien, R.M. Corkum, P., Eskes, G. (2009). Developing a Measure of Sluggish Cognitive Tempo for Children: Content Validity, Factor Structure, and Reliability. Psychological Assessment, 21(3), 380-389.**

Accommodating SCT in School

- SCT people are more likely to have Mathematics Disorder/Dyscalculia.
- SCT people are passive, shy and withdrawn socially and not socially rejected.
- They appear to have deficits in social skills.
- SCT people do not respond to stimulants.
- SCT = Processing Problem/Selective Attention
- SCT finish school work…accuracy problem

--

Barkley (2006), (2008)

- Behavioral interventions that focus on noncompetitive external rewards for meeting specific goals.
- Extended time to address slow processing speed.
- About 60 % have comorbid SLD. Treat comorbidities.

Barkley, R.A. (2006), (2008); Hynd (2002)

Treat Comorbid Anxiety

SCT people experience significantly more anxiety than people with other types of ADHD. They may respond better to behavioral treatments that focus on reducing their anxiety.

--Ramsay, R. (2010)

SCT=Concentration Deficit Disorder

Barkley wants to call SCT “Concentration Deficit Disorder”.

--Barkley (January, 2014)

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)

Possible Alternative Medicine Treatment for Working Memory Problems

- **Working Memory Training:**
  - **Torkel Klingberg, M.D., Ph.D.**
  - **Karolinska Institute- Stockholm, Sweden**
  - **CogMed software company (RM Program)**
  - **AD/HD deficient in visual spatial working memory (WM) that becomes worse with age.**
  - ***MAY*** **help relieve visual spatial WM difficulties and reading comprehension in Combined Type AD/HD.**
  - ***More Research is needed!*** **www.cogmed.com**

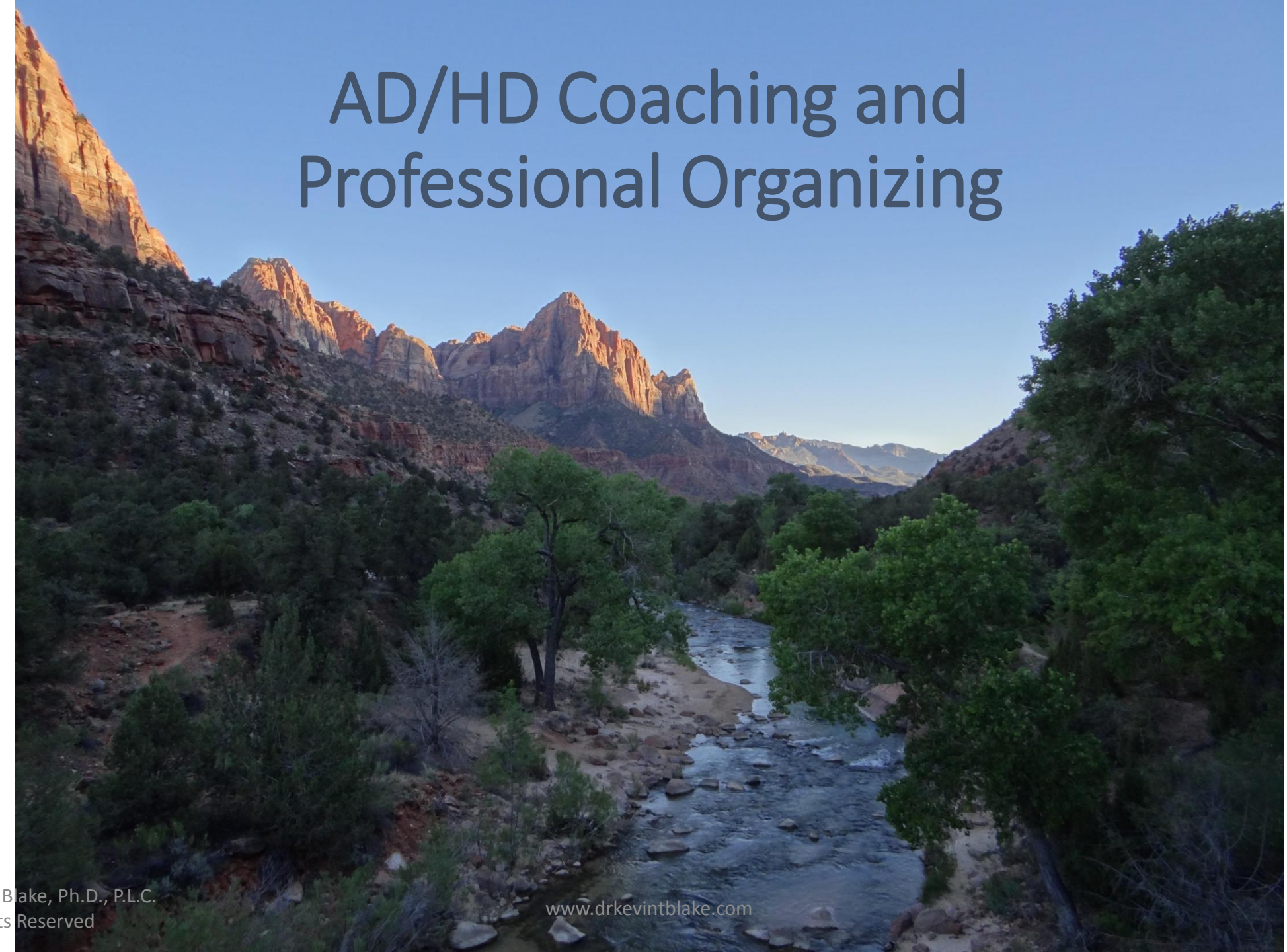
--Klingberg (February, 2006); Barkley (February, 2006); Ingersoll, B. (October 26, 2006); Klingberg, and Anderson (October 28, 2006)

Literature Review of Working Memory Training

"The literature review highlights several findings that warrant further research but ultimately concludes that there is a need to directly demonstrate that WM capacity increases in response to training. Specifically, we argue that transfer of training to WM must be demonstrated using a wider variety of tasks, thus eliminating the possibility that results can be explained by task specific learning. Additionally, we express concern that many of the most promising results (e.g., increased intelligence) cannot be readily attributed to changes in WM capacity. Thus, a critical goal for future research is to uncover the mechanisms that lead to transfer of training."

--Shipstead, Redick, and Randall (2012)

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)

"Conclusion: ADHD coaching helped participants enhance their self-control as they responded to the multifaceted demands of undergraduate life."

--Parker, Hoffman, Sawilowsky, and Rolands (December 15, 2011)

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)

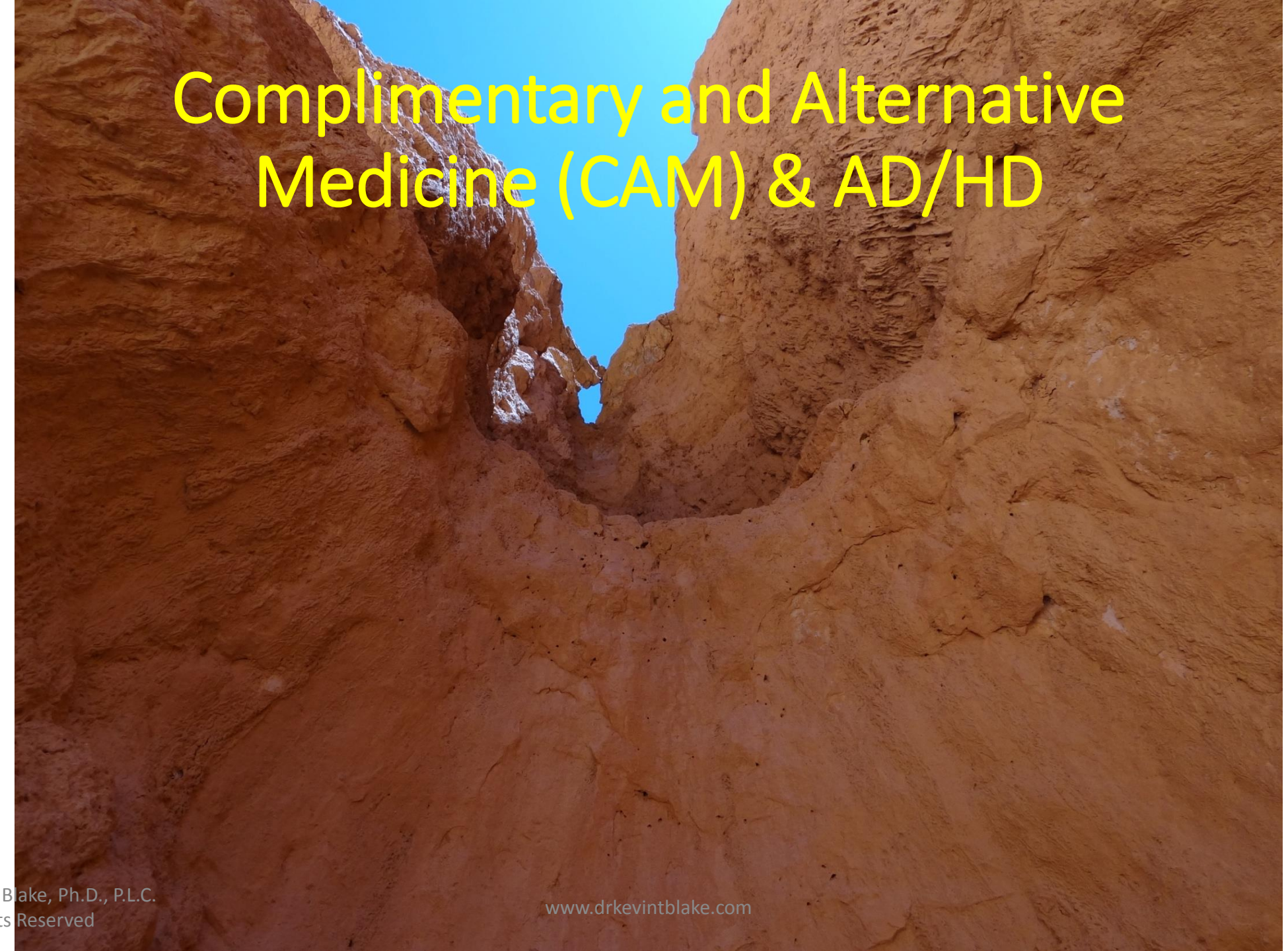
- **Have children with ADHD take their toughest classes in the morning after aerobic exercise.**
- **After the more difficult class take fun/easier class.**
- **If they have a choice to cram 20 extra minutes for an exam or exercise 20 minutes, it would be better to exercise.**

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)



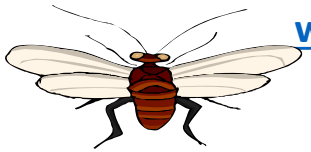
Complimentary and Alternative Medicine (CAM) & AD/HD

Complementary & Alternative Treatments Not Backed by Research

- Light Therapy
- Repetitive Transcranial Magnetic Stimulation
- Magnetic bed mattresses
- Vestibular and Cerebellar Exercises
- Massage
- Interactive Metronome
- Chiropractic treatment
- Vision therapy
- Acupuncture
- Mirror feedback
- Herbal & Homeopathic Treatments
- Tarantula venom

Ramsay, R. (2010). Nonmedication Treatments for Adult ADHD. Washington, DC: American Psychological Association Press.

Barkley, R.A. (2008). Advances in ADHD: Theory, diagnosis and management. J & K Seminars, L.L.C., 1861 Wichersham Lane, Lancaster, PA 17603; 800-801-5415; www.jkseminars.com.



WHAT ABOUT DIET, FOOD ADDITIVES, SUGAR & ADHD?

“Said simply, there is no reliable evidence that poor diet, too much sugar, too much caffeine, or food additives are causal factors for the widespread symptoms and impairments characteristic of ADHD.” (p. 149)

--Ramsay (2010)

Recent Review of Neurobiofeedback Research Results with AD/HD

- **Based on the results and methodologies of published studies, this review concludes that NF for pediatric ADHD can be currently considered as "probably efficacious."**

--Lofthouse, Arnold, Hersch, Hurt, and DeBeus (November 16, 2011)

Neurobiofeedback and AD/HD

- **Ramsay stated that support for neurobiofeedback is, "…tentative and not conclusive, and the precise mechanisms of change remain unclear…" (p.123)**

Ramsay, R. (2010). Non-medication Treatments for Adult ADHD. Washington, DC: American Psychological Association Press.

- **For further discussion of this hotly debated topic go to Dr. Blake's website's webinar extra slide page: www.drkevintblake.com.**

National Center for Complementary and Alternative Medicine

National Center for Complementary and Alternative Medicine: www.nccam.nih.gov

NCCAM Clearinghouse: 888-644-6226

Other Places To Check Out Cam Techniques

- **FDA Center for Food Safety and Applied Nutrition: Dietary Supplements: http://www.fda.gov/food/dietarysupplements/default.htm**
- **NIH Office of Dietary Supplements (ODS): http://ods.od.nih.gov/**
- **FDA Food and Drug Scams Website: www.fda.gov/healthfraud**
- **FDA Consumer Updates: www.fda.gov/ForConsumers/ConsumerUpdates/default.htm**

Websites and Books To Check

- **Cochrane Collaboration: www.cochrane.org**
- **Quackwatch: www.quackwatch.com**

Field, T. (2008). Complementary and Alternative Therapies Research. Washington, DC: American Psychological Association Press.

Ramsay, R. (2010). Non-medication Treatments For Adult ADHD. Washington, DC: American Psychological Association Press.

Technology for AD/HD

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.

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**

College Accommodations and AD/HD

"Treat them like a 13 year old."

1. **SMALLER CLASSES**
2. **Fewer Classes**
3. **Hand pick faculty**
4. **More curricular materials like videos and handouts**
5. **Studying with older student who already took the course perhaps**
6. **Taking five years to complete a B.A. rather than four."**

--Barkley (2002A-Tape 2)

College Accommodations and AD/HD

1. **Formal Tutoring**
2. **Attending all faculty extra help sessions**
3. **Taking a time management seminar**
4. **Taking advantage of disability support services**
5. **Individual psychotherapy**

--Barkley (2002)

6. **Alternative method exams**
7. **Get an AD/HD coach**
8. **Ask faculty to post assignments weekly on website**
9. **House in a substance-free dorm**
10. **Career counseling several years before graduation**

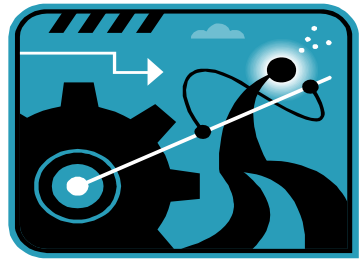
--Barkley (2002)

❖**No extended time, but breaks**

--Barkley (2008)

Vocational Counseling and AD/HD

AD/HD and Employment

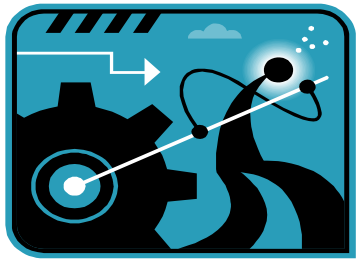


- **Difficulty with others is one of the main reasons AD/HD adults loose their jobs.**

..

--Ratey and Griffith-Haynie (1998)

AD/HD and Employment



- **One-half of AD/HD adults are unemployed.**

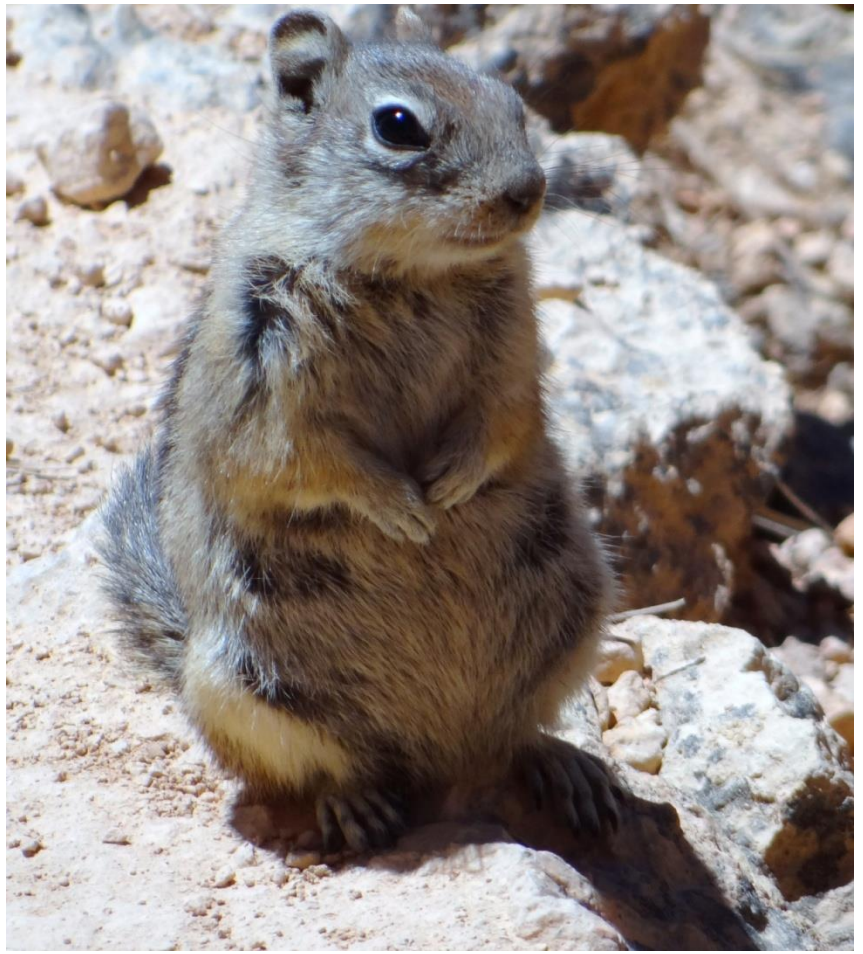
--Biederman (October 27, 2006)

Employment & ADHD

- **ADHD workers have significantly lower salaries.**
- **They are absent from the job more and significantly more underproductive than non-ADHD workers.**
- **They have more on the job accidents.**
- **On average ADHD costs the household $10,000 per year of income.**

--Ramsay, R. J. (2010)

Barkley's Recommendations for Employers of Adults With AD/HD



Barkley's Recommendations for Employers of Adults With AD/HD

1. **Understand AD/HD is a neurobiological disorder**
2. **AD/HD Adults have a deficit in self-regulation compared to others**
3. **AD/HD employees need directions spoken and written for them**
4. **AD/HD employees have *time blindness* and need external time reminders**
5. **Long-term projects need to be broken down into many short-term projects**
6. **AD/HD employees need to check in with bosses much more than others**
7. **Working in teams can help them stay on task**
8. **AD/HD adults may do better with self-employment, commission work, and hourly wages**
9. **The AD/HD adult can set up their own *self-reinforcement"*system**
10. **AD/HD adults tend to do better with physical work and work with social interaction**

Barkley's Recommendations for Employers of Adults With AD/HD

11. **AD/HD adults do poorly at tedious, boring and repetitive work. They do better with variety.**
12. **Often they do not do well in team leadership positions due to their impulsivity**
13. **Some AD/HD adults may need vocational assessment and counseling**
14. **Some may need an AD/HD coach and/or professional organizer**

--Barkley (March, 2013)

15. **Research has shown many with AD/HD are more alert in the mid-afternoon and evening; second shift work may work better**
16. **Frequent short breaks and having a non-distracting work environment may be helpful**
17. **Using sound suppression and/or music to block out distracting noise can help**
18. **Encourage them to take medication if it has been found to be helpful for them**
19. **Give reasonable accommodations under ADAAA**

Vocational Counseling and AD/HD

High-Risk, Fast-Paced Jobs:

- **Sales**
- **Advertising**
- **Creative arts**
- **Entrepreneurship**

Murphy, K.R., and LeVert, S. (1995). Out of the Fog: Treatment Options and Coping Strategies for Adult Attention Deficit Disorder. New York, NY: Hyperion.

Vocational Counseling and AD/HD

Workplace Issues of AD/HD Adults:

1. **Difficulty with transitions**
2. **Difficulty with time management**
3. **Difficulty with disorganization**
4. **Difficulty with self-image**
5. **Difficulty with others**

Vocational Counseling and AD/HD

Workplace Issues (Continued):

6. **Lack of understanding of AD/HD**
7. **Inconsistency**
8. **Lack of self-management**
9. **Lack of self-advocacy**
10. **Lack of job life skills**

Ratey, N., and Griffith-Haynie, M. (1998). Coaching to Improve Workplace Performance. Paper presented at the Fourth Annual ADDA Adult ADD Conference, March 26-28, Washington, DC.

Vocational Counseling and AD/HD

Things to Consider in AD/HD Career Evaluation:

1. **Difficulty with transitions**
2. **Difficulty with time management**
3. **Difficulty with disorganization**
4. **Difficulty with self-image**
5. **Difficulty with others**

6. **Lack of understanding of AD/HD**
7. **Inconsistency**
8. **Lack of self-management**
9. **Lack of self-advocacy**
10. **Lack of job life skills**

--Ratey and Griffith-Haynie (1998)

Vocational Counseling and AD/HD

Things to Consider in AD/HD Career Evaluation:

- **Interests**
- ***Personality type***
- **Areas of strength**
- **Areas of weakness**
- **Level of training**

--Nadeau, K.G. (1997)

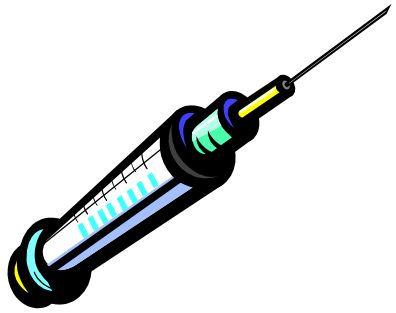
Alternative Work Choices for AD/HD:

- **Telecommuting**
- **Home based sales**
- **Home based business**
- **Entrepreneur**

--Nadeau (1998).

Workplace Accommodations

1. **More accountability to others**
2. **Shorter term goals**
3. **Externalize time**
4. **Report many times a day on tasks**
5. **Medication (drug screening issue, too)**



--Barkley (2002)


Appendix

National Disability Rights Network

National Disability Rights Network
900 Second Street, NE, Suite 211
Washington, DC 2002
P: 202-408-9514
F: 202-408-9520
TTY: 202-408-9521

Website: www.ndrm.org

Workplace Accommodations

Job Accommodations Network

P. O. Box 6080

Morgantown, WV 26506-6080

Voice/TTY (in US): 1-800-526-7234

Voice/TTY (Worldwide): 1-304-293-7186

Fax: 1-304-293-5407

E-mail: jan@jan.icdi.wvu.edu

Web: www.jan.wvu.edu/english/

- **U.S. Equal Employment Opportunity Commission**

  1801 L Street, NW

  Washington, DC 20507

  www.eeoc.gov

- **Office of Civil Rights**

  Department of Health and Human Services

  200 Independence Avenue Southwest

  Washington, DC 20201

  www.hhs.gov/ocr/office/index.html

Documentation Recourses

Latham, P.S., and Latham, P.H. (2007). Learning Disabilities/ADHD and The Law in Higher Educational and Employment. Washington, DC: JKL Communications.

Gordon, M. and Keiser, S. (Eds.) (1998). Accommodations in Higher Education Under the Americans with Disabilities Act: A No-Nonsense Guide for Clinicians, Educators, Administrators, and Lawyers. New York, NY: Guilford.

Documentation

Gordon, M. and Keiser, S. (Eds.) (1998). Accommodations in Higher Education Under the Americans with Disabilities Act: A No-Nonsense Guide for Clinicians, Educators, Administrators, and Lawyers. New York, NY: Guilford.

Documentation Guidelines for AD/HD

Author (2008). Documenting ADHD Policy Statement for Documentation of Attention-Deficit/Hyperactivity Disorder (ADHD) in Adolescents and Adults, Second Edition.

Office of Disability Policy, Educational Testing Service, Princeton, NJ 08541: From website:

http://www.ets.org/disabilities/documentation/documenting_adhd/.

Association for Higher Education and Disability (AHEAD) (2012) Supporting Accommodation Requests: Guidance on Documentation Practices. From website:

http://www.ahead.org/uploads/docs/resources/Final_AHEAD_Supporting%20Accommodation%20Requests%20with%20Q&A%2009_12.pdf.

Documentation Requirements

For Specific Learning Disability

Author (2007). ETS Revised Policy Statement for Documentation of a Learning Disability in Adolescents and Adults, Second Edition. Office of Disability Policy, Educational Testing Service, Princeton, NJ 08541: from website: http://www.ets.org/disabilities/documentation/documenting_learning_disabilities/.

For Psychiatric Disorders

Author (2012). Guidelines for Documentation of Psychiatric Disabilities in Adolescents and Adults, Second Edition. Office of Disability Policy, Educational Testing Service, Princeton, NJ 08541. From website: http://www.ets.org/disabilities/documentation/documenting_psychiatric_disabilities/.

Medications Used For AD/HD

Stimulant Medications Used to Treat AD/HD That Are Approved by the FDA

Methylphenidate (Ritalin)

- **Delivery Systems**

❖**Concerta/OROS**

❖**Medidate/Diffucaps, microl, SODAS**

❖**Methapatch/Patch**

❖**Focalin/isomer**

--Barkley (2012)

Dexedrine (Amphetamine)

- **Delivery Systems**

❖**Adderall XR/ 4 amphetamine salts**

❖**Vyvance (lisdexamfetamine)becomes active when combined with stomach acids**

Side Effects of Stimulants

- ***Insomnia***
- ***Edginess***
- ***Diminished appetite***
- ***Weight Loss***
- ***Dysphoria***
- ***Obsessiveness***
- ***Tics***
- ***Headaches***

--Prince and Wilens (2002)

Ritalin vs. Cocaine; Stimulants and Substance Abuse

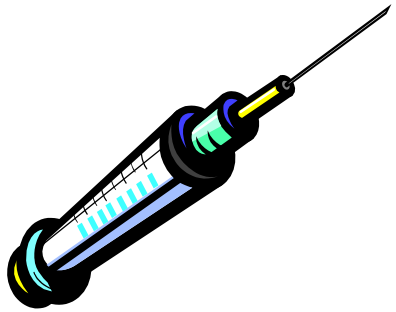
"We speculate that because the experience of the high is associated with the fast uptake of cocaine and methylphenidate in the brain, the slow clearance of methylphenidate from the brain may serve as a limiting factor in promoting its frequent self-administration." (p. 456)

--Volkow (June, 1995)

Harvard Study Risk of Substance Abuse

- ***Unmedicated AD/HD Children: 30%***
- ***Medicated AD/HD Children: 12%***
- ***Non-AD/HD Controls: 10%***

--Prince (November 1, 2000).



Some Reasons AD/HD Adults Do Not Respond To Stimulants:

"A meta-analysis of data on these lower response rates suggests lower responses are due to methodological limitations (i.e., varying diagnostic criteria and use of low doses)." (p. 156)

--Prince and Wilens (2002)

Antidepressants and AD/HD

Tricyclic Antidepressants:

- **Desipramine (Norpramine, Pertofane)**
- **Imipramine (Tofranil)**
- **Nortriptyline (Pamelor)**

--Wilens, Spencer, and Biederman (2000); Arnold (2002)

- **"The antidepressants are generally considered second-line drugs of choice in the treatment of ADHD." (p. 515)**

--Wilens, Spencer, and Biederman (2000)

Tricyclic Antidepressants

“Despite extensive experience in children and adolescents…there are only two studies of these agents for treating adult AD/HD. Compared to the stimulants, TCAs have negligible abuse potential, convenient single daily dosing, and efficacy for coexisting anxiety and depression.” (p. 156)

--Wilens, Spencer, and Biederman (2000)

Side Effects with Tricyclic Antidepressants:

Common

- **Dry Mouth**
- **Constipation**
- **Blurred vision**
- **Weight gain**
- **Sexual dysfunction**

Less Common

- **Reduced cardiac conduction**
- **Elevated blood pressure and heart rate**
- **Must monitor**

--Wilens, Spencer, and Biederman (2000)

References

Knouse, L. (June, 2011). Predictors of Adherence to Long-Term Stimulant Treatment in Adults. The ADHD Report, 19(3), 10.

Bejerot, S., Ryden, E.M., Arlinde, C.N. (2010). Two-Year Outcome of Treatment With Central Stimulant Medication in Adult Attention-Deficit/Hyperactivity Disorder: A Prospective Study. Journal of Clinical Psychiatry, 71(12), 1590-1597.

Other Medications for AD/HD Approved by the FDA

- **Atomoxetine/Strattera-Norepinephrine reuptake inhibitor**
- **Intunive XR/Guanfacine XR-Anti-Hypertensive**
- **Kapvay/clonidine hydrochloride-Anti-Hypertensive**

--Barkley, R.A. (2012)

Atomoxetine/Strattera: Side Effects

- **Suicidal Ideation in Children and Adolescents 0.4% risk**
- **Stomach upset, nausea, vomiting, constipation, fatigue, loss of appetite, headache, dry mouth, dizziness, trouble sleeping, menstrual cycle changes, or mood changes may occur. If any of these effects persist or worsen, tell your doctor or pharmacist promptly.**
- **A very serious allergic reaction to this drug is rare. However, seek immediate medical attention if you notice any symptoms of a serious allergic reaction, including: rash, itching/swelling (especially of the face/tongue/throat), severe dizziness, trouble breathing.**

From website: http://www.rxlist.com/strattera-drug/consumer-side-effects-precautions.htm.

Intunive XR/Guanfacine Side Effects

❖**Serious Side Effects**

- ➢**fast or slow heart rate;**
- ➢**pounding heartbeats, chest tightness;**
- ➢**numbness or tingling; or**
- ➢**feeling like you might pass out.**

From website: http://www.rxlist.com/intuniv-side-effects-drug-center.htm

❖**Common Side Effects**

- ➢**drowsiness, dizziness, tired feeling;**
- ➢**dry mouth;**
- ➢**constipation;**
- ➢**stomach pain;**
- ➢**weight gain;**
- ➢**headache; or**
- ➢**feeling irritable.**

Kapvay/clonidine hydrochloride-Anti-Hypertensive Side Effects

"Most common adverse reactions, defined as events that were reported in at least 5% of drug-treated patients and at least twice the rate as in placebo patients, during the treatment period were somnolence, fatigue, upper respiratory tract infection, irritability, throat pain, insomnia, nightmares, emotional disorder, constipation, nasal congestion, increased body temperature, dry mouth, and ear pain. The most common adverse reactions that were reported during the taper phase were upper abdominal pain and gastrointestinal virus."

From website: http://www.rxlist.com/kapvay-drug/side-effects-interactions.htm.

“Typical” Medications Given Off-Label for AD/HD

- **Meth-amphetamine-Addictive**
- **Tricyclic Anti-Depressants-don’t work as well and there are cardiac concerns**
- **Wellbutrin/bupropion- stimulants work better**
- **Anti-histamines/Doesn’t work very well**

--Barkley, R.A. (2012)

Wellbutrin/bupropion- Side Effects

❖**Serious Side Effects**

- ➢**seizure (convulsions);**
- ➢**severe blistering, peeling, and red skin rash;**
- ➢**fever, swollen glands, rash or itching, joint pain, or general ill feeling;**
- ➢**confusion, trouble concentrating; or**
- ➢**hallucinations, unusual thoughts or behavior.**

From website: http://www.rxlist.com/wellbutrin-sr-side-effects-drug-center.htm

❖**Common Side Effects**

- ➢**headache or migraine, dizziness, tremors (shaking);**
- ➢**sleep problems (insomnia), loss of interest in sex;**
- ➢**nausea, vomiting, constipation, dry mouth;**
- ➢**appetite changes, weight loss or gain; or**
- ➢**mild itching or skin rash, increased sweating.**

Medication & SCT

Medication and Inattentive AD/HD

- **Only about 20% of those with Inattentive AD/HD respond to Stimulant Medication.**
- **Those with Sluggish Cognitive Tempo probably do not respond.**

Barkley, R.A. (2002) Mental and Medical Outcomes of AD/HD. Pre-Conference Institute, # TPA1, Thursday October 17, 2002, 14th Annual CHADD International Conference, Miami Beach, FL.

Barkley, R.A. (2006). Attention-Deficit Hyperactivity Disorder, Third Edition. New York, NY: Guilford, p. 202.

Ramsay, R. (2010). Nonmedication Treatments for Adult ADHD. Washington, DC: American Psychological Association Press, p. 15.

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, W. (2002). The Use of Stimulant Medication in the Treatment of Attention Deficit Hyperactivity Disorder. Pediatrics & Child Health, 7 (10), pp. 693-696; From website: www.ncbi.nlm.nih.gov/pmc/articles/PMC2796531.

Medication and Sluggish Cognitive Tempo AD/HD

- **Strattera (Atomoxetine):**
  - **Selective Norepinephrine Reuptake Inhibitor**
  - **Good for depression & anxiety too**
  - **Schedule II: Not Controlled – Call in Scripts**
  - **Side Effects: insomnia, nausea, dry mouth, constipation, dizziness, decreased appetite, urinary difficulty, erectile disturbance, decreased libido, slight increase in blood pressure and pulse, liver problems (rare)**

Author (2004). Managing Medication for Adults with AD/HD. National Resource Center on AD/HD (A Program of CHADD), p. 1-12; From Website: www.helpforadhd.org/documents/wwk10.pdf.

Medications and Sluggish Cognitive Tempo AD/HD

- **Provigil (Modafinil)**
  - **Will be marketed as "*Sparlon*" as an AD/HD medication**
  - **Significantly reduces inattention, hyperactivity and impulsivity in home and school, no withdrawal rebound**
  - **Few side effects: Insomnia (28%), Headache (22%), Decreased Appetite (18%), Abdominal Pain; Insomnia and Appetite problems decrease with time**
  - **Low abuse potential/Not a controlled substance- Schedule IV Medication**
  - **May increase right frontal lobe wakefulness, alerting and executive functioning**

Medication and Sluggish Cognitive Tempo AD/HD

- **The FDA recently rejected approving Modafinil as an AD/HD medication.**

Author (February/March, 2006) Two New Medications Promise Greater Convenience, Smaller Potential for Abuse. ADDitude, 6 (4), p. 11.

www.fda.gov/ohrms/dockets/ac/06/briefing/2006-4212b1-01-09-fda-tab9.pdf

Mechcatie, E. (September, 2006). FDA Cites Stephens-Johnson in Modafinil. ADHD Rejection. Clinical Psychiatry News, 1-2. From website: www.Findarticles.com/p/articles/mi_hb4345/is_9_34/ai_n29293254/

Author (2007). Modafinil (marketed as Provigil): Serious Skin Reactions. FDA Drug Safety Newsletter, 1(1). From website: http://www.fda.gov/Drugs/DrugSafety/DrugSafetyNewsletter/ucm115974.htm

Biederman, J., Swanson, J., Wigal, S.B., Kratohvil, C.J., Boellner, S.W., Earl, C.Q., Jiang, J. and Geenhill, L. (December, 2005). Efficacy and Safety of Modafinil Film-Coated Tablets In Children and Adolescents with Attention-Deficit/Hyperactivity Disorder: Results of a Randomized, Double-Blind, Placebo-Controlled Flexible-Dose Study. Pediatrics, 116 (6), pp. e-777-e-784; From Website: http://pediatrics.aappublications.org/cgi/content/full/116/6/e777 .

Modafinil Side Effects

"Headache, nausea, nervousness, anxiety, dizziness, and difficulty sleeping may occur. If any of these effects persist or worsen, notify your doctor or pharmacist promptly."

From website:
http://www.rxlist.com/provigil-drug/consumer-side-effects-precautions.htm.

"A very serious allergic reaction to this drug is rare. However, stop taking this medication and seek immediate medical attention if you notice any of the following symptoms of a serious allergic reaction: rash, itching/swelling (especially of the face/tongue/throat), skin blisters/peeling, severe dizziness, trouble breathing."

(Stephens Johnson Syndrome)