Comorbidity in Adults with AD/HD

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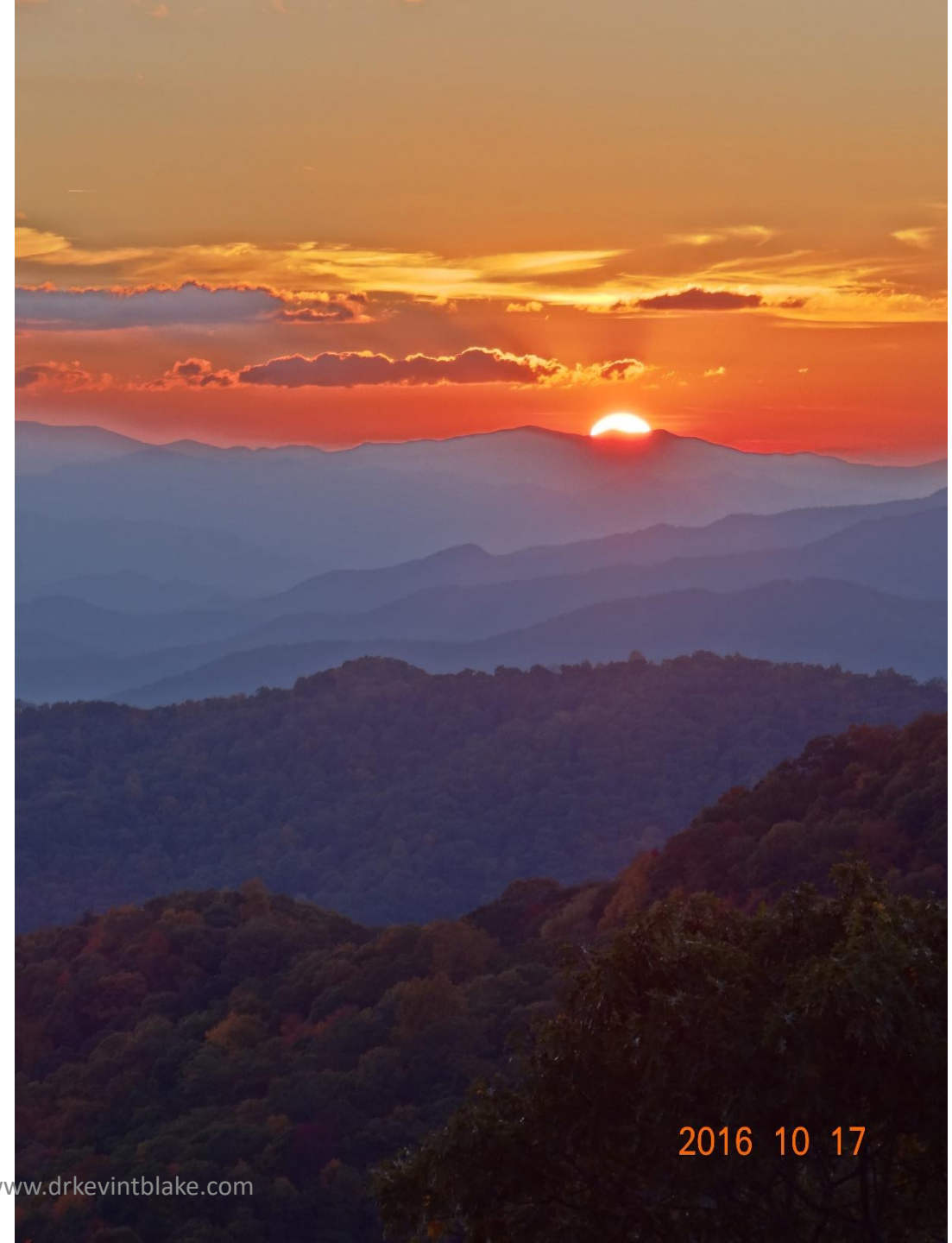
Announcements, Disclosures and Paperwork



Disclaimer

"Materials that are included in this course may include interventions and modalities that are beyond the authorized practice of mental health professionals. As a licensed professional, you are responsible for reviewing the scope of practice, including activities that are defined in law as beyond the boundaries of practice in accordance with and in compliance with your profession's standards."

Disclaimer

- None of the techniques described in this seminar will work for all adults with AD/HD. Every person with AD/HD is different.
- There are no absolutes.
- All treatments have negative side effects. Some more than others. The presenter will do his best to cover the most common ones.
- The theories described in this seminar do not have the same amount of empirical evidence supporting each one of them. The presenter will do his best to describe the pros and cons of each.
- If you are concerned about a treatment technique described in this seminar ask the presenter about it.

Disclaimer

- **Speaker Disclosure:**
- **Financial: Kevin Blake maintains a private practice. He is a stockholder in Johnson & Johnson, Inc. and Amgen, Inc. Dr. Blake receives royalty from PESI, Inc., and an honorarium from TPN.Health for speaking.**
- **Non-financial: Kevin Blake is a member of the Children and Adults with Attention Deficit Disorders (CHADD), International Dyslexia Association (Orton Oak), Learning Disabilities Association of America, and American Psychological Association.**

Disclaimer

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Comorbidity & AD/HD

- **65 to 85 percent of adults with AD/HD suffer one or more Comorbidities.**
- **Depression, anxiety disorders, bipolar disorder, substance abuse disorders and personality disorders are the most common comorbidities diagnosed in adults with AD/HD.**

Sobanski, E. (September, 2006). Psychiatric comorbidity in adults with attention-deficit/hyperactivity disorder (ADHD). European Achieves of Psychiatry and Clinical Neuroscience. DOI: 10.1007/s00406-006-1004-4.

Katzman, M.A., Et al. (August 22, 2017). Adult ADHD and comorbid disorders: clinical implications of a dimensional approach. BMC Psychiatry. DOI: 10.1186/s12888-017-1463-3.

Comorbidity & AD/HD

- **Researchers from Brazil found that approximately 70 percent of adults with AD/HD have at least one comorbidity.**
- **They found that high hyperactivity, inattention, female gender, comorbid mood disorders and low socioeconomic status were more often associated with negative life experiences.**
- **However, the severity of hyperactivity and inattention were by far the greatest determinate of negative life experiences.**

Garcia, C.R. et al. (April 15, 2020). The burdened life of adults with ADHD: Impairment beyond comorbidity. European Psychiatry. DOI: 10.1016/j.eurpsy.2010.08.002.

Comorbidity & AD/HD

- College freshmen with AD/HD were found to have a 55 percent chance of having one comorbidity and 31.8 percent were found to have two, or more.
- Comparison non-AD/HD students were found to have an 11.2 percent chance of having one comorbidity and a 4 percent chance of having 2 or more.
- Major Depressive Disorder and Generalized Anxiety Disorder were found to be the most prevalent comorbidities of the AD/HD students.
- Rates fluctuated somewhat among gender groups, but not ethnic or racial groups.

Anastopoulos, A.D. et al. (February 6, 2016). Rates and Patterns of Comorbidity Among First-Year College Students With ADHD. Journal of Clinical Child and Adolescent Psychology. DOI: 10.1080/15374416.2015.1105137.

Diagnosis, Comorbidity, & AD/HD

- **Thus, we propose three key questions that clinicians can ask in order to help identify red flags suggestive of an ADHD diagnosis in complicated patients:**
- **a) Have you had long-standing and consistent problems with attention and distractibility?**
- **b) Have your current complaints been present over the last 10 or 20 years?**
- **c) If I could see you in the classroom when you were a child, what would you be like?**

Katzman, M.A., Et al. (August 22, 2017). Adult ADHD and comorbid disorders: clinical implications of a dimensional approach. BMC Psychiatry. DOI: 10.1186/s12888-017-1463-3.

“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). The Blank Slate: The Modern Denial of Human Nature. New York, NY: Viking.

- **AD/HD is not caused by child rearing practices or environmental experience.**
- **65 to 75% of cases of Combined Type ADHD are caused by genetic anomalies.**
- **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, 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.

Barkley, R. A. (2002A-Tape 1). ADHD Symposium: Nature, Diagnosis and Assessment-Nature and Comorbidity and Developmental Course of ADHD. University of Massachusetts, January, Westborough, MA: Stonebridge Seminars.

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

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 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

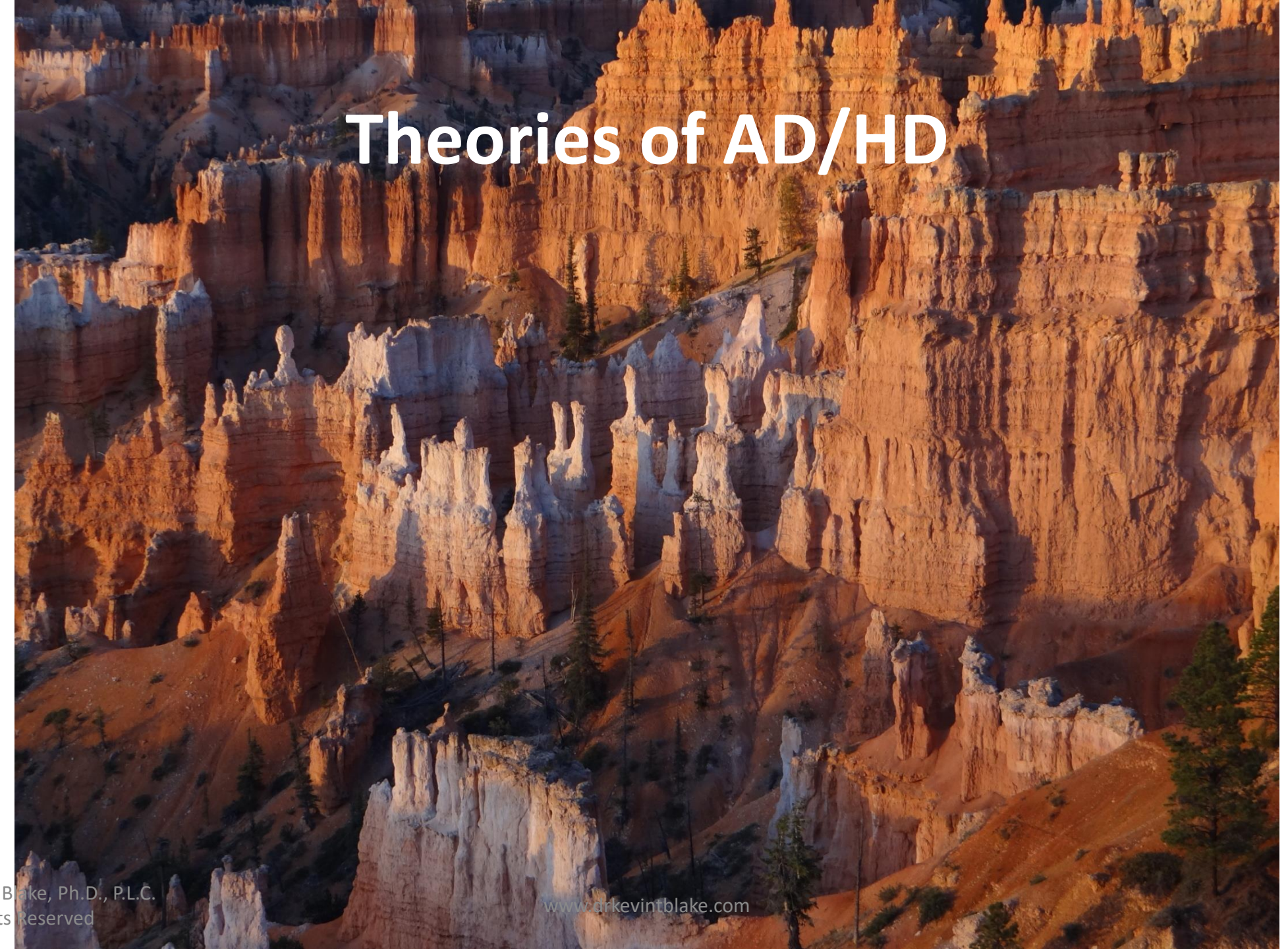
Swanson, J. et al. (April, 1998). Cognitive neuroscience of attention deficit hyperactivity disorder and hyperkinetic disorder. Current Opinion in Neurobiology, 8(2), 263-271.

Biederman, J. (October 27, 2006). Advances in the Neurobiology of AD/HD. Paper presented the at the 18 Annual CHADD International Conference, Chicago, IL.

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.

- 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, 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.



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, R.A. (1997). ADHD and the Nature of Self-Control. New York, NY: Guilford.

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

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, T.E. (1995). Differential Diagnosis of ADD Versus ADHD in adults. In K.G. Nadeau (Ed.), Attention-Deficit Disorder in Adults. New York, NY: Bruner/Mazel, 93-108.

Brown, T.E. (2013). A New Understanding of ADHD in Children and Adults: Executive Function Impairments. New York, NY: Routledge, 28.

Comorbidity

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, Concentration Deficit Disorder, Cognitive Disengagement Syndrome, & Crichton Syndrome.

- **SCT was first described by Alexander Crichton (1798).**

Barkley, R.A. (August 28, 2018). The Two Attention Disorders: Identifying, Diagnosing, and Managing ADHD vs. Sluggish Cognitive Tempo. PESI, Inc. Continuing Education Self-Study Materials, Eau Clare, WI.

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

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#.

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.

Goldstein, S. (November 9, 2017). Understanding and Evaluating Executive Functioning in ADHD Across the Life Span. Paper presented at the CHADD International Conference, Atlanta, GE, Pre-Conference Institutes, Session TA-01, November 9, 2017.

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

SCT Symptoms (Continued)

- **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, 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.

SCT Symptoms

- "Behavior is slow (e.g., sluggish)
- Lost in a fog
- Stares blankly into space
- Drowsy or sleepy (yawns) during the day
- Daydreams
- Loses train of thought
- Low level of activity (e.g., underactive)
- Gets lost in own thoughts
- Easily tired or fatigued
- Forgets what was going to say
- Easily confused
- Lacks motivation to complete tasks (e.g., apathetic)
- Spaces or zones out
- Gets mixed up
- Thinking is slow
- Difficulty expressing thoughts (e.g., gets "tongue-tied")"

Barkley, R.A. (January 21, 2023). What is Sluggish Cognitive Tempo? SCT Symptoms and Treatments. ADDitude Magazine. From website: https://www.additudemag.com/sluggish-cognitive-tempo-sct-symptoms-treatments/.

Adults with SCT

- SCT have a risk for depression
- SCT dimensions are sluggishness and day- dreaminess does not correlate with EF
- No relationship with ODD and/or CD; Internalizers – not open to new experiences, shy, sensitive to punishment, depressed/anxious
- SCT adults more impaired in work, education and sex life than ADHD.

Barkley, R.A. (August 28, 2018). The Two Attention Disorders: Identifying, Diagnosing, and Managing ADHD vs. Sluggish Cognitive Tempo. PESI, Inc. Continuing Education Self-Study Materials, Eau Clare, WI.

- British study 81 adults with AD/HD
  - Found severity of AD/HD symptoms can be predicted from:
  - Amount of mind wandering, emotional lability & Sleep quality
  - Poor sleep = worse mind wandering and AD/HD symptoms

Helfer, B. et al. (January, 2019). The effects of emotional lability, mind wandering and sleep quality on ADHD symptom severity in adults with ADHD. European Psychiatry, 55, 45-51.

Adults with SCT

- SCT in adults is related to inattentive symptoms.
  - They more internalizing than AD/HD adults
  - Those with AD/HD and comorbid SCT have EF symptoms beyond just AD/HD
    - More problems with problem solving & organization
    - More pronounced inattentive symptoms than just having AD/HD

Leikauf, J.E. et al. (June, 2017). Sluggish Cognitive Tempo, Internalizing Symptoms, and Executive Function in Adults With ADHD. Journal of Attention Disorders. DOI: 10.1177/1087054716682337.

- US literature review of 10 studies found:
  - SCT on 4 continents in ages 4-64
  - World-wide/lifespan issue
  - SCT separate and distinct from AD/HD
  - Symptoms: internalizing, learning difficulties, functional impairment
  - May be related to tobacco exposure, and thyroid problems

Becker, S.P. (February 1, 2017). "For Some Reason I Find It Hard To Work Quickly: Introduction To The Special Issue On Sluggish Cognitive Tempo. Journal of Attention Disorders. DOI: 10.1177/1087054717692882

Becker, S.P. et al. (2018). Sluggish cognitive tempo in adults: Psychometric validation of the Adult Concentration Inventory. Psychological Assessment, 30(3), 296-310. DOI: http://dx.doi.org/10.1037/pas0000476.

SCT and The Default Mode Network

What few studies that have been done may have indicated SCT is connected to difficulty in the Default Mode Network. AD/HD is connected to problems in the EF frontal lobe.

Barkley, R.A. (August 28, 2018). The Two Attention Disorders: Identifying, Diagnosing, and Managing ADHD vs. Sluggish Cognitive Tempo. PESI, Inc. Continuing Education Self-Study Materials, Eau Clare, WI.

SCT and The Default Mode Network

- Some studies found SCT related to "Default Mode Network"
- AD/HD = Frontal Lobe
- Spontaneous, maladaptive mind wandering is shifting away from the external environment is connected to the Default Mode Network in a way that significantly reduces performance.

- Default Mode Network: Medial and lateral parietal, medial prefrontal, and medial and lateral temporal

Barkley, R.A. (August 28, 2018). The Two Attention Disorders: Identifying, Diagnosing, and Managing ADHD vs. Sluggish Cognitive Tempo. PESI, Inc. Continuing Education Self-Study Materials, Eau Clare, WI.

Sluggish Cognitive Tempo and EF

- SCT is not a primary disorder of Executive Function
- May be in posterior brain areas of controlling and orientating attention
- More impairment than those with AD/HD in:
  - Community activity, education, social status, household organization & work
  - More disabled in all life domains than controls, but not as much as those with AD/HD
  - Slow reaction time and shy
- Those with SCT have
  - Lower education level, less income, more unemployment and not married more than those with AD/HD
  - Possible Treatments:
    - Cognitive Behavioral Therapy
    - Behavioral Techniques
    - Social Skills Training

Barkley, R.A. (2018). Barkley Sluggish Cognitive Tempo Scale-Children and Adolescents (BSCTS-CA). New York, NY: Guilford.

AD/HD, Mind Wandering, Depression and Rumination

- A US and Dutch study found:
  - Adults with inattentive AD/HD have significantly more Mind Wandering than those with AD/HD
    - This had a negative effect on their reading comprehension
  - Inattentives had more depression and rumination
  - Working memory the same in both groups
  - Determined mind wandering related to rumination and depression in inattentive group, not working memory

- Concluded that Mindfulness and CBT may help

Jonkman, L.M. et al. (July 24, 2017). Mind wandering during attention performance: Effects of ADHD-inattention symptomatology, negative mood, ruminative response style and working memory capacity. PLoS One. DOI: 10.1371/journal.pone.0181213. eCollection 2017.

Accommodations for Adults with SCT (Slow Processors)

- **Accommodations:**
  - **Extended time on tests, projects and work**
  - **Seek work environments without significant time restraints**
  - **Stay away from "performance" situations**
  - **CBT may be helpful – want friends,**
    More self aware
  - **Allow them "Rest Time"**
  - **Give time to process; an extra 30 seconds**
  - **Notes and tapes**
  - **Repeated check-ins**
  - **Job Coaching**

Goldrich, C. (2017). Executive Functions and ADHD in Children. Seminar Presented by PESI, Inc., Eau Clare, WI.

Treatment Options for Adults with Sluggish Cognitive Tempo

- There is no accepted treatment for SCT
- No medications have been found to help
- You can take care of symptoms that may overlap with AD/HD:
  - Sadness
  - Anxiety
- Cognitive Behavioral Therapy and SSRI medications may help with sadness and anxiety
- Luvox (Fluvoxamine) may help with mind wandering
- Concentration and lethargy may be helped with exercise, good sleep and healthy eating

Barkley, R.A. (January 21, 2023). What is Sluggish Cognitive Tempo? SCT Symptoms and Treatments. ADDitude Magazine. From website: https://www.additudemag.com/sluggish-cognitive-tempo-sct-symptoms-treatments/.

Long-Haul COVID-19 & AD/HD

AD/HD Caused by COVID-19?

- **Joel Nigg (April 14, 2021) reported James Swanson (April 8, 2021) stated at the biennial meetings of the Society for Research in Child Development that records of the 1918 Flu Pandemic indicated a high prevalence of neuro-inflammation in those infected and that may have led to a significant increase in children labeled as "hyperkinetic". He urged watching for the same "syndrome" (Aquired AD/HD?) during the current pandemic.**

Nigg, J. (April 14, 2021). Mental Health, ADHD, COVID-19. In General News (Newsletter). From website: https://joelniggphd.com/mental-health-adhd-covid-19/.

Swanson, J. (April 8, 2021). What is the history of the evolving concept of ADHD? In the symposium, Conceptual and methodological challenges in ADHD research: Understanding risk factors and optimizing outcomes (Chair, J Cotton). Presented at the biennial meetings of the Society for Research in Child Development.

Post-Encephalitic ADHD?

Levy, S. (June, 1959). Post-Encephalitic Behavior Disorder – A Forgotten Entity: A Report of 100 Cases. American Journal of Psychiatry, 115(12), 1062-1067. From website: http://ajp.psychiatryonline.org/doi/abs/10.1176/ajp.115.12.1062.

Does "COVID Fog" = "Acquired AD/HD"?

Russell Barkley (No Date) stated:

- **He believes it may be possible for a "blip" in the prevalence of ADHD due to COVID-19.**
- **He does not believe the Post COVID-19 "virus fog" has symptomatology like AD/HD.**
  - **COVID Fog: Is difficulty, …with the power of your attention…given your alertness."**
  - **AD/HD: "…is a disorder of sustaining attention to especially boring tasks over time." it is not a problem with attention.**
  - **COVID Fog may start to look like Sluggish Cognitive Temp (SCT) over time.**

Author (No Date). HCP Live. From website: https://www.hcplive.com/view/adhd-focus-concerns-covid-19-infection.

“Mild” Acute COVID Infection Brain Changes

British researchers reported of conducting Pre and Post Brain MRI images and neuropsychological tests of 401 patients who tested positive for acute COVID after the first scan. On average there were 141 days between examinations. There were 384 controls. Hospitalized patients were not included. The COVID cases included were considered “Mild.” Patients Post-COVID were found as group to have lost significant gray matter thickness in the parahippicampal gyrus and the orbitofrontal cortex, damage to the olfactory cortex, and significant reduction in total brain size (.03%) as well as a significant cognitive decline (Trails A & B). This was also true when compared to controls. It is not known if these changes can be reversed with treatment, and/or time.

Douaud, G. et al. (March 7, 2022). SARS CoV-2 is Associated with Changes in Brain Structure in UK Biobank. Nature. DOI: 10.1038/s41586-022-04569-5.

Long-Haul Cognitive Problems after Acute COVID-19

A study conducted in New York state found 27% of post-COVID patients whom had sought help for cognitive difficulties 6 to 8 months after infection had extremely low neuropsychological test battery scores (1 percentile) and significantly lower scores that the comparison group. The patient group had extremely low scores on attention, processing speed, memory, and executive function. Those with the most significant acute COIVD symptoms had the worst cognitive difficulties medical comorbidities, depression, subjective and functional cognitive complaints. They also had very high inflammatory markers.

Ferrando, S.J. et al. (January 25, 2022). Neuropsychological, Medical, and Psychiatric Findings After Recovery From Acute COVID-19: A Cross-sectional Study. Journal of the Academy of Consultation-Liaison Psychiatry. DOI: 10.1016/j.jaclp.2022.01.003.

Could Long-Haul COVID-19 Cause An ADHD-Like Syndrome

Possibly. Especially after looking at the last slides.

Blake, K.T. (2022).

ADHD and COVID-19

- **ADHD has been associated with worse outcomes for COVID-19 infections.**

Merzon, E. et al. (February, 2022). The Association between ADHD and the Severity of COVID-19 Infection. Journal of Attention Disorders. DOI: 10.1177/10870547211003659.

AD/HD & Other Mental Health Comorbidities

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 - Tape 1). ADHD Symposium: Nature, Diagnosis and Assessment - Nature and Comorbidity and Developmental Course of ADHD. University of Massachusetts, January, Westborough, MA: Stonebridge Seminars.

Barkley, R.A. (February 22, 2013). ADHD in Children: Diagnosis and Treatment. Poway, CA: ContinuingEdCourse.net. From website: http://www.continuingedcourses.net/active/courses/course004.php.

AD/HD with Comorbid "Specific Learning Disorder with Impairment in Reading Comprehension" (SLD/RC)

- Not Dyslexia: Weak phonemic awareness, slow rapid automatized naming, poor orthographic processing
- SLD/RC: Symptoms – Not being able to simultaneously visualize what they read
- AD/HD, Dyslexia & SLD/RC can be comorbid
- SLD/RC = Anomaly in left frontal gyrus, hippocampal, parahippocampal and prefrontal areas

Cutting,L.E. et al. (April 23, 2013). Not All Reading Disabilities Are Dyslexia: Distinct Neurobiology Of Specific Comprehension Deficits. Brain Connectivity. DOI: 10.1089/brain.2012.0116.

- Treatment
  - Stimulant medication?
  - SQ4R: Survey Question Read (W)rite and Review
  - Nancy Bell: Visualizing and Verbalizing for Language Comprehension and Thinking
  - Referral to Speech-Language Therapist
  - Treat comorbid Dyslexia if present: multisensory synthetic phonics

Bell, N. (1991). Visualizing and Verbalizing for Language Comprehension and Thinking. San Luis Obispo, CA: Grander Educational Publishing.

Blake, K.T. (May/June,2000) "Two Common Reading Problems Experienced by Many AD/HD Adults." *Attention!*, 6 (5), pp. 30-33.

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

Sam Goldstein and Jack A. Naglieri (2011). Neurocognitive and Behavioral Characteristics of Children with ADHD and Autism: New Data and New Strategies. The ADHD Report: Vol. 19, No. 4, pp. 10-12. https://doi.org/10.1521/adhd.2011.19.4.10.

- British population study of AD/HD+ASD adults
- The higher the inattention scores the more social and communication difficulties they had
- Conclusion: AD/HD and ASD may have "somewhat" common etiology

Panagiotidi, M., et al. (August 11, 2017). Co-Occurrence of ASD and ADHD Traits in an Adult Population. Journal of Attention Disorders. DOI: 10.1177/1087054717720720.

ASD & AD/HD

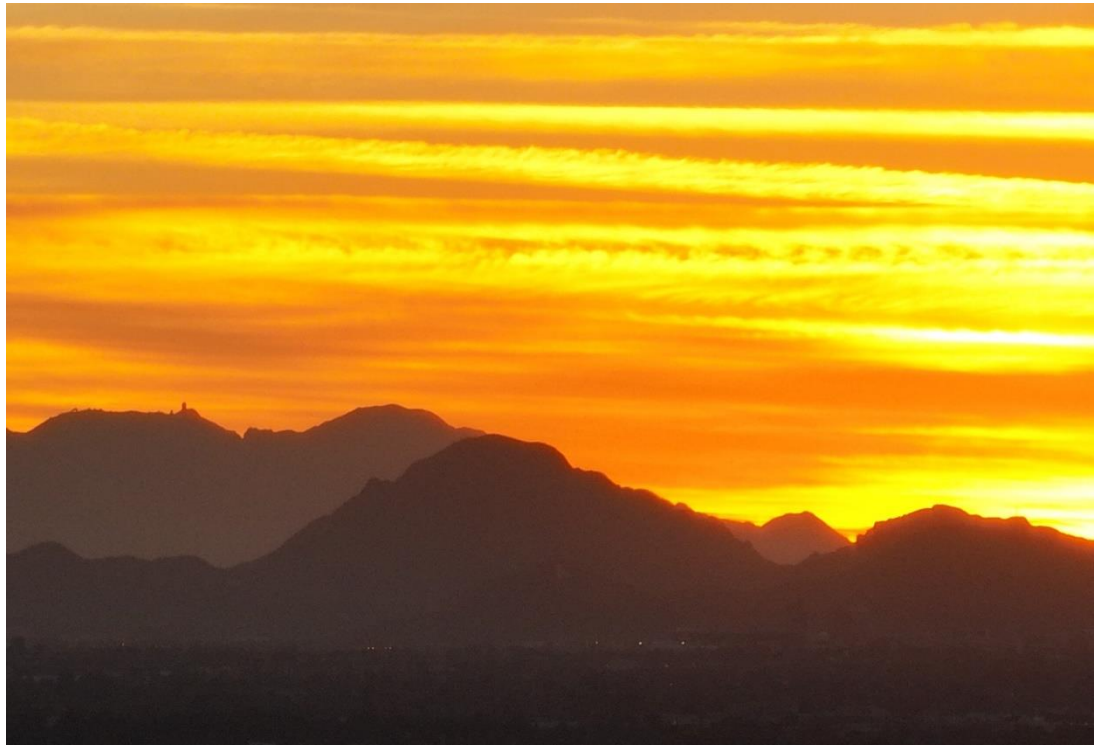
“The majority of individuals with ASD have ADHD symptoms. A substantial minority of individuals with ADHD (15–25%) demonstrates ASD symptoms.”

Antshel, K.M. et al. (February 15, 2016). An update on the comorbidity of ADHD and ASD: a focus on clinical management. Expert Review of Neurotherapeutics. DOI: 10.1586/14737175.2016.1146591.

AD/HD Vs. ASD & Internalizing in Adults

"Overall, our findings demonstrate that ASD and ADHD uniquely predict internalising problems, such as anxiety and depression. Crucially, ADHD traits were a much more important predictor of internalising problems and our analyses indicated that this relationship is almost certain to occur in the overall population."

Hargitai, L.D. et al. (January 16, 2023). Attention-deficit hyperactivity disorder traits are a more important predictor of internalising problems than autistic traits. Nature: Scientific Reports. DOI: 10.1038/s41598-022-26350-4.



AD/HD and Mood Disorders

- Brown found those with AD/HD have a 38.3% chance of having a mood disorder during their life.
- That is 5 times higher than the general population.

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

- Study in Spain with AD/HD adults:
  - Found their level of emotional lability in childhood predicted their adult impairment from AD/HD.
  - Suggested assessing "emotional lability" when assessing AD/HD.

Gisbert, L., et al. (July 31, 2017). The Impact of Emotional Lability Symptoms During Childhood in Adults With ADHD. Journal of Attention Disorders. DOI: 10.1177/1087054717719534.

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. (2002A - Tape 1). ADHD Symposium: Nature, Diagnosis and Assessment - Nature and Comorbidity and Developmental Course of ADHD. University of Massachusetts, January, Westborough, MA: Stonebridge Seminars.

AD/HD and Comorbid Bipolar Disorder in Adults

Recently Italian researches stated that as many as 20 percent of adults with AD/HD meet criteria for comorbid Bipolar Disorder.

Salvi, V. et al. (May 10, 2021). ADHD and Bipolar Disorder in Adulthood: Clinical and Treatment Implications. Medicina. DOI: 10.3390/medicina57050466.

AD/HD and Comorbid Bipolar Disorder in Adults

“Our review found that the co-occurrence of ADHD and BD is much higher than expected by chance. We found important variations depending on geographic location (and/or cultural norms), the diagnostic system used (ICD vs DSM) and sample size and an earlier age of onset for BD with comorbid ADHD.”

Schiweck, C. (May, 2021). Comorbidity of ADHD and adult bipolar disorder: A systematic review and meta-analysis. Neuroscience and Biobehavioral Reviews. DOI: 10.1016/j.neubiorev.2021.01.017.

Treating AD/HD and Comorbid Bipolar Disorder in Adults

- **The first step in treating AD/HD and Bipolar Disorder is mood stabilization.**
- **After mood stabilization is accomplished re-evaluate for residual AD/HD.**
  - **Sometimes AD/HD-like symptoms disappear with mood stabilization.**
  - **Sometimes AD/HD-like symptoms persist after mood stabilization and the client continues to meet criteria for AD/HD.**
    - **If this is the case, treat the AD/HD, too.**

Salvi, V. et al. (May 10, 2021). ADHD and Bipolar Disorder in Adulthood: Clinical and Treatment Implications. Medicina. DOI: 10.3390/medicina57050466.

Extreme Caution Needed When Treating AD/HD with Comorbid Bipolar Disorder

- **If the client is administered a stimulant and/or atomoxetine (Strattera) it may precipitate a manic and/or psychotic episode.**
- **After a recent literature review Italian scientists suggested lisdexamfetamine (Vyvanse) when treating adults with AD/HD with comorbid Bipolar Disorder to reduce AD/HD symptomatology safely.**

Salvi, V. et al. (May 10, 2021). ADHD and Bipolar Disorder in Adulthood: Clinical and Treatment Implications. Medicina. DOI: 10.3390/medicina57050466.

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). A New Understanding of ADHD in Children and Adults: Executive Function Impairments. New York, NY: Routledge.

- **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, R.A. (1998). AD/HD in Children, Adolescents, and Adults: Diagnosis, Assessment and Treatment. New England Educational Institute, Cape Cod Symposium, August, Pittsfield, MA.

- **10% of adult with AD/HD meet criteria for PTSD compared to 1.6% of non-AD/HD adults.**

Antsthel, K.M. et al. (March, 2013). Posttraumatic stress disorder in adult attention-deficit/hyperactivity disorder: clinical features and familial transmission. Journal of Clinical Psychiatry. DOI: 10.4088/JCP.12m07698.

Anxiety Disorders and AD/HD

- **"The comorbidity between ADHD and anxiety disorders changes the clinical presentation, the prognosis and treatment of patients with ADHD across lifespan.**
- **ADHD and anxiety disorders shared common neurobiological dysfunctions but have also different neurobiological abnormalities suggesting that they are different diagnoses."**

D'Agati, E. et al. (June 24, 2019). Comorbidity between ADHD and anxiety disorders across the lifespan. International Journal of Psychiatry in Clinical Practice. DOI: 10.1080/13651501.2019.1628277.

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). A New Understanding of ADHD in Children and Adults: Executive Function Impairments. New York, NY: Routledge.

- **Brown (2013) indicated 24.4% of those with AD/HD have comorbid DSM-IV Cluster C Personality Disorders (avoidant, dependent 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).**

ADHD and Criminality

- Those with AD/HD were found to have the following when compared t the general population in a recent study:
  - More physical aggression, substance abuse, aggression, sexual offenses, and property offenses
  - More birth problems and child abuse
  - When comorbid with Conduct Disorder even greater problems with behavior in those with intellectual disability

Lindsay, W.R. et al (December 18, 2012). The Impact of Known Criminogenic Factors on Offenders with Intellectual Disability: Previous Findings and New Results on ADHD. Journal of Applied Research In Intellectual Disabilities, 26(1), 71-80. From website: http://onlinelibrary.wiley.com/doi/10.1111/jar.12011/abstract

- Adults with AD/HD have been found to have lower rates of criminality when medicated.
- Medication could lower risk of criminality in those with AD/HD

Lichtenstein, P. et al. (November 22, 2012). Medication for attention deficit-hyperactivity disorder and criminality. New England Journal of Medicine. DOI: 10.1056/NEJMoa1203241.

Murphy, K.R. et al. (March, 2017). How Reliable Are Prevalence Rates of ADHD in Prisons? ADHD Report, 25(2), 1-5.

Substance Abuse and AD/HD

Being treated for AD/HD in childhood does not increase the likelihood of drug abuse in adolescence, or adulthood. In males it actually significantly reduces the risk of substance abuse.

Quinn, P.D. et al. (June 29, 2017). ADHD Medication and Substance-Related Problems. American Journal of Psychiatry. DOI: 10.1176/appi.ajp.2017.16060686.

American scientists found that they were directly able to predict the level of social and personal difficulties caused by alcohol use by college students with AD/HD, by their level of inattention, impulsivity/hyperactivity and impairment.

Elmore, A., et al. (April 26, 2017). Positive alcohol expectancies mediate associations between ADHD behaviors and alcohol - related problems among college students. Attention Deficit Hyperactivity Disorder. DOI: 10.1007/s12402-017-0231-z.

AD/HD and Sensory Perception

Dutch and German researchers found that children and adults with AD/HD have heightened sensitivity to smells, but lower levels of visual and speech perception than do their normally developing peers.

Hupen, P., et al. (April 11, 2017). Perception in attention deficit hyperactivity disorder. Attention Deficit Hyperactivity Disorder. DOI: 10.1007/s12402-017-0230-0.

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). A New Understanding of ADHD In Children and Adults: Executive Function Impairment. New York, NY: Routledge, p. 131.

- **10% to 54% have Expressive Language Disorders (60% of them have Pragmatic Deficits)**

Barkley, R.A. (2002). ADHD and Oppositional Defiant Children. Seminar Presented February 19-20, Phoenix, AZ, The Institute for Continuing Education, Fairhope, AL, from handout, pp. 9.

- **Barkley stated AD/HD individuals have problems with Demand Speech.**

Barkley, R.A. (1998). Attention Deficit Hyperactivity Disorder, Second Edition. New York, NY: Guilford.

AD/HD Identity

The Adult LD/AD/HD "Identity"

Rodis offered the Seven Stages of Identity Formation for Persons with LDs:

1. **The Problem-Without-A-Name Stage**
2. **Diagnosis**
3. **Alienation**
4. **Passing**
5. **Crisis and Reconfrontation**
6. **"Owning and Outing"**
7. **Transcendence**

Rodis, P., Garrod, A., and Boscardin, M.L. (2001). Learning Disabilities and Life Stories. Boston, MA: Allyn and Bacon.

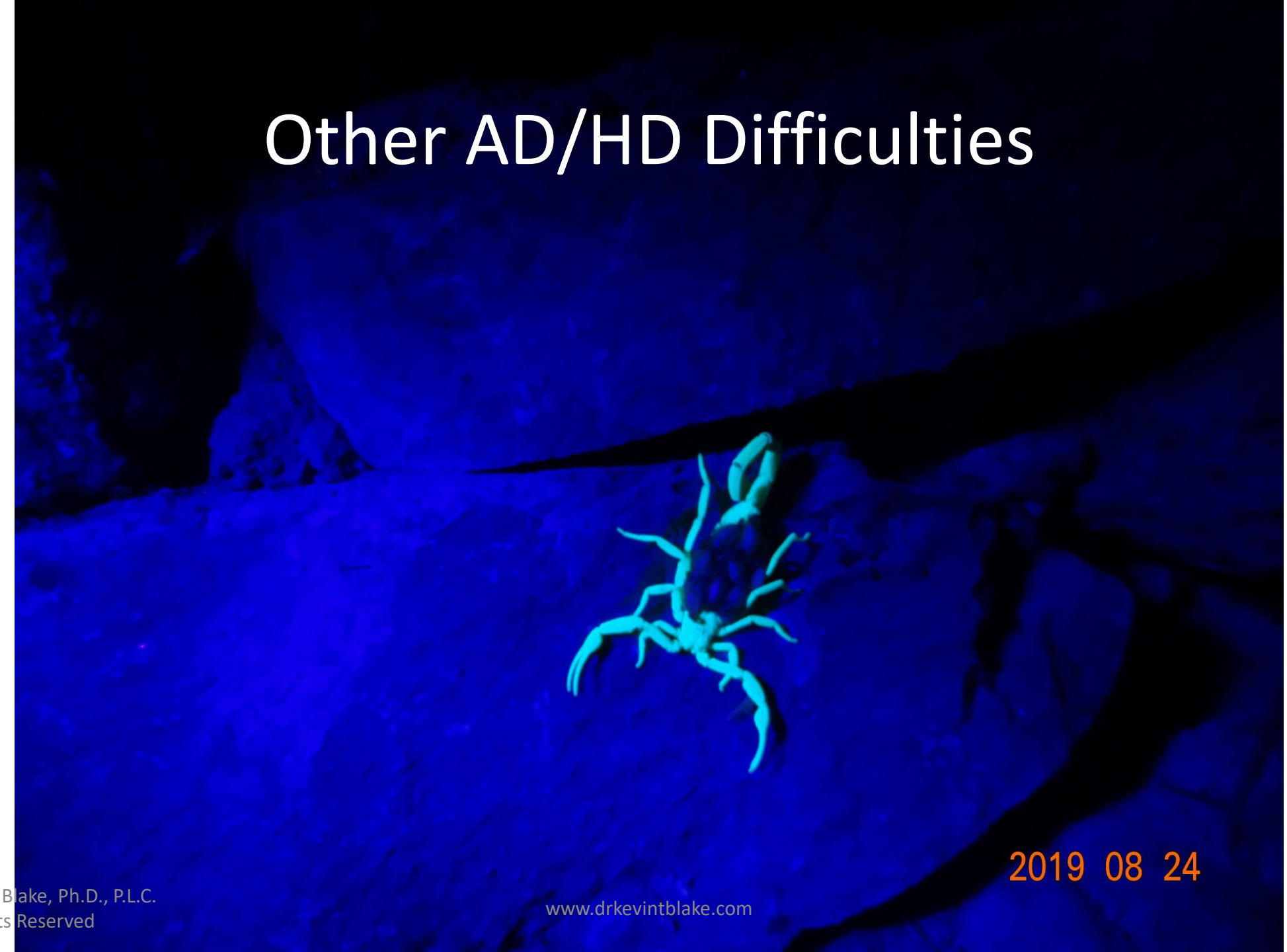
AD/HD Identity

- Those diagnosed with AD/HD in adulthood:
  - Often attribute their problems to characterological and moral defects-This is a high emotional cost
  - Underscores importance of reframing the disorder as a neurobiological difficulty, building self-esteem, & instilling hope

- Many AD/HD adults:
  - Find themselves socially rejected
  - Impulsivity, interrupting, forgetfulness, inattention, difficulty reading social cues, mood swings and temper problems
  - Often they report difficultly maintaining relationships

Murphy, K.R. (2006). Psychological Counseling of Adults with ADHD. In R.A., Barkley (Ed.), Attention-Deficit Hyperactivity Disorder, Third Edition. New York, NY: Guilford.

Other AD/HD Difficulties



How Time Blindness "Undevelops"

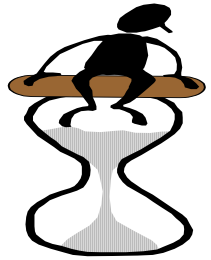
- **How far into the future can the neurotypial see?**
  - **2 year old: Now & Not Now**
  - **3 to 5 years: 5 to 20 minutes**
  - **First grade: 3 to 5 hours**
  - **Third grade: 8 to 12 hours**
  - **12 to 16 years: 2 to 3 days**
  - **17 to 23 years: 2 to 3 weeks**
  - **23 years on: 3 to 5 weeks**

How far into the future can The person with AD/HD see?

- **We will need to help them "SEE" the future**
- **Gradual shift from needing help**
- **External Controls and Immediate Feedback to Internal Controls and Delayed Feedback**

Goldrich, C. (2017). Executive Functions and ADHD in Children. Seminar Presented by PESI, Inc., Eau Clare, WI.

Time Management Technology for AD/HD



Devices

- **e-pill CADEX VibraPlus SPORT - Vibrating 8 Alarm Watch:** https://www.epill.com/sport1.html
- **WatchMinder:** https://www.watchminder.com/
- **Talking Traceable Timer:** https://www.traceable.com/5015-traceable-talking-timer.html
- **Time Tracker® Visual Timer & Clock:** https://www.learningresources.com/product/time+tracker--174-+visual+timer+-amp-+clock.do
- **Time Timer:** https://www.timetimer.com/

Apps

- **EpicWin:** http://www.rexbox.co.uk/epicwin/reviews.html
- **iRewardChart:** https://play.google.com/store/apps/details?id=com.gotclues.irewardchart.full&hl=en_US
- **Due:** https://itunes.apple.com/us/app/due/id390017969?mt=8&ign-mpt=uo%3D4
- **ChoreMonster:** https://itunes.apple.com/us/app/choremonster/id532344230?mt=8&ign-mpt=uo%3D8

Helping with The Internalization of Speech

- **Talk yourself out loud through decision making and planning.**
- **Have them problem solve problems out loud to teach them metacognition**
- **Teach active listening: Look at face of speaker, verbal gestures, body language, paraphrasing, etc.**
- **Let them say they have had enough.**

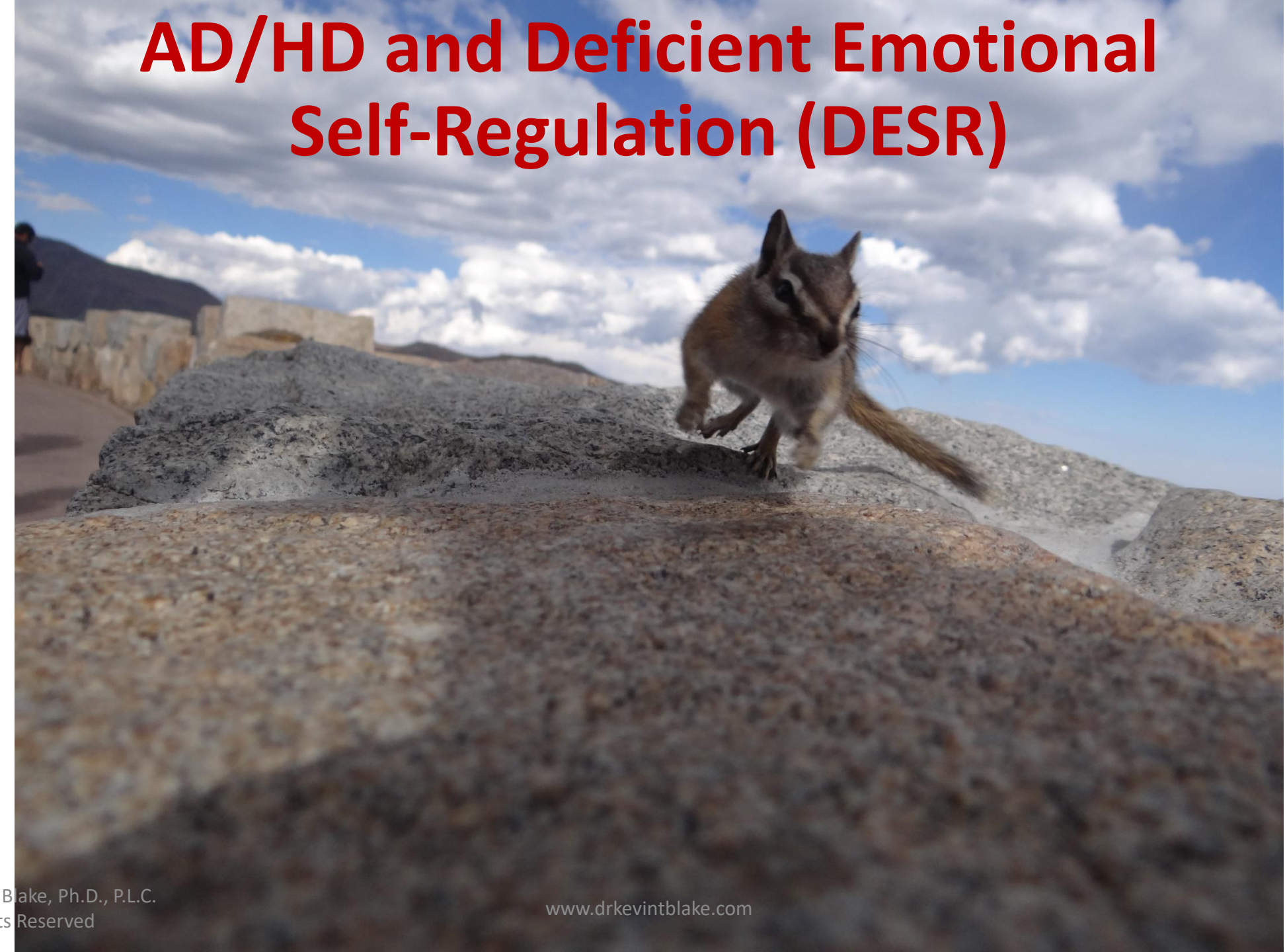
Goldrich, C. (2017). Executive Functions and ADHD in Children. Seminar Presented by PESI, Inc., Eau Clare, WI.

Developing Self-Esteem: Resilience

"Arranging for periodic small rewards throughout the tasks for SR-(Self-Regulation) demanding settings. Engaging in self-affirming statements of self-efficacy prior to and during such tasks… Generating positive emotions."

Barkley, R.A. (2016) Managing ADHD In School: The Best Evidence-Based Methods for Teachers. Eau Clair, WI: PESI.

AD/HD and Deficient Emotional Self-Regulation (DESR)



"Managing Affective Interference"

- Problems managing emotions, motivation & arousal
- Those with AD/HD have problems inhibiting emotional reactions compared to peers
- The emotions they experience are appropriate
- BUT, manifest their emotions significantly more than their age peers
- They are less likely to internalize emotions and cannot moderate them as well as others do.
- They appear less emotionally mature, more reactive, hot-tempered, and easily frustrated
- Hard for them to generate intrinsic motivation for tasks without immediate reward.

Barkley, R.A. (No Date). Fact Sheet: Attention Deficit Hyperactivity Disorder (ADHD) Topics. From website: http://www.russellbarkley.org/factsheets/adhd-facts.pdf.

What is “Emotional Self-Regulation”?

- **A person's ability to understand and accept their emotional experience, manage their emotions, and respond with appropriate behavior for the moment.**
- **A.K.A.: “Managing Affective Interference”**

Goldrich, C. (2017). Executive Functions and ADHD in Children. Seminar Presented by PESI, Inc., Eau Clare, WI.

AD/HD, Cool Cognitive Network, Emotional Lability & Medication

- US study found between 38 to 75% of children/teens with AD/HD have comorbid emotional lability
- 10% of general population has this problem
- Emotional Lability in AD/HD = Hot Cognitive Network
  - Time blindness, reward response, reward frustration

NOT

- Cool Cognitive Network = Attention & Planning

- The more impaired by AD/HD and more comorbidities the more severe emotional lability
- The medications used for AD/HD may abate this somewhat

Childress, A.C. et al. (August 29, 2015). Emotional Lability in Patients with Attention-Deficit/Hyperactivity Disorder: Impact of Pharmacotherapy. CNS Drugs, 29(8), 683-693.

AD/HD and Negative Emotions

- **Study with 47 medicated adults with AD/HD compared to 41 unmedicated adults with AD/HD found:**
- **Unmedicated significantly more emotional reactions & higher emotional intensity**
- **(Negative emotions = heightened intensity and instability of irritability and frustration, and greater intensity of anger).**

Skirrow, C. et al. (December 2014). Everyday emotional experience of adults with attention deficit hyperactivity disorder: evidence for reactive and endogenous emotional lability. Psychological Medicine, 44(16), 3571-3583.

Adults with AD/HD & Deficient Emotional Self-Regulation (DESR)

US research compared 206 ADHD adults to 123 without AD/HD and found:

- **Those with ADHD significantly more Deficient Emotional Self-Regulation (DESR)**
- **DESR = Low Frustration Tolerance, Temper Outbursts, Emotional Impulsivity, Mood Lability**
- **55 of the AD/HD group had "Extreme DESR"/ higher than 95% of control group**
- **This was associated with:**
  - **Lower Marital Satisfaction**
  - **Significantly Worse Driving Records**
  - **More Arrests**

Surman, C.B. et al. (February, 2013). Understanding deficient emotional self-regulation in adults with attention deficit hyperactivity disorder: A controlled study. Attention Deficit Hyperactivity Disorders, DOI: 10.1007/s12402-012-0100-8.

AD/HD + DESR Treatment

- A recent literature review found:
- Psychostimulants have been found to significantly improve core AD/HD symptoms and emotional dysregulation
- Hence, it should be a first line treatment
- Atomoxetine is also effective
- There is some evidence that group therapy with AD/HD adults can be helpful in teaching emotional regulation skills – need more replication

- Treatment is also guided by what if any comorbidities are present.

Shaw, P. et al. (March, 2016). Emotional dysregulation and Attention-Deficit/Hyperactivity Disorder. American Journal of Psychiatry, 171(3), 276-293.

Mindfulness, AD/HD & DESR

Canadian literature review of 13 studies found:

- **Mindfulness training helped**
  - **Reduce AD/HD symptoms, problems with EF & deficits in emotional dysregulation in adults**
  - **This was especially true in those who under responded, or did not respond to medication**
  - **They noted almost every study had design flaw**

Poissant, H. et al. (2019). Behavioral and Cognitive Impacts of Mindfulness-Based Interventions on Adults with Attention-Deficit Hyperactivity Disorder: A Systematic Review. Behavioral Neurology. DOI: 10.1155/2019/5682050.

"Managing Affective Interference"

- Refocusing away from event or toward an event that might be better for them
- Encourage a more positive, acceptable mood
- Self - soothing or calming
- Utilizing self-talk as a form of self-guidance
- Acknowledge negative feelings and offer encouragement
- Help them visualize and imagine what will happen when the task is done
- Raise awareness of what impacts their own ability to stay calm, engaged, and focused
- Ask and note what seems to impact their behavior such as noise, visuals, pace, etc.
- Reduce frustrating distractors
- Exercise breaks

Goldrich, C. (2017). Executive Functions and ADHD in Children. Seminar Presented by PESI, Inc., Eau Clare, WI.

AD/HD, Borderline Personality Disorder and Emotional Dysregulation

Swiss researchers compared adults with AD/HD to adults with Borderline Personality Disorder, adults with AD/HD and comorbid Borderline Personality Disorder and non-disabled adults and found:

- **Those with AD/HD had significantly more emotional dysregulation than the non-disabled**
- **Those with Borderline Personality Disorder had more emotional dysregulation than those with AD/HD**
- **Those with AD/HD and Borderline Personality Disorder had the most emotional dysregulation**

Rufenacht, E. et al. (July 18, 2019). Emotion dysregulation in adults suffering from attention deficit hyperactivity disorder (ADHD), a comparison with borderline personality disorder (BPD). Borderline Personality Disorder and Emotional Dysregulation, 6, article 11. DOI: 10.1186/s40479-019-0108-1.

AD/HD & “Hyperfocus”

Hyperfocus and the Adult with AD/HD

US researchers learned:

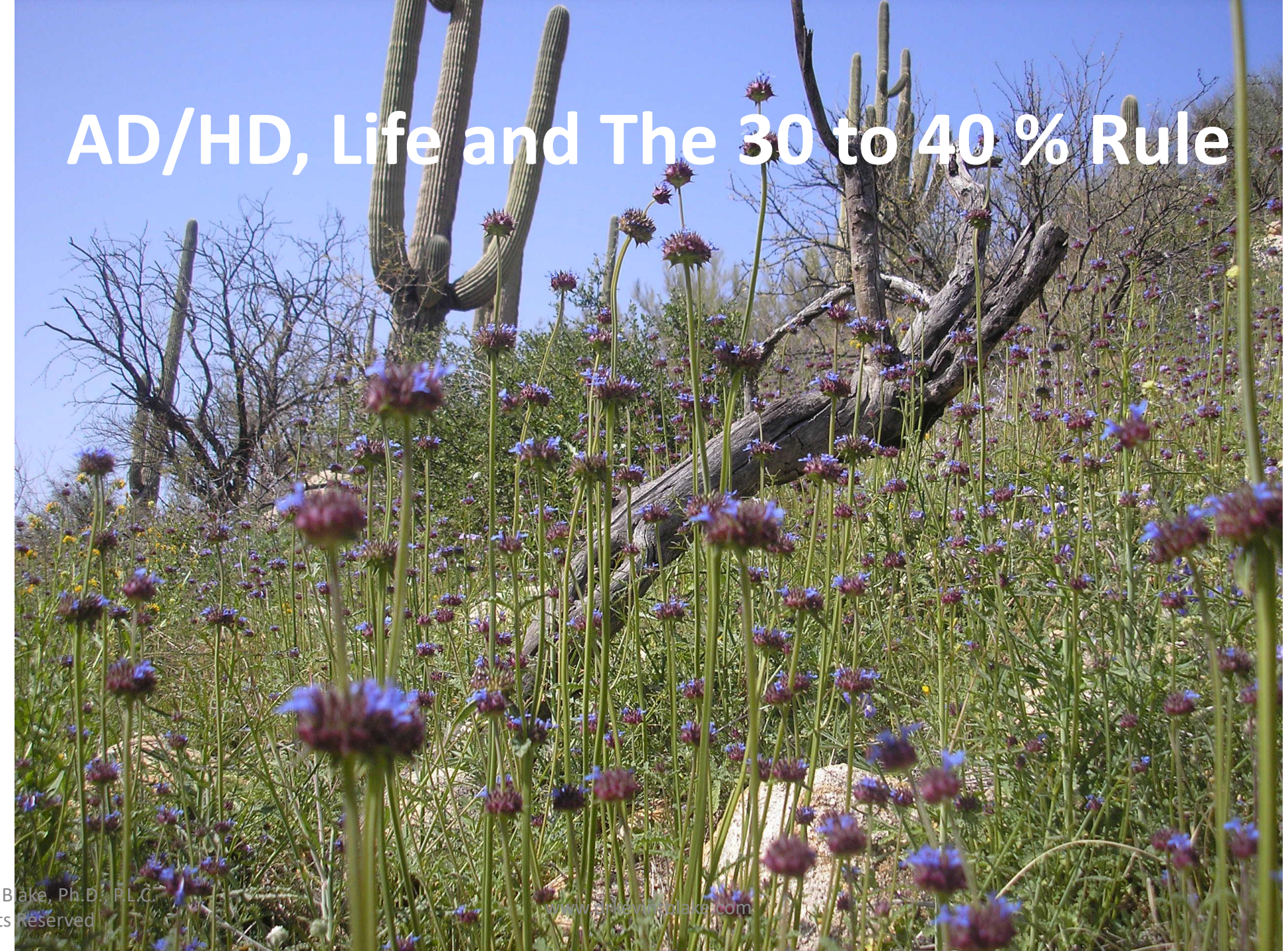
- **Adults with AD/HD with the most impairing symptoms had more hyperfocus episodes of more severe nature than those with less impairing AD/HD**
- **Found in "real life", school, hobbies, & screen time**
- **They concluded Hyperfocus is another symptom of AD/HD**

Hupfeld, K.L. et al. (June, 2019). Living "in the zone": Hyperfocus in adult ADHD. Attention Deficit Hyperactivity Disorder, 11(2), 191-208.

- **Use timers to help complete important tasks and chores**
- **Learn to set priorities and methodically complete them one at a time**
- **Get rid of distractions**
- **Ask others to turn off TV, etc.**
- **Tell others to call, text, etc. a certain times to break possible hyperfocus**

Barrell, A. (2019, July 8). "What to know about ADHD and hyperfocus." Medical News Today. Retrieved from website: https://www.medicalnewstoday.com/articles/325681.php.

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, R.A. (1998), (2008); Chang, Z. et al (2017).

Scientists conducted longitudinal MRIs of children between age 12 and 20 with "Attention Problems". They also measured their driving behaviors, symptom…

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

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

Vijayakumar, N. (December 19, 2016). Neurodevelopmental Trajectories Related to Attention Problems Predict Driving - Related Risk Behaviors. Journal of Attention Disorders. DOI: 10.1177/1087054716682336.

…impairment, and "risky behaviors". They found those most at risk of poor driving were those with the highest symptom impairment, and the least developed right orbital-frontal cortex.

--Vijayakumar, N. (December 19, 2016)

A population study of AD/HD adults in Taiwan indicated they have a 143% increased risk of having a serious injury than typical adults. If the AD/HD adult is administered methylphenidate that increase rate of injury is reduced to 22%.

Chien, W-C et al. (June 2017). The risk of injury in adults with attention-deficit hyperactivity disorder: A nationwide, matched-cohort, population-based study in Taiwan. Research in Developmental Disabilities, 65, 57-73.

Life Expectancy and AD/HD

Life Expectancy and AD/HD

- **People with AD/HD have a *significantly reduced life expectancy* due to an impulsive lack of concern for health related issues, exercise, diet, drugs, etc. if their AD/HD is untreated. On Average it is 9.6 to 12.7 years!**
- **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.**

Barkley, R.A. (January 14, 2018). Life Expectancy Slashed in Worst Cases of AD/HD. Paper presented at the American Professional Society of ADHD and Related Disorders, January 12-14, 2018. Washington, DC.

Inserro, A. (January 14, 2018). Psychologist Barkley Says Life Expectancy Slashed in Worst Cases for Those With ADHD. American Journal of Managed Care. From website: https://www.ajmc.com/conferences/apsard-2018/psychologist-barkley-says-life-expectancy-slashed-in-worst-cases-for-those-with-adhd.

Chau, Y.C.Y. et al. (November 28, 2017). Oral Health of Children With Attention Deficit Hyperactivity Disorder: Systematic Review and Meta-Analysis. Journal of Attention Disorders. DOI: 10.1177/1087054717743331.

Driving and AD/HD

Researchers from the United States used an Assetto Corsa driving simulator and found those with AD/HD drove significantly faster, used the accelerator significantly more, applied significantly more pressure to the accelerator and break, than those without AD/HD. The scientists attributed this to impulsivity and mind wandering and continued by mentioning their results further confirm the literature regarding poor driving record and AD/HD.

Bernstein, J. et al. (April 12, 2019). Utility of a novel simulator paradigm in the assessment of driving ability in individuals with and without attention-deficit hyperactivity disorder. Attention Deficit Hyperactivity Disorder. DOI: 10.1007/s12402-019-00303-w. [Epub ahead of print].

Life Expectancy and AD/HD

- Take the four biggest reducers of life-expectancy in the US:
  - Obesity
  - Smoking
  - Risk of diabetes
  - Exercise and Diet
- Untreated AD/HD lowers life-expectancy 2 1/2 times more than the combination of all four of the above combined!
- Why?: Little exercise, or sleep, poor nutrition, less education, more obesity, more smoking, alcohol, and drug use, as well as poor driving, poor dental hygiene, more STDs, more teen pregnancies, more antisocial behavior, more reactive aggression, etc.

Barkley, R.A. (December 10, 2018). ADHD Likely Reduces Estimated Life Expectancy by Young Adulthood. Summary of paper presented at the 2018 American Professional Society of ADHD and Related Disorders (APSAD) Conference, Saturday, January 13, 2018, Washington, DC. Summary can be found on the APSAD website: https://apsard.org/adhd-likely-reduces-estimated-life-expectancy-by-young-adulthood/.

Life Expectancy and AD/HD

A recent genomic-wide study of AD/HD found it had genetic markers with:

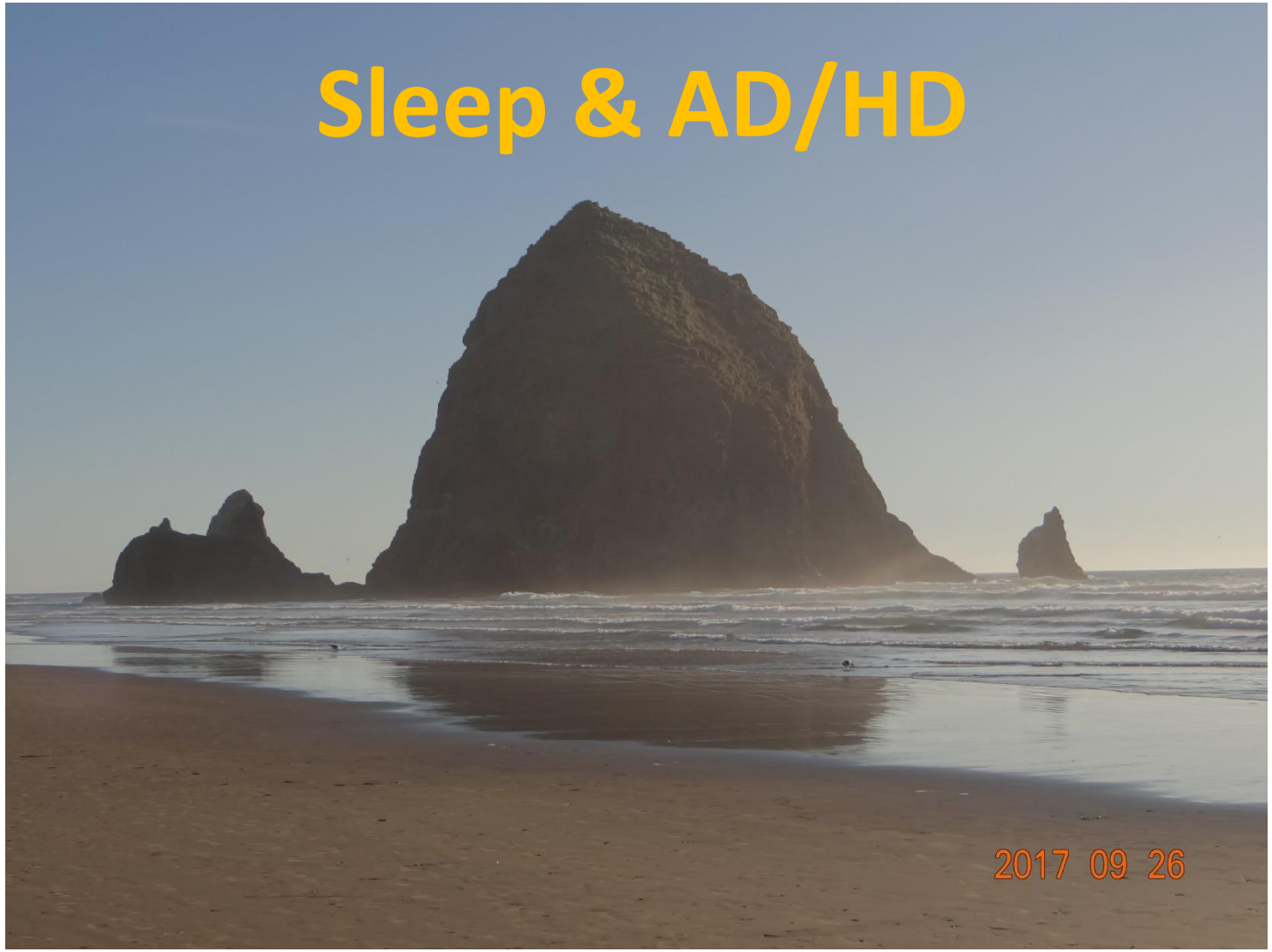
- **Obesity**
- **Diabetes**
- **Smoking**
- **Poor sleep**
- **High LDL cholesterol**
- **Earlier parenthood**
- **Rheumatoid arthritis**
- **Earlier menopause**
- **Lower intelligence**
- **Less education**
- **Earlier parental mortality (both mother and father)**

Demontis, D. et al. (November 26, 2018). Discovery of the first genome-wide significant risk loci for attention deficit/hyperactivity disorder. Nature Genetics. DOI: 10.1038/s41588-018-0269-7.

Life Expectancy and AD/HD

- This is a major public health issue:
- We can reduce the impact of all of the above factors. If you change them you can increase life expectancy.
- 30% of the variation in life expectancy is how impulsive one is about life decisions and life style.
- People with AD/HD's main symptom is impulsivity. That is hard to change.
  - But, treatment with medication, parental training, classroom management, and CBT in adults can change this.
- Medical professionals do not know this and need to be aware of this.
- Start with health and life style training as soon as child in diagnosed. This should be done at home and school.

Barkley, R.A. (December 10, 2018). ADHD Likely Reduces Estimated Life Expectancy by Young Adulthood. Summary of paper presented at the 2018 American Professional Society of ADHD and Related Disorders (APSAD) Conference, Saturday, January 13, 2018, Washington, DC. Summary can be found on the APSAD website: https://apsard.org/adhd-likely-reduces-estimated-life-expectancy-by-young-adulthood/.



Negative Influences of Executive Function

- **"People with ADHD, depression, learning disabilities, and autism often have difficulties with executive function. Alzheimer's disease or brain damage (for example from concussion or stroke) can also affect executive function. Some research has found an association between OCD and problems with executive function.**
- **People with no executive function impairment can experience temporary problems. For example, being overly stressed, sad, or sleep-deprived can hinder a person's executive function ability".***

--American Psychiatric Association (January 19, 2017)*; Diamond (September, 27, 2012)

Author (January 19, 2017).* Executive Function of the Brain: Key to Organizing, Managing Time and More. American Psychiatric Association, Washington, DC from Website: https://www.psychiatry.org/news-room/apa-blogs/apa-blog/2017/01/executive-function-of-the-brain-key-to-organizing-managing-time-and-more.

Diamond, A. (September 27, 2012). Executive Functions. Annual Review of Psychology. DOI: 10.1146/annurev-psych-113011-143750.

Diamond's Literature Review of EF

- Good EF in childhood-Typically will have it through life
- EF can be taught throughout life and practice can improve it
- Predicts: achievement, quality of life, physical and financial health
- Fluid Intelligence (decision making/problem solving) can be taught and practice can improve it
- Interference Control (selective attention/inhibition) may be the part of EF that protects what is in working memory
- Sleepiness, loneliness, and lack of fitness can hurt executive function

Diamond, A. (September 27, 2012). Executive Functions. Annual Review of Psychology. DOI: 10.1146/annurev-psych-113011-143750.

Interventions for Executive Dysfunction

- **Healthy Living:**
  - **Good sleep every night**
  - **Good diet; no excesses**
  - **Weekly exercise plan-possibly develop with physician's help**
  - **Allow for rest and relaxation-learn relaxation technique (automatize)**
  - **Monitor mood; if bad 2 weeks get help**

- **Adaptive Thinking:**
  - **Monitor & chart negative and positive self-talk**
  - **Learn to counter negative self-talk with positive**
  - **Practice relaxation technique**
  - **Automatize**

Jennings, A., and Nguyen, C. (September 5, 2014). STRATEGIES FOR IMPROVING EXECUTIVE FUNCTIONING SKILLS: A MODEL FOR THERAPEUTIC INTERVENTION. Paper presented at the 3rd Annual Conference on ADHD and Executive Function, Sheraton Station Square, Pittsburg, PA, September 5th, 2014.

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). Brain Basis of Skill Acquisition and Learning: How do They Relate to Reading? Paper presented during the Neural Basis of Reading and Other Forms of Skills Acquisition Symposium of the 55th Annual International Dyslexia Association Conference, Philadelphia, PA, Session W-1.

Karni, A., Tanne, D., Rubenstein, B.S., Askensay, JJ., and Saji, D. (1994). Dependence on REM Sleep of Overnight Improvement of A Perceptual Skill. Science, 265 (5172), pp. 679682.

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)

Stickgold, R. (2005). Sleep-Dependent Memory Consolidation. Nature, 437 (7063), pp. 1272-1278.

Winerman, L. (January, 2006). Let's Sleep On It. Monitor On Psycholoy, 37 (1), pp. 58-60.

Nguyem, N.D. et al. (July 1, 2013). Overnight Sleep Enhances Hippocampus-Dependent Aspects of Spatial Memory Sleep. 36(7), 1051-1057. DOI: https://doi.org/10.5665/sleep.2808.

Sleep Disorders and AD/HD

- 30 to 56% of those with AD/HD have sleep disorders
- 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.
- Significantly more problems with restless legs, etc.

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. 28.

Bajorvatn, B. et al. (September 20, 2017). Adults with Attention Deficit Hyperactivity Disorder Report High Symptom Levels of Troubled Sleep, Restless Legs, and Cataplexy. Frontiers in Science. DOI: 10.3389/fpsyg.2017.01621.

Diaz-Roman, A. et al. (June, 2018). Sleep in adults with ADHD: Systematic review and meta-analysis of subjective and objective studies. Neuroscience and Biobehavioral Reviews. 89, 61-71. DOI: 10.1016/j.neubiorev.2018.02.014.

Recommendations

- No caffeine after 3:00 PM
- Only sleep in bed
- Go to be same time every night
- Get out of bed same time every day
- Can't get to sleep in 20 minutes get up and do something simple until tired
- No glowing screens 1 hour prior to bed
- Make room cold when go to bed & warm to wake up
- Use "blue light" https://www.fullspectrumsolutions.com
- Dawn simulator
- https://www.fullspectrumsolutions.com
- Take meds before get out of bed
- No eating 2 hours prior to bed
- Exercise
- Check out with physician
- Sleep study?

AD/HD & Comorbid Heath Concerns

AD/HD & Comorbid Heath Concerns

- **Researchers from Norway reviewed 126 scientific articles written over a 20 year period regarding somatic difficulties related to AD/HD. They found:**
- **"…a consistent association between adult ADHD and increased risk of obesity, sleep disorders, and asthma. Associations were also consistent for migraine and celiac disease. Less robust associations have been reported for a number of different disorders such as enuresis, irritable bowel syndrome, restless legs, epilepsy, chronic fatigue syndrome, fibromyalgic syndrome, systemic lupus erythematosus and atopic dermatitis."**

AD/HD & Comorbid Heath Concerns

- **There was conflictual findings related to cardiac disease and AD/HD, however.**

Telnes Instanes, J. et al. (2019). Adult ADHD and Comorbid Somatic Disease: A Systematic Literature Review. Journal of Attention Disorders. DOI: 10.1177/1087054716669589.

AD/HD & Comorbid Heath Concerns

- **In light of the above article it is recommended that clinicians screen for the somatic comorbidities when doing an intake with a client with AD/HD, or suspected AD/HD.**

AD/HD & Diet

In-Born Errors of Metabolism

There may be some evidence that some people with AD/HD may have in-born errors of metabolism, which could cause a need for metabolic nutrients due to gastrointestinal inflammation and mitochondrial dysfunction. This may explain why through the years a small group of people with AD/HD appear to improve with special diets. Some with AD/HD may need to be treated with broad spectrum micronutrients.

Rucklidge, J.J. et al. (December 2016). The Role of Diet and Nutrient Supplementation in the Treatment of ADHD. The ADHD Report, 24(8), 1-8.

Diet & AD/HD

A recent review of double-blind placebo controlled studies of dietary treatment of AD/HD found poly-unsaturated fatty acid supplementation did not add to AD/HD treatment, there was not enough evidence to recommend removal of artificial food color from diets, and food elimination diets may help children who do not respond to medication.

Pelsser, L.M. et al. (January 25, 2017). Diet and ADHD, Reviewing the Evidence: A Systematic Review of Meta-Analyses of Double-Blind Placebo-Controlled Trials Evaluating the Efficacy of Diet Interventions on the Behavior of Children with ADHD. PLOS One. DOI: 10.1371/journal.pone.0169277.

Recent meta-analysis found that 8% of children experience a significant improvement in symptomatology from elimination diets.

Only anecdotal reports of improvement with removal of dairy and casein.

Short-term consumption of sugar does nothing to AD/HD symptoms.

Good idea: Omega 3 fatty acids and broad spectrum micro-nutrients for brain development with physician's input.

Rucklidge, J.J. et al. (September 28, 2018). Do Diet and Nutrition Affect ADHD? Facts and Clinical Considerations. Psychiatric Times. From website: https://www.psychiatrictimes.com/special-reports/do-diet-and-nutrition-affect-adhd-facts-and-clinical-considerations/page/0/1.

AD/HD and Comorbid Obesity

A group of scientists from Poland and the UK stated after reviewing the literature that there is a significant relationship between AD/HD and obesity. However, they stated there is some question regarding how much of the obesity is caused by the symptoms of AD/HD, and/or the unique epigenetics of AD/HD.

Hanc', T. et al. (May 19, 2018). Attention deficit/hyperactivity-disorder and obesity: A review and model of current hypotheses explaining their comorbidity. Neuroscience and Biobehavioral Reviews. DOI: 10.1016/j.neubiorev.2018.05.017.

AD/HD and Comorbid Obesity

After reviewing the literature researchers for the USA and UK stated, "Here, we provide a narrative review of studies addressing the impact of ADHD, or its treatment, in individuals with obesity. Reviewed studies suggest that ADHD impedes the successful treatment of obesity in individuals with comorbid ADHD and obesity. Preliminary evidence also suggests that ADHD treatment might significantly increase the effectiveness of weight management strategies."

Cortese, S. et al. (April 4, 2014). The relationship between ADHD and obesity: implications for therapy. Expert Review of Neurotherapeutics. DOI: 10.1586/14737175.2014.904748.

AD/HD & Eating Disorders

- A recent literature review out of Italy indicated that about 20 percent of children with AD/HD will develop eating disorders.
- This included anorexia nervosa, bulimia nervosa and binge eating disorder.
- The authors said eating disorders should be monitored for with those with AD/HD.
- They continued to say not much is known about eating disorders and AD/HD over the lifetime.

Villa, F.M. et al. (January 15, 2023). ADHD and eating disorders in childhood and adolescence: An updated mini-review. Journal of Affective Disorders. DOI: 10.1016/j.jad.2022.10.016.

AD/HD and Dementia

AD/HD and Dementia

- As early as 2011 Argentinean scientists found a possible link between AD/HD and dementia (Lewy Body Dementia).
- In 2021 Swedish researches, after conducting a population study, found those with AD/HD were more at risk for mild neurocognitive impairment and/or dementia. The connection was found to be stronger in men. However, the overall connection was lessened when comorbid depression, bipolar disorder, substance abuse and/or anxiety disorders
- Also in 2021 another team of researchers from Sweden, after conducting a multigenerational study of the connection of AD/HD and Alzheimer's disease found a connection between the two disorders as well as all forms of dementia.

AD/HD and Dementia

- **Professors from the University of Utah found those with AD/HD had a two times higher risk of contracting Parkinson's disease than non-ADHD controls. Additionally, they found that long term use of psychostimulants MAY increase the risk of having Parkinson's disease later in life. Other things may account for the Parkinson's in this population like brain, and head injuries and exposure to environmental toxins they continued.**
- **Canadian scientist, after reviewing all the available literature concluded that a direct connection between AD/HD, dementia, and Parkinson's disease could not be 100 percent proven, because of the numerous limitations of the research done so far.**

AD/HD and Dementia

- Golimstok, A. et al. (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. DOI: 10.1111/j.1468-1331.2010.03064.x.
- Dobrosavljevic, M. et al. (December 20, 2021). Attention-deficit/hyperactivity disorder as a risk factor for dementia and mild cognitive impairment: A population-based register study. European Psychiatry. DOI: 10.1192/j.eurpsy.2021.2261.
- Zhang, Le et al. (September 9, 2021). Attention-deficit/hyperactivity disorder and Alzheimer's disease and any dementia: A multi-generation cohort study in Sweden. The Journal of the Alzheimer's Association. DOI: 10.1002/alz.12462.
- Curtin, K. et al. (September 12, 2018). Increased risk of diseases of the basal ganglia and cerebellum in patients with a history of attention-deficit/hyperactivity disorder. Neuropsychopharmocology. DOI: 10.1038/s41386-018-0207-5.

AD/HD & Gender Identity

AD/HD & Gender Identity

After reviewing the scientific literature an American and Canadian team of scientists concluded there is a significant lack of science regarding gender identity and AD/HD as well as a lack of interest regarding gender identity and AD/HD in the gender diverse and AD/HD communities.

Goetz, T.G. et al. (August 15, 2022). The transgender and gender diverse and attention deficit hyperactivity disorder nexus: A systematic review. Journal of Gay and Lesbian Mental Health. DOI: 10.1080/19359705.2022.2109119.

AD/HD & Gender Identity

Scientists from Turkey discovered that 75 percent of children and adolescents with "gender dysphoria" have AD/HD. Additionally 25 percent suffered from major depressive disorder, and 90 percent had at least one psychiatric disorder. As a result they suggested screening for AD/HD and major depressive disorder in those seeking mental health counseling related to "gender dysphoria."

Yildirim, B. et al. (July 27, 2017). Gender dysphoria and attention problems: possible clue for biological underpinnings. Psychiatry and Clinical Psychopharmacology. DOI: 10.1080/24750573.2017.1354417.

AD/HD & Gender Identity

A good article regarding the treatment of AD/HD in gender diverse children and adolescents:

Saline, S. et al. (July 8, 2022). When Children with ADHD Explore Gender Identity: A Guide for Parents. ADDitude. From website: https://www.additudemag.com/gender-identity-adhd-supporting-children/.

Social Interaction and AD/HD

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

Adults with AD/HD and Emotional Intelligence

Newly diagnosed adults with AD/HD & comorbidities:

- **Had significantly lower emotional intelligence than those diagnosed in childhood**
- **Severity of AD/HD symptoms was not a factor**
- **Conclusion: Newly diagnosed adults need emotional intelligence training**

Quintero, J. et al. (October 3, 2017). The Impact of Adult ADHD in the Quality of Life Profile. Journal of Attention Disorders. DOI: 10.1177/1087054717733046.

AD/HD Women and Interpersonal Behavior

Recent literature review of women with AD/HD and their social interaction:

- **Ratio as many as 2 girls to 9 boys with AD/HD – In adults 1 to 1 females to males**
- **AD/HD women have earlier depression and more severe than nondisabled women**
- **Women with AD/HD experience more domestic abuse, self-injury, & suicide attempts than AD/HD men**

Women with AD/HD suffer significantly more…

- **Relational difficulties, much more risky sexual behavior, significantly more sexual partners, earlier intercourse, more unprotected sex, More STDs, more casual sex, more unwanted pregnancies, and parenting problems**
- **Than their non-impaired peers**

Babinshi, D.E. et al. (November 2016). The interpersonal Difficulties of Women with ADHD. The ADHD Report, 24(7), 1-8.

Social Interaction and AD/HD

- AD/HD individuals are less adept at interpreting the emotions of others and identifying their own emotions than are the non-disabled.

Brown, T. E. (October 11, 2001). Assessment and Treatment of Complicated ADHD Across the Lifespan. Seminar Presented at the Arizona Association of School Psychologists 33rdAnnual Conference, Mesa, AZ.

- Literature review of facial expression recognition in adults with AD/HD shows no improvement with age.

Borhani, K. et al. (February 2018). Emotional face recognition in individuals with attention-deficit/hyperactivity disorder: a review article. Developmental Neuropsychology. DOI: 10.1080/87565641.2018.1440295.

- AD/HD adults have deficits in their ability to identify facial expressions in others.
- AD/HD adults experience emotions more intensely.
- The more intense the emotion the worse they are at identifying facial expressions.

Rapport, L.J. et al. (July 2002). Experienced emotion and affect recognition in adult attention-deficit hyperactivity disorder. Neuropsychology, 16(1), 102-110.

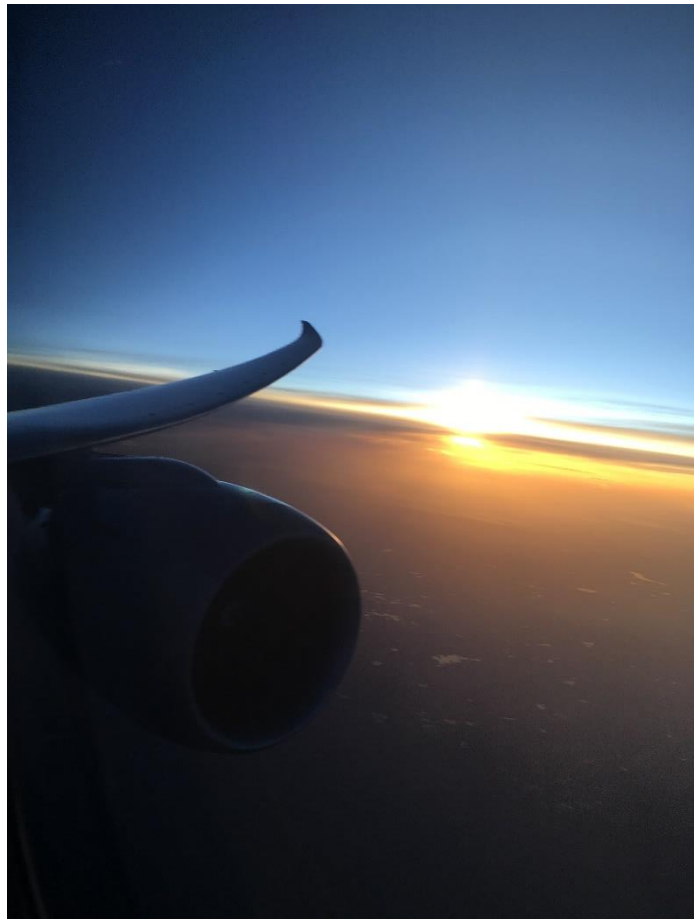
- Baron-Cohen, S. (2003). Mind Reading: An Interactive Guide To Emotions. Philadelphia, PA: Jessica Kingsley.

Social Interaction and AD/HD

AD/HD individuals over-emote facial expressions. When medicated properly this is corrected. It is dose dependent. Even the AD/HD individuals say they emote what they want to when they see videos of themselves medicated.

Kuehle, H.J., Hoch, C. and Jansen, F. (2002). Video Assisted Observation of Visual Attention, Facial Expression of the Individual Stimulant Dosage and Motor Behavior for the Diagnosis and for the Determination in Children with AD/HD. Obtained from: Kuehle, H. (October 17, 2002). Video Assisted Observation of Visual Attention and Motor Behavior for the Diagnosis and Determination of the Individual Stimulant Dosage in Children with AD/HD. Research Poster Session, 14th Annual CHADD International Conference, Miami Beach, FL.

Thank You!



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