Life-Changing Interventions for the New AD/HD: Beyond the DSM-5

Extra Information Slides A

Kevin T. Blake, Ph.D., P.L.C.
Tucson, Arizona
Cross Country Education
Brentwood, Tennessee

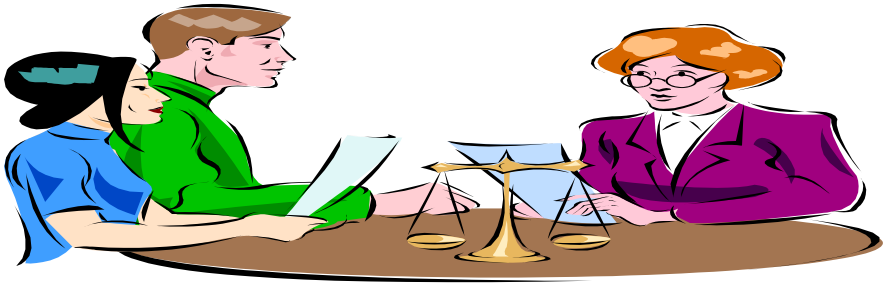
Guardianships, Powers of Attorney, Etc.

- **Guardianship: Legal relationship created by court to take care of incompetent person.**
- **Conservator/Guardian: Name of person appointed by court.**
- **Limited or Partial Guardianship/Temporary Guardianship.**
- **Durable Power of Attorney: Can some make decisions for partially independent adult**
- **Health Care Proxy: Medical power of attorney**
- **Joint Checking Account**

King-Nash, S. (April-May, 2010). Facing the Future: Guardianship, Conservatorship & More-Understanding the Options for your ASD Adult. Autism File, 43, 54-56.

Estate Planning

- **The expert who should help you with this is a *Certified Elder Law Attorney (CELA)*. You can find one of these in your area by going to the National Elder Law Foundation website: www.nelf.org**



Estate Planning

The simplest method of funding a trust for a child with a disability is typically with a term or whole life insurance policy.

Craig H. Wisnom, Esq. (February 20, 2012). Personal Communication. Tucson, AZ.

Estate Planning

"Those of us whose adult children have severe learning disabilities need to be able to answer the following questions:

- **Do you know the difference between a will and trust?**
- **Have you written a Letter of Intent?**
- **What is a Special Needs Trust?" (p. 214).**

Ford, A. (2007). On Their Own: Creating an Independent Future for Your Adult Child with Learning Disabilities and ADHD. New York, NY: New Market.

Estate Planning

"A will is a disbursement of your assets after you are gone…After you die, your estate is divided up according to your wishes, with your disabled son or daughter getting enough to live on (hopefully) for the remainder of their lives. Wills can be contested, which means another relative could block the disbursement of those assets until a court settles the matter." (p. 215)

Ford, A. (2007). On Their Own: Creating an Independent Future for Your Adult Child with Learning Disabilities and ADHD. New York, NY: New Market.

Trusts

"The terminology can also be quite confusing. When most people are talking about a "Trust", they are talking about a "Revocable" "Living" Trust, a Trust you set up while you are alive, which you can change whenever you wish. There are other types of trusts, including trusts that can be set up under your Will after your death ("Testamentary Trusts") such as a trust for a child until a certain age. There are also "Irrevocable Trusts" which are set up for more specialized purposes such as estate tax planning or asset protection."

Bogutz and Gordon (2008). Do I Need a Revocable Trust? Tucson, Arizona: www.bogutzandgordon.com/estateplanningfaqs.html#q7.

Special Needs Trust

- **This is a type of trust that is set for your disabled relatives after you die.**
- **It is typically irrevocable. This means it cannot be changed and it cannot be contested in court.**
- **The assets in the trust belong to the trust not to your disabled child.**

Ford, A. (2007). On Their Own: Creating an Independent Future for Your Adult Child with Learning Disabilities and ADHD. New York, NY: New Market.

Special Needs Trust

- **Even though you may believe your child may not need an SNT because you have sufficient financial resources and /or you child may not be "that impaired" you may need to consider one. "In short there are certain government programs and services that cannot be purchased privately; these programs require qualification for Medicaid." (p. 1)**

Gallant, K.B., Iannantuoni, R.A., Pitney, D., Fetrow, K., and Gupta, S.S. (October, 2011). Understanding and Administering The Special Needs Trust. Heckscher, Teillon, Terrill & Sager, P.C.

Special Needs Trusts

"Such trusts are called many names, including spendthrift trusts, special needs trusts, discretionary trusts, special person trusts, etc. The key factor is not the actual name of the trust, but the specific terms of the trust." (p. 1)

Bogutz & Gordon (2003-2010). Third Party Special Needs Trusts (Supplemental Benefits Trusts). Tucson, AZ: WWW.BOGURTZANDGORDON.COM.

Special Needs Trusts

- **"When a SBT (Special Benefits Trust, sic.) is set up for a disabled, handicapped, or mentally ill person by someone else, it is called a *Third Party Trust.* Typically the trust is created and the money comes from parents or other family members. The SBT can be created in a Will, in the parents' own Revocable Living Trust, or even a stand-alone document. Money can be put into a SBT by a third party, but cannot be put into the trust by the disabled individual or his/her spouse…"**

Bogutz & Gordon (2003-2010). Third Party Special Needs Trusts (Supplemental Benefits Trusts). Tucson, AZ: WWW.BOGURTZANDGORDON.COM.

Special Needs Trusts

- **"…if the money already belongs to the disabled individual…that money would have to be put into a First Party Special Needs Trust that must have significantly different and less advantageous features than a Third Party Special Needs Trust." (pp. 1-2).**

Bogutz & Gordon (2003-2010). Third Party Special Needs Trusts (Supplemental Benefits Trusts). Tucson, AZ: WWW.BOGURTZANDGORDON.COM.

First Party Special Needs Trust

- **“Once the money is placed in the trust, the beneficiary cannot withdraw it , or direct how the trustee will spend it. The trustee must have full legal control over the money, and although the trustee may consider requests made by or on behalf of the beneficiary, the trustee is free to say “no” to any request.” (p. 3)**

Bogutz and Gordon (2003-2010). First Party Special Needs Trusts: A primer for Injured Individuals or Disabled Persons and Their Families (SSI Recipients). Tucson, Arizona: WWW.BOGUTZANDGORDON.COM.

First Party Special Needs Trust

- **"When the disabled beneficiary dies, any money remaining in the trust must be paid back to the state Medicaid Agency for any services provided during the beneficiary's lifetime. Only after the State has been paid back can the remaining funds (if any) can pass on to the disabled person's family." (p. 3)**

Bogutz and Gordon (2003-2010). First Party Special Needs Trusts: A primer for Injured Individuals or Disabled Persons and Their Families (SSI Recipients). Tucson, Arizona: WWW.BOGUTZANDGORDON.COM.

Third Party Special Needs Trust

"When a SBT (Special Benefits Trust/Special Needs Trust, sic.) is set up for a disabled, handicapped, or mentally ill person by someone else, it is called a Third Party Trust. Typically the trust is created and the money comes from parents or other family members. The SBT can be created in a Will, in the parents' own Revocable Living Trust, or even as a stand-alone document. Money can be put into the SBT by any third party, but cannot be put into the trust by the disabled individual or his/her spouse." (p 1 of 5)

Bogutz & Gordon (2003-2010). Third Party Special Needs Trusts (Supplemental Benefits Trusts). Tucson, AZ: WWW.BOGURTZANDGORDON.COM.

Estate Planning

To be able to receive Social Security Supplemental Income, Medicare and Medicaid the child (or, adult child) cannot have:

- **Countable (stocks, bonds, checking accounts, etc.) assets of no more than $2000.00**
- **Income more than $2022.00 per month (2010)**

Bogutz and Gordon (2003-2010). First Party Special Needs Trusts (ALTCS Recipients). Tucson, Arizona: WWW.BOGUTZANDGORDON.COM.

Estate Planning

- **"Non-countable assets consists primarily of a home of unlimited value, one vehicle per household if used for transportation, household belongings and furniture, clothing, personal jewelry, and pre-paid burial accounts." (p. 3)**

Bogutz & Gordon (2003-2010). Third Party Special Needs Trusts (Supplemental Benefits Trusts). Tucson, AZ: WWW.BOGURTZANDGORDON.COM.

Special Needs Trust

- **If your child needs funds they request them from the trustees of the trust for your child's benefit.**
- **The trustees will distribute funds to help your child maintain their standard of living, but will protect them from being taken advantage of, etc. per your instructions.**

Ford, A. (2007). On Their Own: Creating an Independent Future for Your Adult Child with Learning Disabilities and ADHD. New York, NY: New Market.

Special Needs Trust

- **How to set up a special needs trust:**
  - **Most major brokerage firms have Special Needs financial advisors.**
  - **Most major law firms have elder law attorneys who can help you create a special needs trust.**
  - **Certified Elder Law Attorney (CELA): www.nelf.org**

Ford, A. (2007). On Their Own: Creating an Independent Future for Your Adult Child with Learning Disabilities and ADHD. New York, NY: New Market.

Special Needs Trust

- **Some elder law attorneys recommend disowning your disabled child in your will in order to assure they will not inadvertently inherit more than $2000.00 worth of assets upon your death.**
- **It is a good idea to review your Special Needs Trust, estate plans, etc. every 2 to 3 years as laws change.**

Ford, A. (2007). On Their Own: Creating an Independent Future for Your Adult Child with Learning Disabilities and ADHD. New York, NY: New Market.

Special Needs Trust

- **It is best to have people/institutions that are not related to your family as the trustee(s) of the special needs trust.**
- **A bank trust department may be best.**
- **You should stipulate how successor trustees can be appointed in the document.**

Ford, A. (2007). On Their Own: Creating an Independent Future for Your Adult Child with Learning Disabilities and ADHD. New York, NY: New Market.

Letter of Intent

This is a letter that describes your disabled child in intimate detail which you add to and revise from time to time. It put a human face on your child for the trustees, attorneys, banks, etc. You describes you child's interests, likes and dislikes, hobbies, medical issues, disabilities, etc.

Ford, A. (2007). On Their Own: Creating an Independent Future for Your Adult Child with Learning Disabilities and ADHD. New York, NY: New Market.

In Conclusion

- **You should let your child know they will not be abandoned when you die.**
- **There will be someone who will care for them after you are gone.**
- **You have taken great care creating the above documents because you love them.**
- **And you will always love them.**

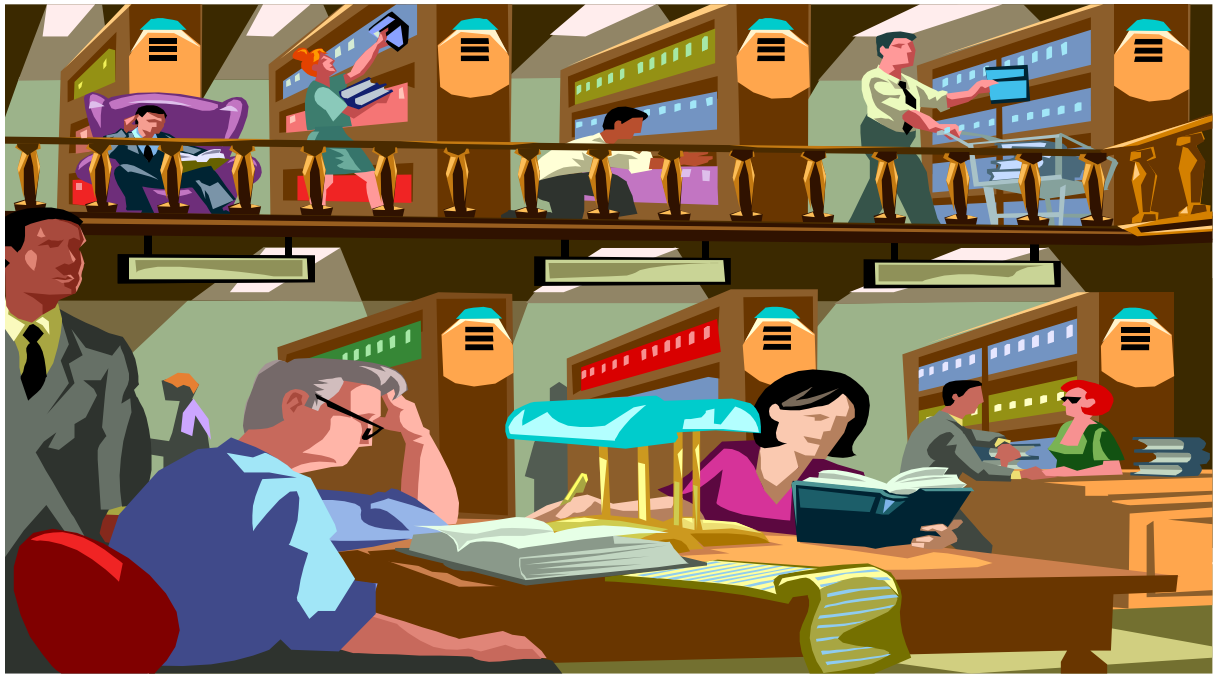
Ford, A. (2007). On Their Own: Creating an Independent Future for Your Adult Child with Learning Disabilities and ADHD. New York, NY: New Market.

Special Thanks!

- **Craig H. Wisnom, Esq., CELA**

  Bogutz and Gordon, P.C.

  Tucson, AZ

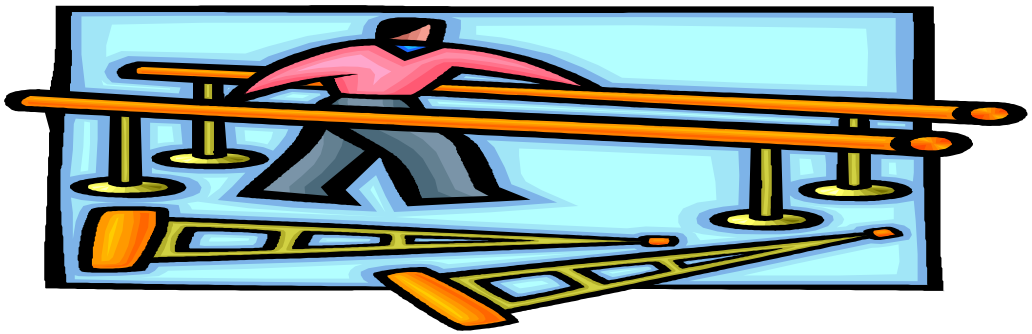


National Disability Rights Network

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

Section 504

- **Section 504 of the Rehabilitation Act of 1973:**
  - **http://www2.ed.gov/policy/speced/reg/narrative.html**
  - **http://www.dol.gov/oasam/regs/statutes/sec504.htm**



IDEA-2004

- **Individuals with Disabilities Education Act of 2004 (IDEA-2004):**

http://idea.ed.gov/explore/view/p/%2Croot%2Cregs%2C

- **The Individuals with Disabilities Education Act: Provisions Related to Children With Disabilities Enrolled by Their Parents in Private Schools:**

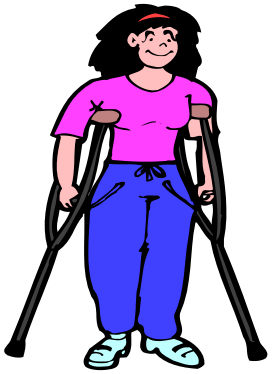
http://www2.ed.gov/admins/lead/speced/privateschools/index.html

School-To-Work Opportunities Act 0f 1994

- **All students are to have an official transition plan to transition to the world of work/post-secondary education.**

www.dol.gov/elaws/esa/flsa/scope/ee15astw.asp

What is a "Disability?"



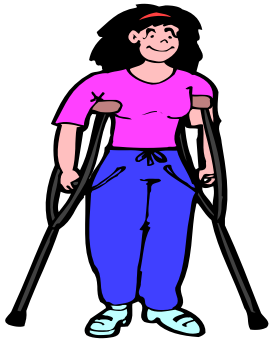
- **With adults the term disability has become a legal term of art since the passage of the American's with Disability Act (ADA).**
- **One must be impaired compared to the Average American.**
- **Highly Controversial**

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.

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 activities" was expanded to include reading, bending, walking, communicating, etc. The bill included bodily functions like difficulties with the immune system, bowel functions, etc. People with "episodic disabilities" are now better protected.

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



Americans with Disabilities Act, Amendments Act of 2008

- **Congress made it easier for a person to seek protection under the ADA if they have a disability because the term disability is now interpreted more broadly.**
- **The term "substantially limits" now requires a lower degree of functional limitations than has been applied in the courts.**
- **"Substantially limits" is now to be considered more broadly.**

Americans with Disabilities Act, Amendments Act of 2008

- **One still needs an "individualized assessment" to determine an impairment in a major life activity.**
- **"Mitigating measures" like medication for ADHD no longer can be used to determine level of impairment (glasses and contacts excluded).**
- **An impairment that is episodic or in remission is still considered a disability.**
- **Determination of disability should not require extensive analysis.**

Americans with Disabilities Act, Amendments Act of 2008

- **Reading, standing, communicating, bowel movements, autoimmune functions, etc. are now considered "major life activities."**

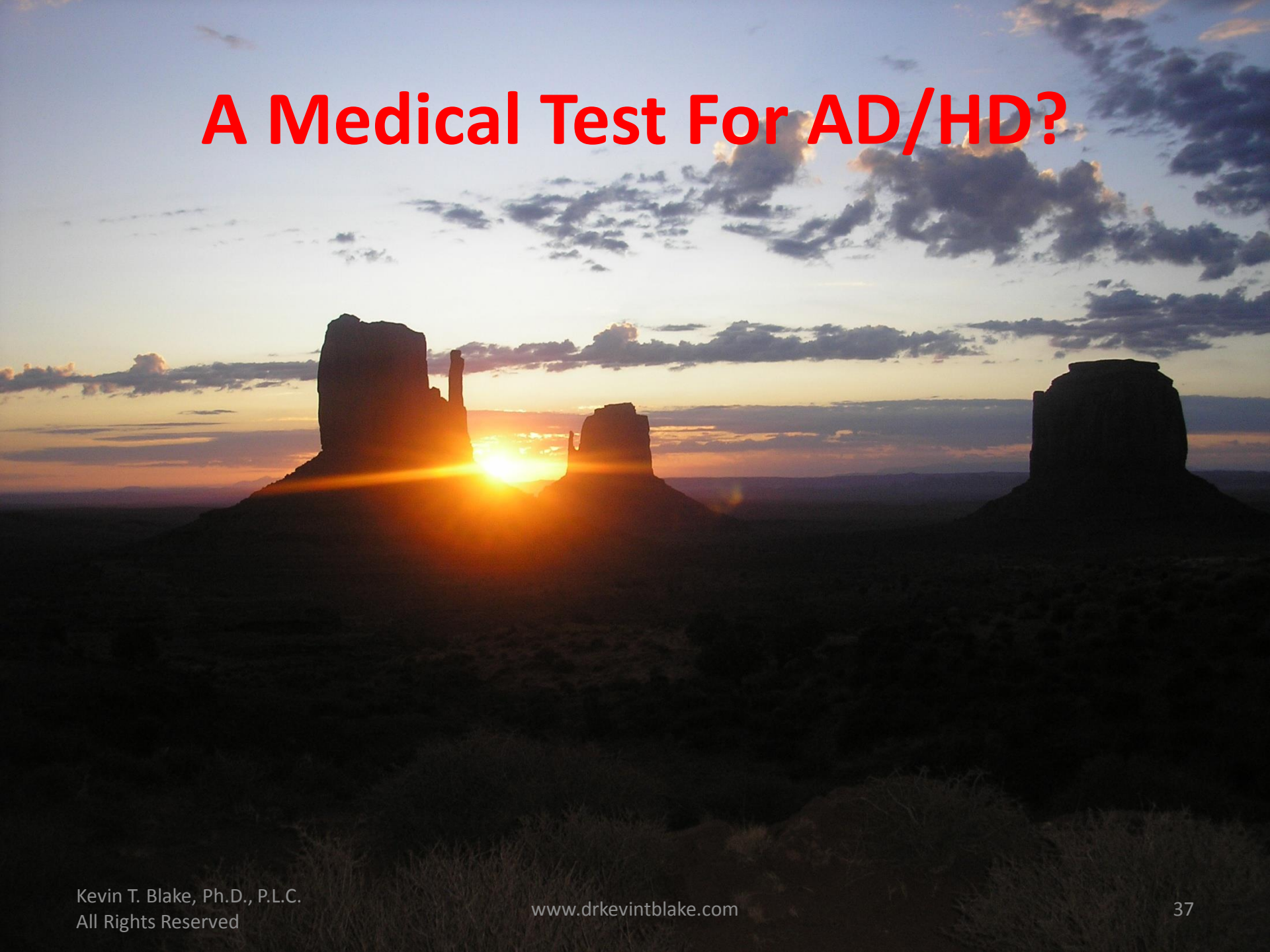
From:

Fact Sheet on the EEOC's Final Regulations Implementing the ADAAA: www1.eeoc.gov//laws/regulations/adaaa_fact_sheet.cfm?renderforprint=1

Protecting Students with Disabilities

- **Department of Health and Human Services, Office of Civil Rights (OCR):**
- **Flyer: Protecting Students with Disabilities; http://www2.ed.gov/about/offices/list/ocr/504faq.html**
- **Office of Civil Rights: http://www.hhs.gov/ocr/**

A Medical Test For AD/HD?



Medical Test For AD/HD?

- **July 15, 2013: FDA permits marketing of first brain wave test to help assess children and teens for ADHD**
- **"The U.S. Food and Drug Administration today allowed marketing of the first medical device based on brain function to help assess attention-deficit/hyperactivity disorder (ADHD) in children and adolescents 6 to 17 years old. When used as part of a complete medical and psychological examination, the device can help confirm an ADHD diagnosis or a clinician's decision that further diagnostic testing should focus on ADHD or other medical or behavioral conditions that produce symptoms similar to ADHD…"**

Medical Test for AD/HD?

"…The device, the Neuropsychiatric EEG-Based Assessment Aid (NEBA) System, is based on electroencephalogram (EEG) technology, which records different kinds of electrical impulses (waves) given off by neurons (nerve cells) in the brain and the number of times (frequency) the impulses are given off each second.

The NEBA System is a 15- to 20-minute non-invasive test that calculates the ratio of two standard brain wave frequencies, known as theta and beta waves. The theta/beta ratio has been shown to be higher in children and adolescents with ADHD than in children without it…"

Medical Test for AD/HD?

"…The FDA reviewed the NEBA System through the de novo classification process, a regulatory pathway for some low- to moderate-risk medical devices that are not substantially equivalent to an already legally marketed device.

In support of the de novo petition, the manufacturer submitted data including a clinical study that evaluated 275 children and adolescents ranging from 6 to 17 years old with attention or behavioral concerns. Clinicians evaluated all 275 patients using the NEBA System and using standard diagnostic protocols, including the Diagnostic and Statistical Manual of Mental Disorders IV Text Revision(DSM-IV-TR) criteria, behavioral questionnaires, behavioral and IQ testing, and physical exams to determine if the patient had ADHD…"

Medical Test for AD/HD?

"… An independent group of ADHD experts reviewed these data and arrived at a consensus diagnosis regarding whether the research subject met clinical criteria for ADHD or another condition. The study results showed that the use of the NEBA System aided clinicians in making a more accurate diagnosis of ADHD when used in conjunction with a clinical assessment for ADHD, compared with doing the clinical assessment alone."

Medical Test for AD/HD Reference

Author (July 15, 2013). FDA News Release: FDA permits marketing of first brain wave test to help assess children and teens for ADHD. Washington, DC: U.S. Department of Health and Human Services, Food and Drug Administration. From website: http://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm360811.htm.

Patent on "Neba System"

Patent number: US 8311622 B2

Publication date: November 15, 2012

Inventors: James D. Falk and Steven M. Snyder

Original Assignee: Neba Health LLC

Systems and methods for analyzing and assessing depression and other mood disorders using electroencephalographic (EEG) measurements. From website: https://www.google.com/patents/US8311622.

EEG as Diagnostic Marker for AD/HD

- **An 18% False positive AD/HD Diagnosis rate is too high**
- **EEG does not account for comorbidity**
- **No replication of studies have been done yet**
- **Study subject groups do not match and use very different methodologies**
- **Too much chance for conflict of interest (e.g. company stockholders, etc.)**

Reference

Loo, S.K., Makeig, S. (2012). Clinical Utility of EEG in Attention-Deficit/Hyperactivity Disorder: A Research Update. Neurotherapeutics, 9(3), 569-587. From website: http://sccn.ucsd.edu/~scott/pdf/LooMakeig_Neurotherapeutics12_share.pdf.

Meta-Analysis of EEG Theta/Beta Ratio Diagnostics with AD/HD

"Excessive TBR (Theta/Beta Ratio, sic) cannot be considered a reliable diagnostic measure of ADHD, however a substantial sub-group of ADHD patients do deviate on this measure and TBR has prognostic value in this sub-group, warranting its use as a prognostic measure rather than a diagnostic measure" (p. 374).

Arns, M, Conners, C.K., and Kraemer, H.C. (May 29, 2013). A Decade of EEG Theta/Beta Ratio Research in ADHD: A Meta-Analysis. Journal of Attention Disorders, 17(5), 374-383. From website: http://jad.sagepub.com/content/17/5/374.abstract.

Brown on EEG Theta/Beta Ratio Diagnosis of AD/HD

"…Although these measures are useful research tools, they are not sufficiently developed or normed to make them useful or valid for assessment to make or deny an ADHD diagnosis for any specific in individual…All of these measures provide only snapshots of brain functioning in brief moments of time and do not adequately capture the wide situational variability in functioning characteristic of most individuals with ADHD" (p. 4).

Reference

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

Tom Brown's Letter To The FDA

"As a clinician and researcher confronted daily with the frustrations and suffering of children and adults with ADHD, I urge your agency to reconsider its approval of this device so it does not become a barrier to those who need access to diagnosis and treatment for this complex and often persistent disorder".

Brown, T.E. (July 22, 2013). An Open Letter from Dr. Brown Expressing Concern about a Recent FDA Action Related to ADHD. From website: http://www.drthomasebrown.com/an-open-letter-from-dr-brown-expressing-concern-about-a-recent-fda-action-related-to-adhd-2/.

Tom Brown on Neba System

Brown (July, 19, 2013). Said he did not believe the Neba system was useful due to its very high level of false negative "diagnoses" when used with AD/HD individuals. He said it was not helpful for ADHD diagnosis.

Brown, T.E. (July 19, 2013). Advanced Assessment and Treatment of Attention Deficit Disorders. Washington, DC: American Psychological Association Continuing Education in Psychology; webinar.

CHADD of the Neba System

"However, a recent meta-analysis which included all literature published on this measure to date – including a study from authors affiliated with NEBA – concluded that Theta/Beta ratio is not a reliable diagnostic marker for ADHD.* In a minority of ADHD patients (~25-30%), this measure is consistently found to deviate; however, such a percentage is too low to be used as a standalone diagnostic test".

Arns, M. (July 22, 2013). A comment on: FDA permits marketing of first brain wave test to help assess children and teens for ADHD. Landover, MD: CHADD Leadership Blog. From website: http://www.chaddleadershipblog.blogspot.com/2013/07/a-brain-wave-diagnostic-test-for-adhd.html.

Eye Movement Diagnosis?

Eye Movements and Diagnosis

Researchers from University of Southern California and Queen's University, Ontario, Canada discovered a method recording eye movements of older patients with Parkinson's Disease, and children with either Fetal Alcohol Spectrum Disorder, or AD/HD while they were watching a 15 minute long video beyond chance. Reportedly they had a 89.6% accuracy of telling older adults with Parkinson's Disease…

Eye Movements and Diagnosis (Continued)

…from a group of non-impaired age-matched controls, and 77.3% of the children with either AD/HD, or Fetal Alcohol Spectrum Disorder when matched with control children. Regarding this the researchers wrote, "Our technique provides new quantitative insights into which aspects of attention and gaze control are affected by specific disorders. There is considerable promise in using this approach as a potential screening tool that is easily deployed, low-cost, and high-throughput for clinical disorders, especially in young children and elderly populations who may be less compliant to traditional evaluation tests".

Po-He, T., Cameron, I.G.M., Pari, G., Reynolds, J.N., Itti, L. (August, 2012). High-throughput classification of clinical populations from natural viewing eye movements. Journal of Neurology, DOI 10.1007/s00415-012-6631-2. From website: http://link.springer.com/article/10.1007%2Fs00415-012-6631-2.

Neurobiofeedback and AD/HD

"Thus, *the findings of the studies reviewed here do not support NF training as a firstline, stand-alone treatment for ADHD. Until NF training can demonstrate an effect that is* either superior to placebo control or equivalent to other empirically supported treatments for ADHD (i.e., psychostimulant medication, behavior therapy), it simply cannot be considered a primary treatment modality…"

Neurobiofeedback and AD/HD

"… In fact, given the expense and time/labor intensive nature of the NF, one might be hard pressed to recommend NF training over stimulant medication even if comparable effect sizes were demonstrated, unless there are clear contra-indications for medication or NF demonstrates continued long-term benefit after completion of treatment that exceeds that of medication treatment" (p. 23)

Neurobiofeedback and AD/HD

"While NF treatment is not recommended as a first-line treatment, *SCP* (Slow Cortical Potential, sic) *training appears likely to be efficacious as an adjunct treatment for a subset (~50%) of children with ADHD.* Among positive responders, SCP training appears to have specific effects on enhanced cortical regulation that is associated with improved ADHD symptomatology. Because not all children with ADHD can be expected to improve with NF training, it should be used as an adjunct treatment or as part of a multimodal treatment package that includes medication, psychosocial, and educational accommodations" (p. 23).

Reference

Loo, S.K., Makeig, S. (2012). Clinical Utility of EEG in Attention-Deficit/Hyperactivity Disorder: A Research Update. Neurotherapeutics, 9(3), 569-587. From website: http://sccn.ucsd.edu/~scott/pdf/LooMakeig_Neurotherapeutics12_share.pdf.

Life-Changing Interventions for the New AD/HD: Beyond the DSM-5

Extra Information Slides B

Kevin T. Blake, Ph.D., P.L.C.
Tucson, Arizona
Cross Country Education
Brentwood, Tennessee

Genetics & AD/HD

Genetics of the Combined Type (Continued)

- **Barkley stated that AD/HD may be an extreme case of a trait we all possess.**

Barkley, R.A. (1995). Taking Charge of ADHD: The Complete Guide for Parents. New York, NY: Guilford.

Combined Type Genetics Continued:

Miller and Blum wrote, "Defective genes, causing abnormalities in brain chemistry, are responsible for a whole range of compulsive diseases and abnormal behaviors. Thus what we have learned about the genetics and brain chemistry of compulsive disorders has a direct application on ADHD."

Miller, D., and Blum, K. (1996). Overload: Attention Deficit Disorder and the Addictive Brain. Kansas City, MO: Andrews and McMeel.

Genes and AD/HD Combined Type (Continued)

Barkley said due to research begun as a result of the Human Genome Project all the genes involved with AD/HD should be known in the next 5 years

Genetically there are probably several subtypes of AD/HD and there appear to be multiple genes that cause AD/HD symptoms.

Barkley, R. A. (2002A-Tape 2). ADHD Symposium: Comorbid Disorders, Etiologies and Outcomes. University of Massachusetts (January) Distributed by Stonebridge Seminars.

Other Genes Suspected in Combined Type AD/HD

D2 – "Reward Deficiency Syndrome"

70% of alcoholics

25% non-alcoholics

Miller, D., and Blum, K. (1996). Overload: Attention Deficit Disorder and the Addictive Brain. Kansas City, MO: Andrews and McMeel.

Other Genes Suspected in Combined Type AD/HD:

- DAT1 (Dopamine Transporter) & DBH (dopamine B-hydroxylase…a noradrenergic gene)
- Having the DRD4-7 allele gives you a 50% chance of having AD/HD
- Identical twin studies have indicated AD/HD combined type is about 80% heritable. I.Q. is 60-65% heritable.

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

Genes (Continued)

- **While DAT1 may be related to the reuptake of Dopamine, DRD4-7 may be associated with an under-sensitive post-synaptic receptor.**

Hudziak, J.J. (2000). Genes of Attention-Deficit/Hyperactivity Disorder. In T.E. Brown (Ed.), Attention-Deficit Disorders and Comorbidities in Children, Adolescents and Adults. Washington, DC: American Psychiatric Press.

DAT1 Gene and AD/HD

The DAT1 gene regulates how many Dopamine reuptake pumps each nerve cell has. Those with AD/HD have too many repeats of this gene thus they have too many dopamine reuptake pumps. Hence the dopamine does not spend enough time in the synapse.

Barkley, R.A. (2002A-tape 2). ADHD Symposium: Comorbid Disorders, Etiologies and Outcomes. University of Massachusetts, January Distributed by Stonebridge Seminars, 2 Okie Stonebridge, MA 05181.

AD/HD Genes (WEBSITE-2)

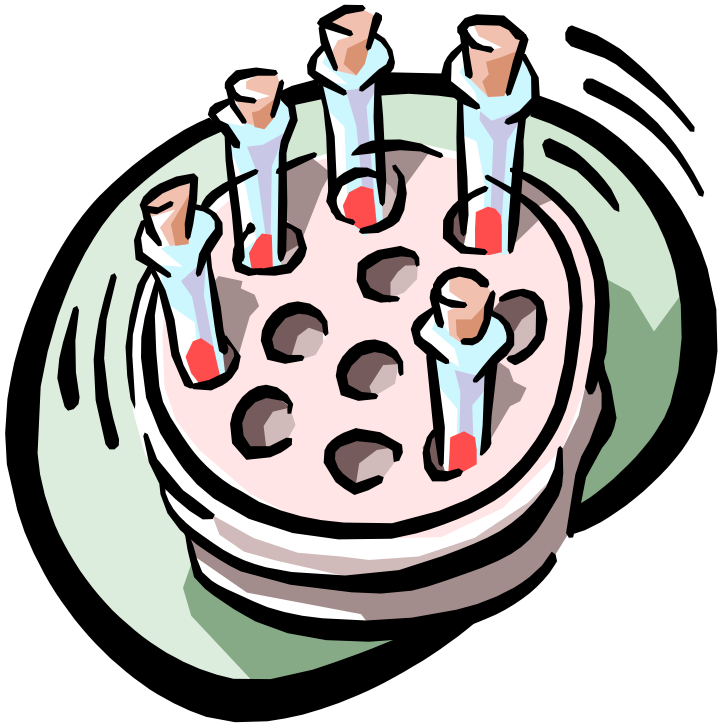
- DRD4 – 7 + Repeat
- DAT1 – 480 bp
- DBH – TaqI (A2 allele)
- DRD2
- SNAP25
- MAO-A
- 13 other possible genes

Barkley, R.A. (2008). ADHD: Advances in, Nature, Diagnosis, and Etiology. Handout for seminar: 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, p. 9 (Handout).

Neurochemestry of AD/HD

Neurochemical Differences in Combined Type AD/HD

- Differences in the amount and actions of:
- Dopamine
- Norepinephrine
- Serotonin



Quinn, P.O. (1995). Use of Medication in the Treatment of ADD and Related Conditions. Paper presented at the 2nd Annual National ADDA Adult Conference-Professional ADD Institute Pre-Conference, Pittsburgh, PA..

Genes and Neurotransmitters of the Combined type

- **DRD4-7** Reduces sensitivity to Dopamine
- **DAT** Creates too many Dopamine Transporters
- **DBH** Allows the conversion of Norephrineprine to Dopamine; those with AD/HD **MAY** over convert

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.

Neurotransmitters of Combined Type (Continued)

- **Dopamine=dysregulation-likely**
- **Norepinephrine=dysregulation-less evidence**
- **Serotonin=aggression (probable)**

Barkley, R.A. (2002A-Tape 2). ADHD Symposium: Comorbid Disorders, Etiologies, and Outcomes, University of Massachusetts, January, Distributed by Stonebridge Seminars, Westborough, MA.)

Neurochemical Differences (continued)

"The site of action of Methylphenidate… suggests that dopamine is the principal neurotransmitter involved, although norepinephrine has also been implicated"

NIH Consensus Development Conference on Diagnosis and Treatment of Attention Deficit Hyperactivity Disorder 11/16-18/98

Swanson, J., and Castellanos, X. (1998). Biological Bases of Attention Deficit Hyperactivity Disorder: Neuroanatomy, Genetics, and Pathophysiology. Available from- http:www.://addbalance.com/add/nih/19981118c.htm, pp. 4 of 7.

Neurology of AD/HD

The Neurology of the Combined Type

Barkley (2002B) stated there are three areas of the brain that

- **are significantly different in those that are AD/HD:**
- **The *Orbital Prefrontal Cortex-Primarily the Right Side***
- **The *Cerebellar Vermis-Primarily the Right Side***
- **The *Basal Ganglia-Striatum and Globus Pallidus***

Barkley, R.A. (2002B). ADHD and Oppositional Defiant Children. Seminar presented February 19-20, Phoenix, AZ.

Neuroanatomy of Combined Type AD/HD (Continued)

- **Evidence of reduced size in the frontal lobes and basal ganglia – These differences affect alerting and executive functioning (attention) and input-out processing.**

Swanson, J., and Castellanos, X. (1998). Biological Bases of Attention Deficit Hyperactivity Disorder: Neuroanatomy, Genetics, and Pathophysiology. Available from- http://addbalance.com/add/nih/19981118c.htm.

What About Neuroinaging of Combined Type AD/HD?

- **1990 NIM PET Study of 25 AD/HD Adults:**
- **Reduced blood flow in the frontal and striatal regions**

Zametkin, A.J., et. al. (1990). Cerebral metabolism in Adults with hyperactivity of Childhood Onset. New England Journal of Medicine. 323, pp.1361-1366.

1990 NIH PET Study (Continued)

- **Adults with AD/HD Metabolize 10% ***LESS*** Glucose than non-AD/HD Adults Over Their Entire Brains.**

Zametkin, A.J., et. al. (1990). Cerebral metabolism in Adults with hyperactivity of Childhood Onset. New England Journal of Medicine. 323, pp.1361- 1366.

Other Imaging Data with Combined Type

- **Functional MRI Studies Have Shown Differences On the Right Side of The Caudate and Frontal Lobes in those with AD/HD.**

Rapoport, J. (1996). Neurobiological Research Updates on ADD. Paper Presented at the CHADD International Conference, Chicago, IL.

Other Imaging Data about Combined Type

- **AD/HD adults use their Basal Ganglia, Cerebellar Vermis and Occipital Cortex when doing Working Memory Tasks. Non-AD/HD adults use the Right Medial Frontal Cortex, Anterior Cingulate Gyrus, and Temporal Gyrus Regions for Working Memory.**

Imperio, W.A. (2000, January). Cerebral Blood Flow Differs In Adults with ADHD. Clinical Psychiatric News,28 (1), 10.

Differences in the ADHD Brain

"Comparisons of individuals with ADHD versus matched controls in multiple aspects of brain development, brain structure and brain functioning have demonstrated significant differences between those who have ADHD and those who do not" (p. 2)

Brown, T.E. (2013). A New Understanding of ADHD In Children and Adults: Executive Function Impairment. New York, NY: Routledge, p. 2.

Differences in the AD/HD Brain

"Those with ADHD have been shown to differ in the rate of maturation of specific areas of the cortex in the thickness of cortical tissue, in characteristics of the parietal and cerebellar regions as well as the basal ganglia, and in the white matter tracts that connect and provide critically important communication between various regions of the brain. Recent research has shown that those with ADHD tend to have different patterns in functional connectivity, patterns of oscillations that allow different regions of the brain to exchange information" (p. 5).

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

Differences in the AD/HD Brain

"Those with ADHD tend to have abnormalities in the anticipatory dopamine cell firing in the reward system; this makes it difficult for them to arouse and sustain motivation for activities that do not provide immediate and continuing reinforcement" (p. 5).

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

Differences in the AD/HD Brain

"To date, at least five brain regions have been implicated in producing ADHD. These are the dorsolateral and orbital frontal regions, mainly on the right side, the anterior cingulated cortex, the basal ganglia, especially the striatum, the cerebellum (principally the vermis on the right side), and the anterior portion of the corpus callosum (the splenium)…"

Barkley, R.A. (January 25, 2013). ADHD: Nature, Course, Outcomes, and Comorbidity. CotinuingEdCourses.Net. From website: http://www.continuingedcourses.net/active/courses/course003.php.

Differences in the ADHD Brain

"We found maturation to progress in a similar manner regionally in both children with and without ADHD, with primary sensory areas attaining peak cortical thickness before polymodal, high-order association areas. However, there was a marked delay in ADHD in attaining peak thickness throughout most of the cerebrum: the median age by which 50% of the cortical points attained peak thickness for this group was 10.5 years…, which was significantly later than the median age of 7.5 years (SE 0.02) for typically developing controls (log rank test $\chi(1)^2 = 5{,}609$, $P < 1.0 \times 10^{-20}$)…"

Differences the ADHD Brain

"… The delay was most prominent in prefrontal regions important for control of cognitive processes including attention and motor planning. Neuroanatomic documentation of a delay in regional cortical maturation in ADHD has not been previously reported" p. 19,649).

Shaw, P. et al (December 4, 2007). Attention-Deficit/Hyperactivity Disorder is Characterized by a Delay in Cortical Maturation. Proceedings of The National Academies of Sciences of the United Sates of America, 104(49), 19,649-19654. From website: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2148343/.

Differences in the AD/HD Brain

"The congruent delay in cortical thickness and surface area direct attention away from processes that selectively affect one cortical component toward mechanisms controlling the maturation of multiple cortical dimensions" (p. 191).

Shaw, P. et al (August 2012). Development of Cortical Surface Area and Gyrification in Attention-Deficit/Hyperactivity Disorder. Biological Psychiatry, 72(3), 191-197. From website: http://www.ncbi.nlm.nih.gov/pubmed/22418014.

Differences in the ADHD Brain

"Children with ADHD show relative cortical thinning in regions important for attentional control. Children with a worse outcome have "fixed" thinning of the left medial prefrontal cortex, which may compromise the anterior attentional network and encumber clinical improvement. Right parietal cortex thickness normalization in patients with a better outcome may represent compensatory cortical change" (p. 540).

Shaw, P. et al (May, 2006). Longitudinal Mapping of Cortical Thickness and Clinical Outcome in Children and Adolescents with Attention-Deficit/Hyperactivity Disorder. Archieves of General Psychiatry, 63(5), 540-549. From website: http://archpsyc.jamanetwork.com/article.aspx?articleid=209556.

Frontal Lobe Maturity in Children with AD/HD

A comparative study of the brain maturation of children with AD/HD and those without AD/HD, as measured by repeated MRI imaging indicated AD/HD childrens' with right prefrontal cortexes matured to years slower than did those without AD/HD.

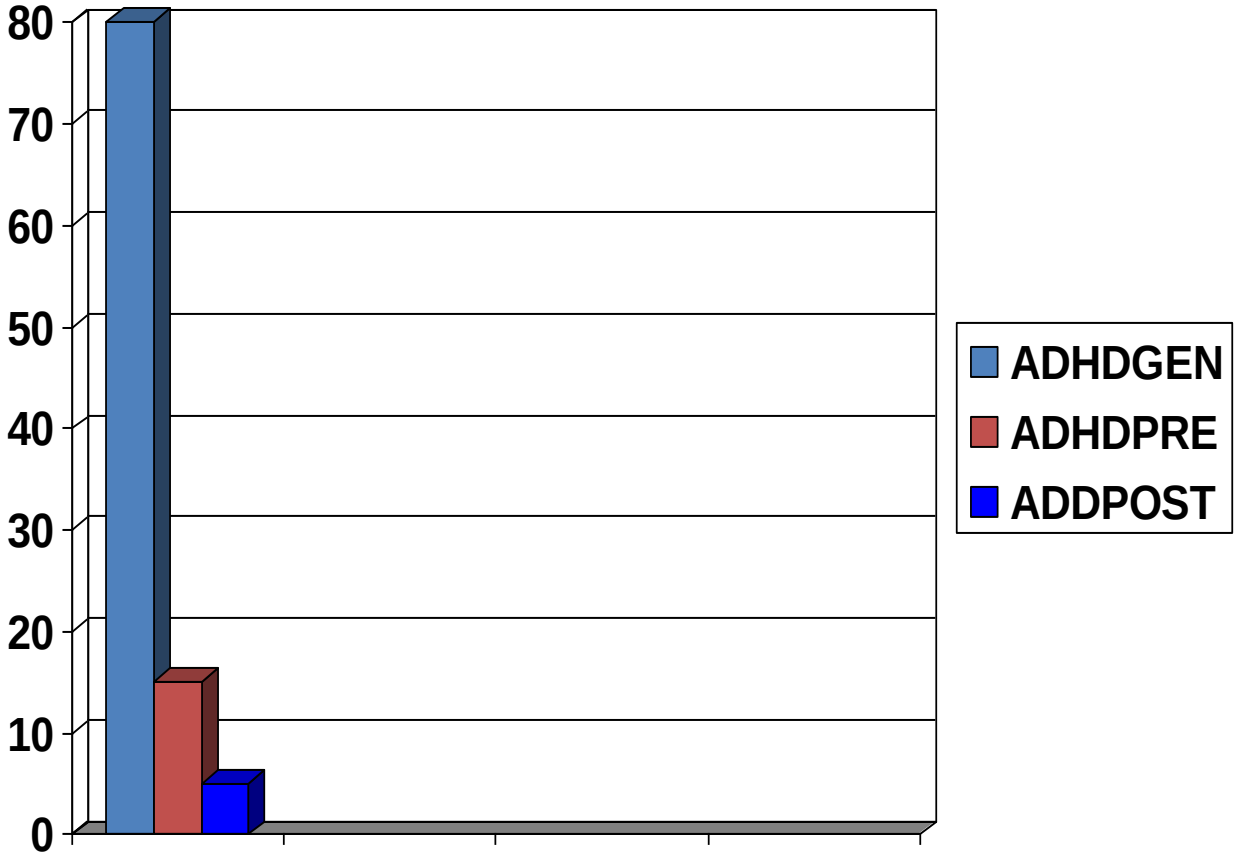
Shaw, P., Malek, M., Watson, B., Sharp, W., Evans, A., and Greenstein, D. (August 1, 2012). Development of Cortical Surface Area and Gyrification In Attention-Deficit/Hyperactivity Disorder. Biological Psychology, 72(3), 191-197.

Good Literature Review of Neurology of ADHD

Bush, G. (2009). Attention-Deficit/Hyperactivity Disorder and Attention Networks. Neuropsychopharmacology, 35(1), 278-300. From website: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3055423/#!po=43.7500.

Etiologies of AD/HD

Percentages of Etiologies of AD/HD



Those with Acquired AD/HD:

- **Do not respond as well to stimulants as do those with Developmental AD/HD (50% vs. (92%).**

  MAY **respond to rehabilitation (speech and language therapy, occupational therapy, etc.)**

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.

Mercury, Lead & ADHD

“ To our knowledge, this study is the first to identify an association between prenatal MeHg (methylmercury, sic.)and ADHD symptomatology in childhood and the first to replicate previously reported associations between low-level childhood Pb (lead, sic.) exposure and ADHD in a population exposed to Pb (lead, sic.) primarily from dietary sources” (p. 1456).

Mercury, Lead & ADHD (Continued)

"…This was a longitudinal study of 279 First Canadian Inuit children (mean age 11.3 years). The researchers found that children whose mothers had eaten fish with high mercury content and whose children had high levels of mercury in their cord blood had significantly higher levels of AD/HD-like behavior later. These effects were found to be more significant than maternal prenatal smoking. They also found that the higher the blood level of lead children had due to eating fish containing lead the higher their AD/HD symptomatology"(p. 1456).

Mercury, Lead & ADHD (Continued)

Boucher, O., Jacobson, S.W., Plusquellec, P., Dewailly, E., Ayotte, P., Forget-Dubois, N., Jacobson, J.L. and Muckle, G. (October 1, 2012). Prenatal Methylmercury, Postnatal Lead Exposure, and Evidence of Attention Deficit/Hyperactivity Disorder Among Inuit Children in Arctic Québec. Environmental Health Perspectives, 120, 1456-1461.

PANDAS?

- **Pediatric Autoimmune Neuropsychiatric Disorders Associated with Streptococcus**
  - ***AKA***
- **Pediatric-Infection-Triggered Autoimmune Neuropsychiatric Disorders (PITANDS)**

PANDAS

These are terms, "…used to describe a subgroup of children who have tics, obsessions, and/or compulsions typically worsened dramatically following streptococcal infections or children who have no prior history of tics, obsessions and compulsions who suddenly explode in symptoms after a Group-A streptococcal infection" (p. 19).

Packer, L.E. (June 6, 2002). Tourette Syndrome "Plus". From website: www.tourettesyndrome.net/pandas.htm, pp. 1-6.

PANDAS

NIMH researchers have, "…identified a specific gene in those families that make a protein in nerve cell membranes resembling the protein in streptococcus cells. Once infected with streptococcus, the children in these families make anti-bodies to the protein, and begin to attack their own nerve cells. MRI studies of these children can show swelling in the brain areas during OCD symptoms" (p. 2).

Bonnet, K. (1997). Brain Imaging in Learning Disabilities and Developmental Disorders. 1997 Learning Disabilities Association International Conference Seminar Paper. Available at: www.ldnat.org/newsbriefs/articles.html.

PANDAS

- **Can cause the Caudate Nucleus to swell as much as 24%**
- **The Caudate is being attacked by the antibodies created to attack the strep bacteria.**

Ratey, J.J. (2001). A Users Guide To the Brain: Perception, Attention, and the Four Theaters of the Brain. New York, NY: Vintage.

Treatments of PANDAS

- **Plasma Exchange**
- **Intravenous injection of immunogloblin**
- **Antibiotics**

Packer, L.E. (June 6, 2002). Tourette Syndrome "Plus". From website: www.tourettesyndrome.net/pandas.htm, pp. 1-6.

PANDAS

Adult cases of PANDAS have been reported in the literature.

Packer, L.E. (June 6, 2002). Tourette Syndrome "Plus". From website: www.tourettesyndrome.net/pandas.htm, pp. 1-6.

40% of those with PANDAS have AD/HD Symptoms.

Arnold, L.E. (2002). Contemporary Diagnosis and Management of Attention-Deficit/HyperactivityDisorder, Second Edition. Newtown, PA: Handbooks in Health Care, p. 152.)

Medical Conditions & ADHD

Eating Disorders and AD/HD

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

Fleming, J., and Levy, L. (2002). Eating Disorders in Women with AD/HD. In P.O. Quinn, and K.G. Nadeau (Eds.), Gender Issues and AD/HD: Research, Diagnosis and Treatment. Silver Spring, MD: Advantage, pp. 411-426.

AD/HD & Obesity

"…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, B.F., Ostbye, T., Yang, C., McClernon, F.J. and Kollins, S.H. (June, 2011). Association between attention-deficit/hyperactivity disorder symptoms and obesity and hypertension in early adulthood: a population-based study. International Journal of Obesity, 35(6), 852-862. From website: http://www.ncbi.nlm.nih.gov/pubmed/20975727.

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, P.H., Lin, C.C., Lin, C.H., Loh, E.W., Chan, C.H. and Lan, T.H. (December, 2012) Prevalence of allergic rhinitis in patients with attention-deficit/hyperactivity disorder: a population-based study. European Journal of Child and Adolescent Psychiatry, [e-published ahead of print]. From website: http://www.ncbi.nlm.nih.gov/pubmed/23274480.

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."

Reference

Zhang, D.-Q., Li, F.-H., Zhu, X.-B., Sun, R.-P. (December 26, 2012). Clinical Observations on Attention-Deficit Hyperactivity Disorder (ADHD) in Children With Frontal Lobe Epilepsy. Journal of Child Neurology, doi: 10.1177/0883073812470004. from website: http://jcn.sagepub.com/content/early/2012/12/25/0883073812470004.abstract.

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, R.A. (1998). Attention Deficit Hyperactivity Disorder, Second Edition. New York, NY: Guilford, p. 173.

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, B. (October 26, 2006). Complementary Treatments for AD/HD. Paper presented at the 18th Annual CHADD International Conference, Chicago, IL.

Granet, D. (2005) Strabismus.

David Granet – National Eye Institute of National Institutes of Health.

AD/HD in Older Adults

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, M., Semeijn, E. Van de Ven, P., Deeg, D.J., and Krooij, K.K. (August 9, 2012). Prevalence Of Attention-Deficit Hyperactivity Disorder In Older Adults In The Netherlands. British Journal of Psychiatry, PMD: 22878132.

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).**

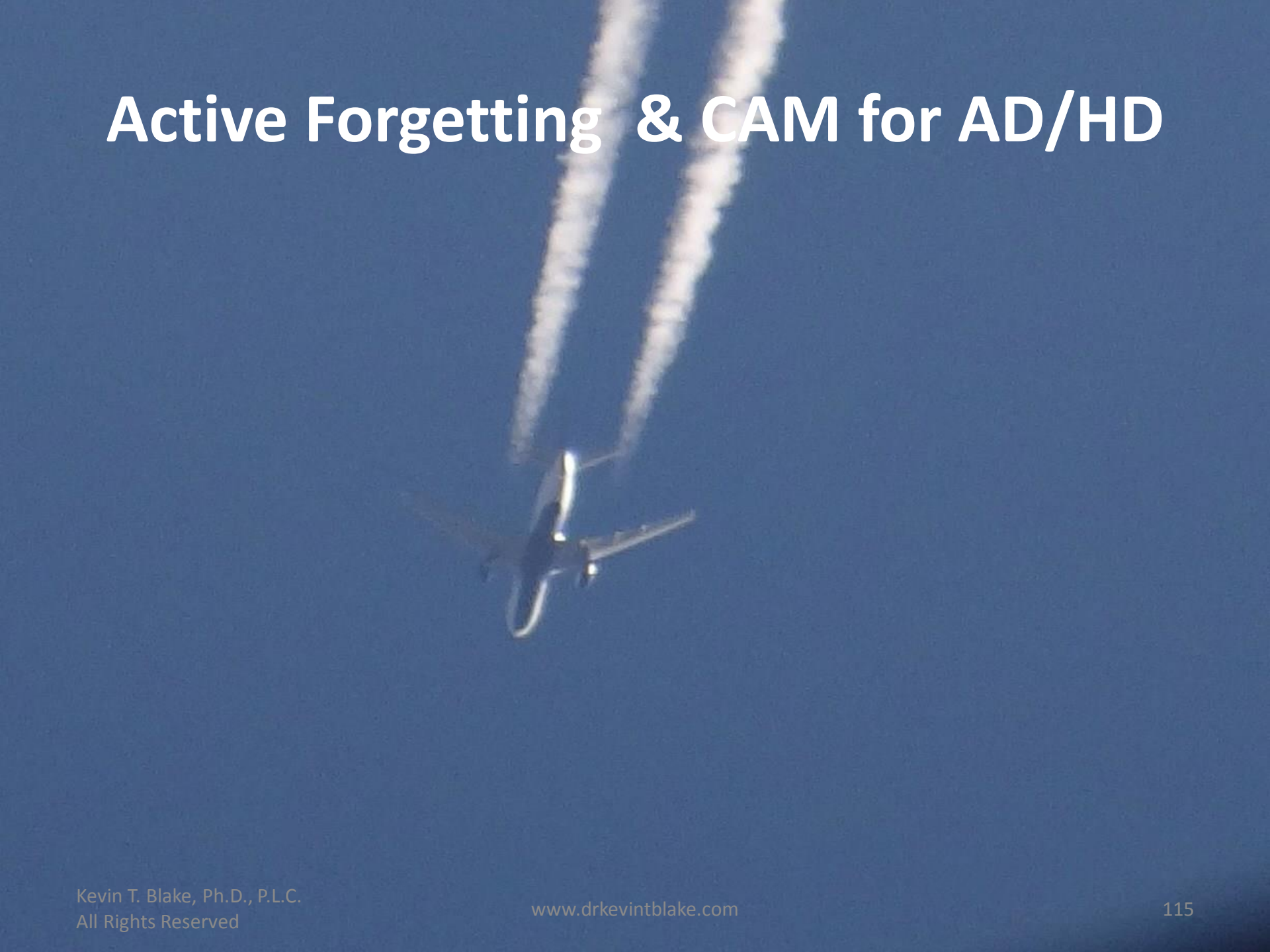
Golimstok, A., Rojas, J.I., Romano, M., Zurru, M., Doctorovich, D. and Cristiano, E. (January, 2011). Previous adult attention-deficit and hyperactivity disorder symptoms and risk of dementia with Lewy bodies: a case–control study. European Journal of Neurology, 1, 78-84. From Website: http://onlinelibrary.wiley.com/doi/10.1111/j.1468-1331.2010.03064.x/abstract.

Life-Changing Interventions for the New AD/HD: Beyond the DSM-5

Extra Information Slides C

Kevin T. Blake, Ph.D., P.L.C.
Tucson, Arizona
Cross Country Education
Brentwood, Tennessee

Active Forgetting & CAM for AD/HD



AD/HD and Active Forgetting

- **ADHD people appear to have more difficulty actively forgetting than the non-impaired because their prefrontal cortex is under activated when forgetting. Hence, their amygdali and hippocampus' are not blocked and record the memories. Thus they have less control of their memories. As a result, they are more susceptible to distracting thoughts.**

Wickelgren, I. (2012). Trying To Forget. Scientific American Mind, 22(6), p. 32-39.

CAM Methods and AD/HD Treatment

"Free fatty acid supplementation produced small but significant reductions in ADHD symptoms even with probably blinded assessments, although the clinical significance of these effects remains to be determined. Artificial food color exclusion produced larger effects but often in individuals selected for food sensitivities. Better evidence for efficacy from blinded assessments is required for behavioral interventions, neurofeedback, cognitive training, and restricted elimination diets before they can be supported as treatments for core ADHD symptoms" (p. 275).

Sluggish Cognitive Tempo

"True Inattentive AD/HD" is a Separate Disorder from Combined Type AD/HD

It may be that "True Inattentive AD/HD" (Not sub-threshold AD/HD has as its major impairment poor working memory whereas the various Combined Type AD/HDs have as their major impairment impulsivity. True Inattentives have difficulty with underarousal. Those with Combined Type AD/HD have difficulty in their striatum (a frontal–striatal loop) and True Inattentives have difficulty…

"True Inattentive AD/HD" is a Separate Disorder from Combined Type AD/HD

…It appears the area of disturbance in True Inattentive is the frontal-parietal loop. "Individuals with ADD have difficulty maintaining a sufficiently high level of motivation to complete a task and grow bored quickly, perhaps tiring because the working memory demands of the task exhaust them. They go looking for something else to do or think about because they are bored, rather than being unable to inhibit the pull of distractions. Their problem is not so much that are distractible as that they are easily bored".

"True Inattentive AD/HD" is a Separate Disorder from Combined Type AD/HD

Diamond, A. (2005). Attention-deficit disorder (attention-deficit/hyperactivity disorder without hyperactivity): A neurobiologically and behaviorally distinct disorder from attention-deficit/hyperactivity disorder (with hyperactivity). Developmental Psychopathology, 17(3). 807-825.

Sluggish Cognitive Tempo

"PI (Predominately Inattentive Type AD/HD, sic.) with high SCT had fewer problems with sustained attention, and more internalizing problems, anxiety/depression, and withdrawn/depressed behavior, and more executive problems with self-monitoring than the rest of the ADHD sample. Conclusion: This study supports revising subtype's criteria and further studying the hypothesis that ADHD with high SCT constitutes a separate clinical entity."

More on Sluggish Cognitive Tempo (SCT)

"Confirmatory factor analyses (CFA) supported the presence of three separate, but correlated factors (SCT, inattention, and hyperactivity/impulsivity) in both parent and teacher ratings. As expected, SCT symptoms were greatest in youth with ADHD Inattentive type, but were also found in non-ADHD clinical groups. SCT symptoms were related to inattention, internalizing, and social problems across both parent and teacher informants; for parent reports, SCT was also related to more externalizing problems. Findings support the statistical validity of the SCT construct, but its clinical utility is still unclear" (p. 1097).

Garner, A.A., Marceaaux, S.M., Patterson, C.,andHodges, B., (November 2010). Dimentions and Coorelates of Attention Deficit Hyperactivity Disorder and Sluggish Cognitive Tempo.. Journal of Abnormal Child Psychology, 38(8), 1097-1107.

Sluggish Cognitive Tempo

"Children with the truly inattentive type of ADHD, rather than being distractible, may instead be easily bored, their problem being more in motivation (under-arousal) than in inhibitory control. Much converging evidence points to a primary disturbance in the striatum (a frontal–striatal loop) in the combined type of ADHD. It is proposed here that the primary disturbance in truly inattentive-type ADHD (ADD) is in the cortex (a frontal–parietal loop). Finally, it is posited that these are not two different types of ADHD, but two different disorders with different cognitive and behavioral profiles, different patterns of comorbidities, different responses to medication, and different underlying neurobiologies" (p. 805).

Diamond, A. (2005). Attention-deficit disorder (attention-deficit/hyperactivity disorder without hyperactivity): A neurobiologically and behaviorally distinct disorder from attention-deficit/hyperactivity disorder (with hyperactivity). Developmental Psychopathology, 17(3), 805-825.

Reference

Capdevila-Brophy, C. et al. (May, 2012). ADHD Predominantly Inattentive Subtype With High Sluggish Cognitive Tempo: A New Clinical Entity? Journal of Attention Disorders, Published On-Line. From website: http://www.ncbi.nlm.nih.gov/pubmed/22653808.

AD/HD Identity

The 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**

Identity (Continued)

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

"Consequently, some end up attributing their problems to characterological or moral defects in themselves, and pay a heavy emotional price as a result. This underscores the importance of reframing the disorder as neurobiological and not characterological, of rebuilding self-esteem and self-confidence, and instilling hope in the future" (p. 693).

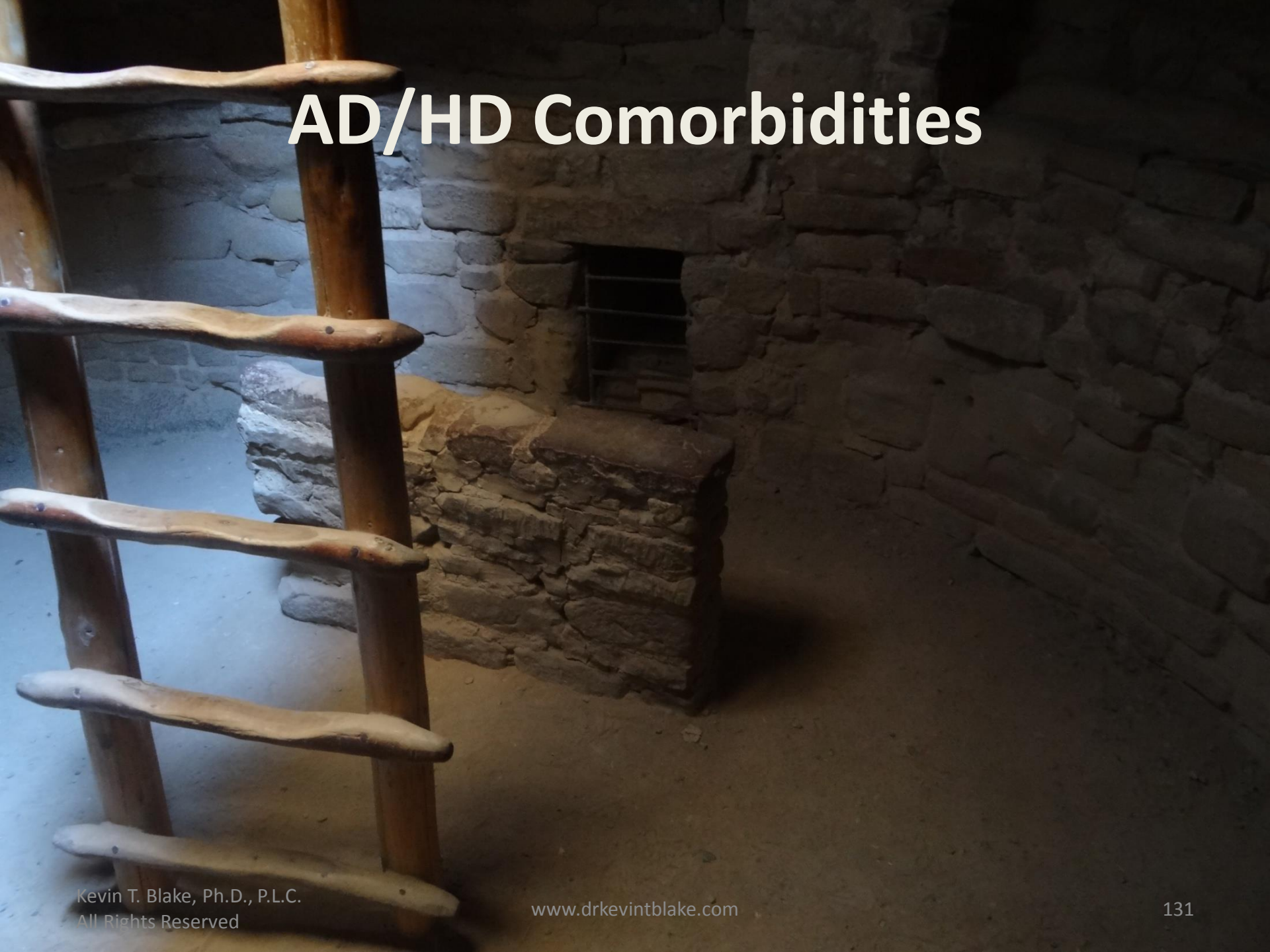
Murphy, K.R. (2006). Psychological Counseling of Adults with ADHD. In R.A. Barkley (Ed.), Attention-Deficit Hyperactivity Disorder: A Handbook for Diagnosis and Treatment, Third Edition. New York, NY: Guilford, 692-703.

ADHD Identity

Some AD/HD adults find themselves socially rejected. "In part, because of their impulsivity, interrupting, forgetfulness, inattention, hyperactivity, difficulty reading social cues, temper, and/or mood swings, adults with ADHD frequently report having difficulty maintaining relationships" (p. 693).

Murphy, K.R. (2006). Psychological Counseling of Adults with ADHD. In R.A. Barkley (Ed.), Attention-Deficit Hyperactivity Disorder: A Handbook for Diagnosis and Treatment, Third Edition. New York, NY: Guilford, 692-703.

AD/HD Comorbidities



Comorbidities and AD/HD

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

Barkley, R.A. (1996). ADHD in Children Adolescents and Adults: Diagnosis, Treatment and Assessment. New England Educational Institute, Cape Cod Symposia (August), Pittsfield, MA.

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

Hechtman, L. (2000). Subgroups of Adult Outcome of Attention-Deficit/Hyperactivity Disorder. In T.E. Brown (Ed.), Attention-Deficit Disorders and Comorbidities in Children, Adolescents, and Adults. Washington, D.C.: American Psychiatric Press.

Comorbidities (Continued)

- **Barkley wrote, "Up to 67% of ADHD children as adults are free of psychiatric diagnoses" (p. 207).**

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

Brown Estimated that 50% of AD/HD adult had Comorbidities.

Brown, T.E. (1995). Differential Diagnosis of ADD Versus ADHD in Adults. In K. Nadeau (Ed.), A Comprehensive Guide to Attention Deficit Disorders in Adults. New York, NY: Bruner Mazel, pp. 93-108.

AD/HD and Comorbidity

"Some of the more common correlates associated with ADHD in adults are low self-esteem, avoidance/anxiety, depression, school and job performance problems, marital/couple discord, poorer driving outcomes, and substance abuse" (p. 693).

Murphy, K.R. (2006). Psychological Counseling of Adults with ADHD. In R.A. Barkley (Ed.), Attention-Deficit Hyperactivity Disorder: A Handbook for Diagnosis and Treatment, Third Edition. New York, NY: Guilford, 692-703.

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). Paying Attention to ADHD: Treatment Challenges with Comorbid Conditions. Philadelphia, PA: Medical Educational Systems.

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.

Comorbidity and AD/HD

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). Hyperactive Children Grown-Up (Second Edition). New York, NY: Guilford.

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

Clinicians, AD/HD & Comorbidity

"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)

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

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 (Continued)

- **Those with Combined Type AD/HD have more Externalizing Disorders**
- **Those with Inattentive AD/HD *MAY* have more Internalizing Disorders**

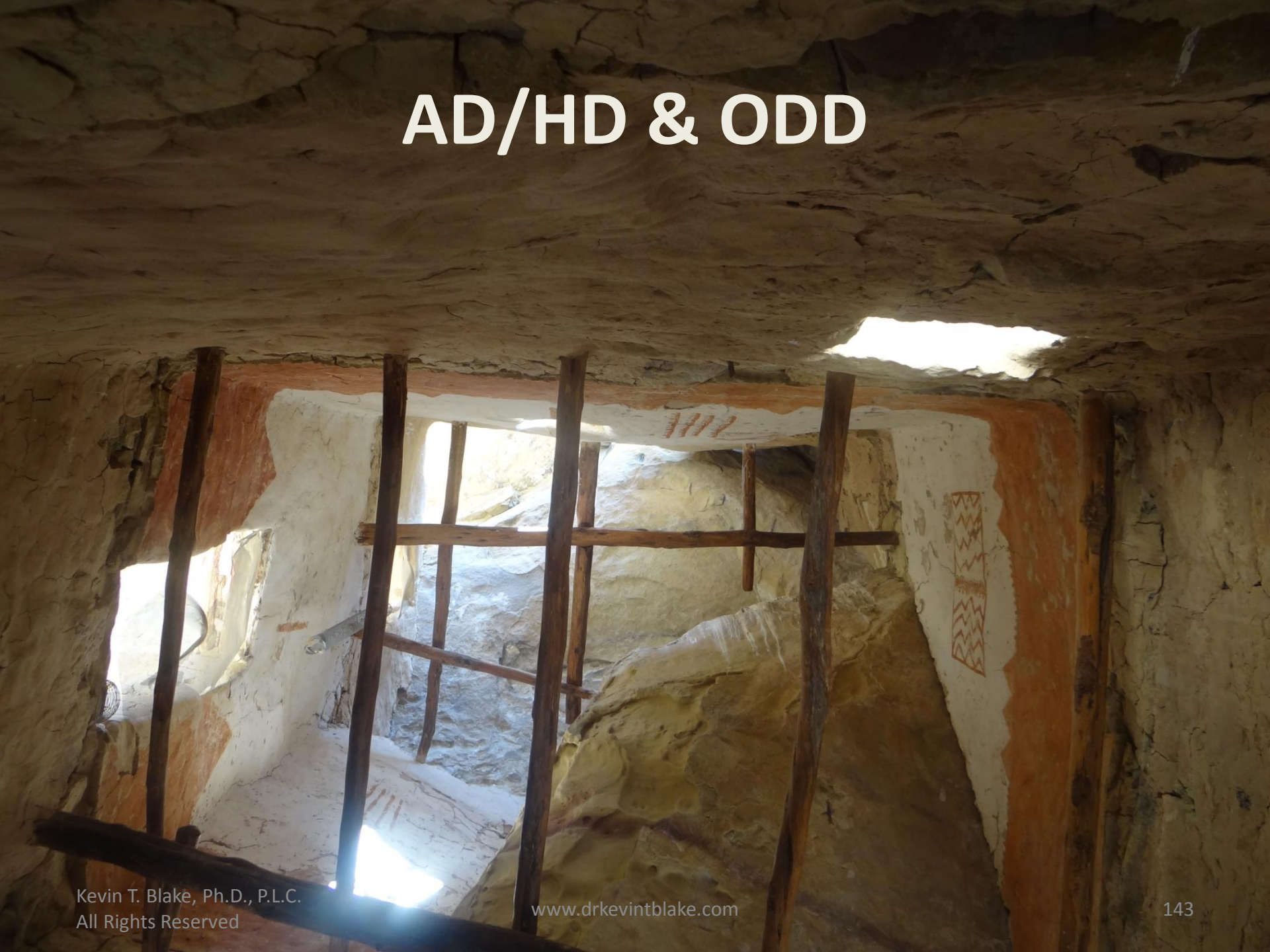
Milich, R., et. al. (2002) The Predominately Inattentive Subtype—Not a Subtype of AD/HD. ADHD Report, 10 (1), pp. 1-6.

Comorbidities (Continued)

Hynd stated 40% of those with Inattentive AD/HD will have an Internalizing Disorder.

Hynd, G. (2002). ADHD and Its Association with Dyslexia: Diagnostic and Treatment Challenges. Paper presented at the 53rd Annual International Dyslexia Association Conference, Atlanta, GE, November 16.

AD/HD & ODD



AD/HD and ODD in Children

"Over 65% of clinic-referred samples may show significant problems with stubbornness, defiance, or refusal to obey, temper tantrums, and verbal hostility toward others" (p. 191).

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

Oppositional Defiant Disorder and AD/HD

- **50% to 67% of AD/HD have ODD**
- **ODD is NOT limited to childhood and is more persistent than AD/HD**
- **Hot headed, angry, using anger as a social tool**

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.

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.

AD/HD & Conduct Disorder

Children with AD/HD + CD

- Those with AD/HD and CD tend to have significantly more severe symptoms
- Those with both CD and AD/HD have more antisocial behaviors than those with one other or the other disorder
- Those with CD and AD/HD have the lowest verbal I.Q.
- Those with both have the most severe difficulties with social interaction

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

Children 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.

AD/HD, ODD & CD

"To summarize, ODD and CD have a substantial likelihood of co-occurring with ADHD with the risk for ODD/CD being mediated in large part by severity of ADHD and its family genetic loading and in part by adversity in the familial environment"

Barkley, R.A. (January 25, 2013). ADHD: Nature, Course, Outcomes, and Comorbidity. CotinuingEdCourses.Net. From website: http://www.continuingedcourses.net/active/courses/course003.php.

Conduct Disorder and AD/HD

Larson, et al (2011) reported that 27.4% of children with AD/HD meet criteria for Conduct Disorder compared to 2.1% of children without AD/HD.

Larson, K., Russ, S.A., et al (March, 2011). Patterns of Cormorbidy , Functioning and Service Use for US Children with ADHD, 2007. Pediatrics, 127(3), 462-470. From website: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3065146/#!po=2.38095.

TV, Electronic Games & Conduct

"TV but not electronic games predicted a small increase in conduct problems. Screen time did not predict other aspects of psychosocial adjustment."

Parkes, A., Sweeting, H., Wight, D and Henderson, M. (March 25, 2013). Do television and electronic games predict children's psychosocial adjustment? Longitudinal research using the UK Millennium Cohort Study .Archieves of Desease In Childhood, doi:10.1136/archdischild-2011-301508. From website: http://adc.bmj.com/content/early/2013/02/21/archdischild-2011-301508.

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, J.J., and Johnson, C. (1997). Shadow Syndromes. New York, NY: Pantheon.

AD/HD ,“The Blues” & Grief

Normal Depression and AD/HD

2. **Bereavement – The normal grief reaction to a traumatic life event (i.e. death of a loved one, being diagnosed with a disorder, etc.).**

- **Symptoms: Loss of interest in things on typically finds pleasurable, depression, sluggishness, problems with sleep and/or appetite, guilt, suicidal thoughts.**
- **Complicated Bereavement- includes the above symptoms with a Major Depressive Episode.**

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). Managing Attention and Learning Disorders in Late Adolescence and Adulthood: A Guide for Practitioners. New your, NY: John Wiley and Sons.

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

What is ALEXITHYMIA?

Coleman wrote,"Grey emotional flatness exemplifies what psychiatrists call alexithymia…Such people lack words for feelings. Indeed they seem to lack feelings altogether, although this may actually be because of their inability to express emotion rather than an absence of emotion altogether" (p. 51).

Coleman, D. (1995). Emotional Intelligence: Why It Can Matter More Than I.Q. New York, NY: Bantam.

Alexithymia (Continued)

Coleman continued, "..the alexithymic's dilemma: having no words for feelings means not making the feelings your own" (p. 53).

Coleman, D. (1995). Emotional Intelligence: Why It Can Matter More Than I.Q. New York, NY: Bantam.

Alexithymic's

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"

Coleman, D. (1995). Emotional Intelligence: Why It Can Matter More Than I.Q. New York, NY: Bantam.

Alexithymia

Lane wrote, “Several neuroimaging studies reveal that an area of the medial prefrontal cortex very close to that identified in our attention to emotional experience study has been implicated during the performance of theory of mind tasks…these findings suggest that the neural substrates of the mental representation of one’s own and other’s mental states are closely related” (p. 18). Lane continued that several studies of brain injured individuals when coupled with the above appeared to indicate, “…that successful social adaptation requires the ’dual task’ ability to stay in touch with the needs of others while paying due attention to one’s own needs” (p. 20).

Lane, R. (2000). Neural Correlates of Conscious Emotional Experience. In L.R. Lane, et. al. (Eds.), Cognitive Neuroscience of Emotion. New York, NY: Oxford University Press, pp. 345-370.

Alexithymia ***MAY*** BE A NEUROBIOLOGICAL DISORDER!

25% OF THOSE WITH AD/HD HAVE ALEXITHYMIA.

Ratey, J.J., Hallowell, E.M., and Miller, A.C. (1995). Relationship Dilemmas for Adults with ADD: The Biology of Intimacy. In K. Nadeau (Ed.), A Comprehensive Guide to Attention Deficit Disorder In Adults. New York, NY: Bruner Mazel, pp. 218-235.

Mirror Neurons & Executive Functions

"Studies show that the capacity to imitate the actions of others is now virtually an instinct at the level of neuronal functioning. The PFC (Prefrontal Cortex, sic) responds to viewing others' actions by activating the same sensory-motor regions of the brain as the acting person is using to create the behavior. The mirror-neuronal system has been linked to theory of mind and to empathy, among other human attributes related to EF (Executive Functions, sic.)" (p. 117).

Barkley, R.A. (2012). Executive Functions: What They Are, How they Work, and Why They Evolved. New York, NY: Guilford.

Mirror Neurons

How does the following relate to AD/HD?:

"If the mirror neuron system serves as a bridge in this process, then in addition to providing an understanding of other peoples intentions, it may have evolved to become an important component in the human capacity for observation-based learning and sophisticated cognitive skills." (p. 61)

Rizzolatti, G., Fogassi, L. and Gallese, V. (November, 2006). Mirrors in The Mind. Scientific American, 296 (5), pp. 54-61.

Mirror Neurons

How does this relate to ADHD?

Barkley (2008) said that those with Combined Type AD/HD and comorbid Alexithymia typically have intact mirror neurons, they just do not use their mirror neurons due to their frontal lobe difficulties.

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.

AD/HD & Internalizing

Internalizing and AD/HD

"We found that the internalizing disorders of MDD (Major Depressive Disorder, sic.) dysthymia, and anxiety disorders are more likely to occur in ADHD cases referred to clinics over that risk seen in the Community control group" (p. 241)

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

Barkley said Affective Disorders are common in AD/HD Adults

- **30-35% Have Generalized Anxiety Disorder**
- **25-35% Had Major Depressive Episode**
- **>50% Dysthymic Disorder**

Barkley, R.A. (1996). ADHD in Children, Adolescents, and Adults: Diagnosis, Assessment ,and Treatment. New England Educational Institute, Cape Cod Symposia, August, Pittsfield, MA.

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.

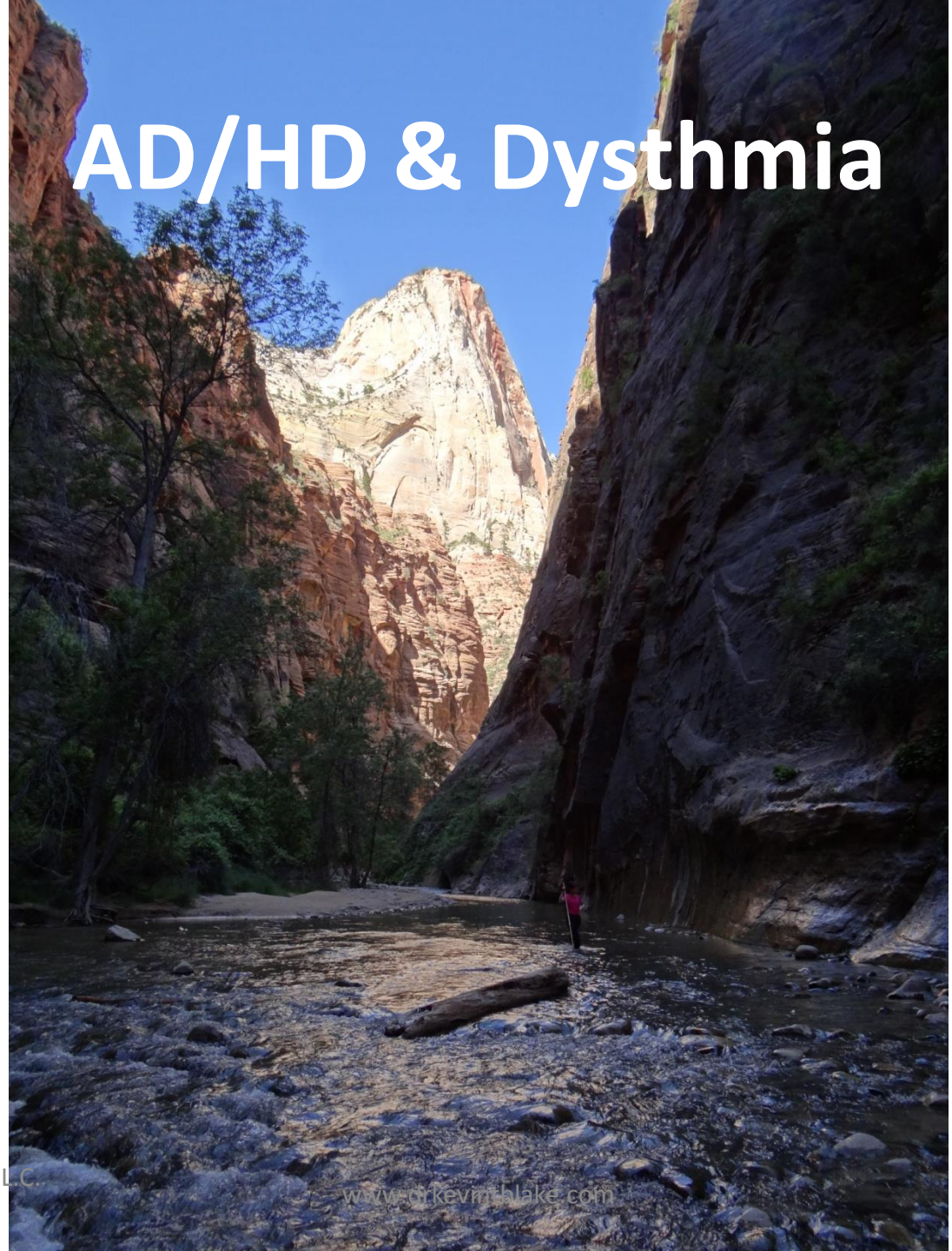
Brown, T.E. (2013). A New Understanding of ADHD In Children and Adults: Executive Function Impairment. New York, NY: Routledge, p. 133.

Life-Changing Interventions for the New AD/HD: Beyond the DSM-5

Extra Information Slides D

Kevin T. Blake, Ph.D., P.L.C.
Tucson, Arizona
Cross Country Education
Brentwood, Tennessee

AD/HD & Dysthmia



Dysthymia and AD/HD

- **Murphy indicated about 35% of AD/HD adults meet criteria for Dysthymia of Major Depressive Disorder during their lifetimes.**

Murphy, K.R. (1998). Psychological Counseling of Adults with ADHD. In R.A. Barkley (Ed.), Attention Deficit Disorder, Second Edition. New York, NY: Guilford.

Dysthymia and AD/HD

Hynd indicated 17% of those with Inattentive AD/HD have Dysthymia.

Hynd, G. (2002). ADHD and Its Association with Dyslexia: Diagnostic and Treatment Challenges. Paper presented at the 53rd Annual International Dyslexia Association Conference, Atlanta, GE, November 16.

Dysthymia and AD/HD

"It therefore seems to be dysthymia or depressive personality disorder that is most convincingly elevated in ADHD cases beyond the risk seen in Clinic control groups" (p. 241)

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

Major Depressive Disorder and AD/HD

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

With Major Depressive Disorder

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

Spencer, T. , et. al. (2000). Attention-Deficit/Hyperactivity Disorder With Mood Disorders. In T.E. Brown (Ed.), Attention –Deficit Disorders and Comorbidities in Children Adolescents and Adults. Washington, DC: American Psychiatric Press, pp. 79-124.

Major Depressive Disorder & ADHD

Major Depression and AD/HD

Barkley reported 25% of those with AD/HD met criteria for Major Depression and most had a childhood history of Conduct Disorder. He speculated there may be a genetic link between AD/HD and major depression.

Barkley, R.A. (1996). ADHD in Children , Adolescents, and Adults: Diagnosis, Assessment, and Treatment. New England Educational Institute, Cape Cod Symposia, August, Pittsfield, MA.

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

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

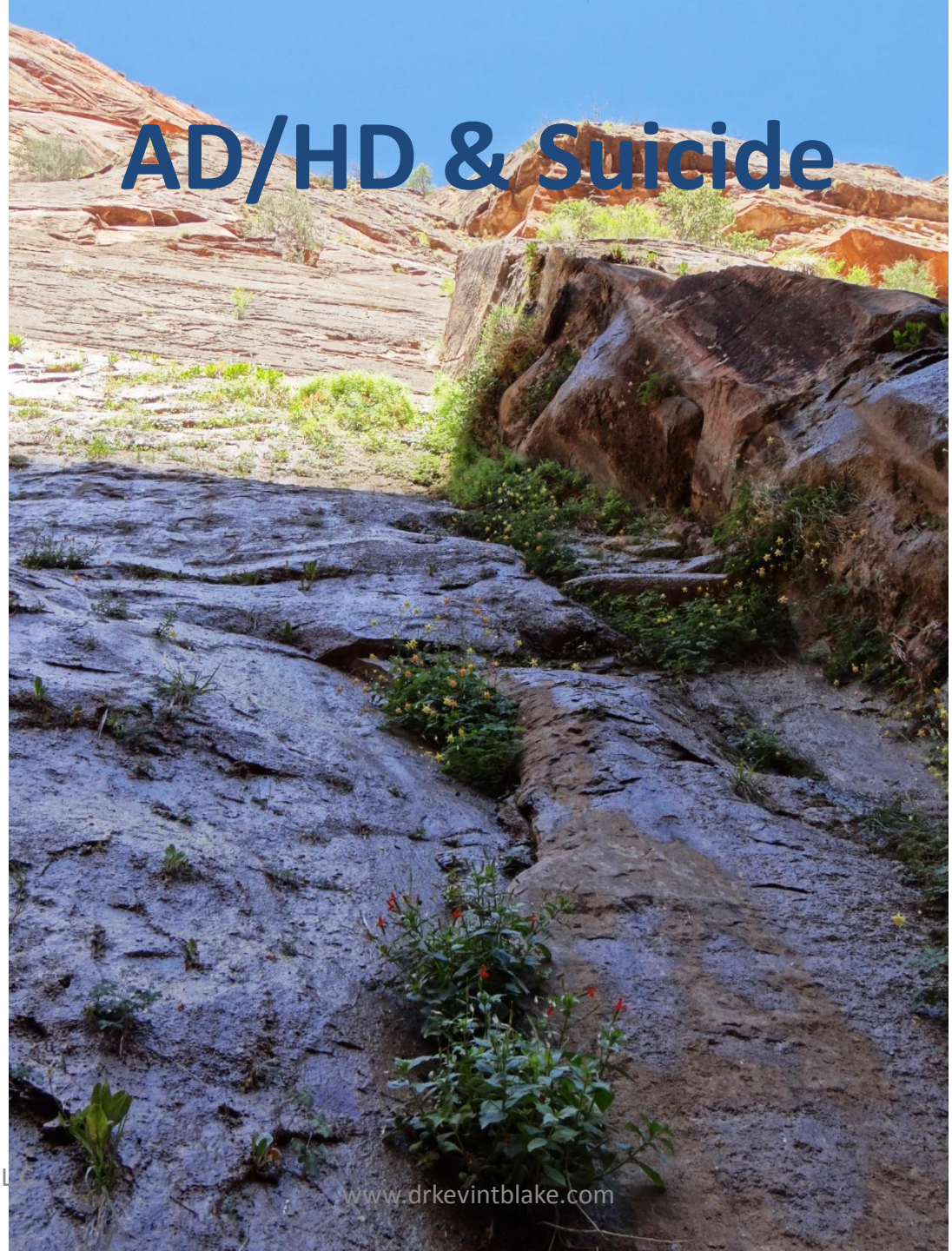
Hynd, G. (2002). ADHD and Its Association with Dyslexia: Diagnostic and Treatment Challenges. Paper presented at the 53rd Annual International Dyslexia Association Conference, Atlanta, GE, November 16.

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.

AD/HD & Suicide



Suicide and 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). Attention Deficit Hyperactivity Disorder, Second Edition. New York, NY: Guilford.

Weiss, G., and Hechtman, L. (1986). Hyperactive Children Grown-Up. New York, NY: Guilford.

Suicide in Adolescent Females With AD/HD

- **Adolescent girls with AD/HD, Combined Type and Those with AD/HD, Inattentive Type have much higher rates of self-injurious behavior and suicide attempts than non-AD/HD girls.**
- **The girls with the most impairment due to AD/HD had the most self-injurious behavior and suicide attempts. The girls with AD/HD were more globally impaired that the non-AD/HD girls.**

Hinshaw, S., et al. (2012). Prospective Follow-Up - Girls With Attention-Deficit/Hyperactivity Disorder In Early Adulthood: Continuing Impairment Includes Elevated Risk of Suicide Attempts and Self-Injury. Journal of Counseling and Clinical Psychology, DOI: 10.1037a0029451.

Girls, AD/HD and Suicide

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 innattentives. Both groups were significantly more impaired globally than controls.

Hinshaw, S.P. et al. (2012). Prospective Follow-Up of Girls With Attention-Deficit/Hyperactivity Disorder Into Early Adulthood: Continuing Impairment Includes Elevated Risk for Suicide Attempts and Self-Injury. Journal of Consulting and Clinical Psychology, DOI: 10.1037/a0029451. From website: http://www.apa.org/pubs/journals/releases/ccp-ofp-hinshaw.pdf.

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…"

Anxiety, Depression, Age & AD/HD

"…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."

Reference

Michielsen M., Comijs H.C., Semeijn E.J., et al. (December 22, 2013). The Comorbidity of Anxiety and Depressive Symptoms In Older Adults With Attention-Deficit/Hyperactivity Disorder: A Longitudinal Study. Journal of Affective Disorders, Published On-Line. From website: http://www.unboundmedicine.com/medline/citation/23267726/The_comorbidity_of_anxiety_and_depressive_symptoms_in_older_adults_with_attention_deficit/hyperactivity_disorder:_A_longitudinal_study_.

AD/HD & Bipolar Disorder

Bipolar Disorder and AD/HD

Wilens, Spencer and Prince stated 10% of AD/HD adults will have comorbid Bipolar Disorder.

Wilens, et. al. (1997). Diagnosing ADD in Adults. Attention!, 3 (4), pp. 27-33.

Bipolar Disorder and AD/HD

- **No resolution on this issue. No Bipolar in longitudinal studies. Only clinic referred.**
- **95% of children with Bipolar Disorder are AD/HD**
- **But, not the other way around.**

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.

Bipolar Disorder & AD/HD

"In ADHD + patients, BD is associated with higher rate of mixed states, more severe psychopathology and more impaired familial functioning as well as higher rates of comorbid substance, alcohol and poly-drug abuse compared to BD patients without adult ADHD. Our findings suggest that ADHD symptoms in adults may influence clinical presentation, course and prognosis of BD. Further prospective research is needed to confirm our findings and to explore treatment implications for the management of BD."

Reference

Perugi G, Ceraudo G, Vannucchi G, et al. (December 22, 2012). Attention Deficit/Hyperactivity Disorder Symptoms in Italian Bipolar Adult Patients: A Preliminary Report. Journal of Affective Disorders, Published On-Line. From website: http://www.unboundmedicine.com/medline/citation/23267726/The_comorbidity_of_anxiety_and_depressive_symptoms_in_older_adults_with_attention_deficit/hyperactivity_disorder:_A_longitudinal_study_.

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). A New Understanding of ADHD in Children and Adults: Executive Function Impairments. New York, NY: Routledge, p. 144.

AD/HD & Bipolar Disorder

"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). ADHD: Nature, Course, Outcomes, and Comorbidity. CotinuingEdCourses.Net. From website: http://www.continuingedcourses.net/active/courses/course003.php.

AD/HD, Seasonal Affective Disorder, Solar Intensity, Etc.

Seasonal Pattern Specifier for Mood Disorder (Seasonal Affective Disorder)

- **Rosenthal wrote, "I have heard anecdotal reports of seasonal variations in ADHD, but there are no formal studies on these topics."**

Rosenthal, N.E. (November, 1991). Personal Communication.

Solar Intensity & 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."

Reference

Arns, M., van der Heijden, K.B., Arnold, L.E., and Kenemans, J.L. (March 25, 2013). Geographic Variation in the Prevalence of Attention-Deficit/Hyperactivity Disorder: The Sunny Perspective. Biological Psychiatry. From website: http://www.biologicalpsychiatryjournal.com/article/S0006-3223(13)00175-3/abstract.

AD/HD & Circadian Rhythms

"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, A.L., Coogan, A.N., Siddiqui, A., Doney, R.M., Thorne, J. (October 17, 2012). Adult attention-deficit hyperactivity disorder is associated with alterations in circadian rhythms at the behavioural, endocrine and molecular levels. Molecular Psychiatry, 17(10), 988-995. doi: 10.1038/mp.2011.149.

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 Impairment. New York, NY: Routledge, p. 133.

AD/HD & Anxiety

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, A.L. (2000). Meeting the Challenge of Learning Disabilities in Adulthood. Baltimore, MD: Paul H. Brookes.

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

Brown, T.E. (1996). Brown Attention-Deficit Disorder Scales. San Antonio, TX. The Psychological Corporation.

Generalized Anxiety Disorder and AD/HD

- **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). Attention Deficit Hyperactivity Disorder, Second Edition. New York, NY: Guilford.

Barkley, R.A. (1996). ADHD in Children, Adolescents, and Adults: Diagnosis, Assessment, and Treatment. New England Educational Institute, Cape Cod Symposium, August, Pittsfield, MA.

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

Tzelepis, A., Scherbiner, H., and Warbasse, L.H. (1995). Differential Diagnosis and Psychiatric Comorbidity Patterns In Adult Attention Deficit Disorder. In K. Nadeau (Ed.), A Comprehensive Guide to Attention Deficit Disorder in Adults: Research, Diagnosis and Treatment. New York, NY: Bruner Mazel, pp. 35-57.

Avoidant Disorder

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

Hynd, G. (2002). ADHD and Its Association with Dyslexia: Diagnostic and Treatment Challenges. Paper presented at the 53rd Annual International Dyslexia Association Conference, Atlanta, GE, November 16.

Posttraumatic Stress Disorder and AD/HD

- **Significant symptom overlap**
- **Assess for trauma in AD/HD clients**
- **Repeated classroom traumas may be most significant**
- **When did symptoms emerge?**

Utley-Adlizzi, J. (2002). Posttraumatic Stress in Women with AD/HD. In P.O. Quinn and K.R. Nadeau (Eds.), Gender Issues and AD/HD: Research, Diagnosis and Treatment. Silver Spring, MD: Advantage, pp.365-393.

Post Traumatic Stress Disorder/Panic Disorder & AD/HD

"…we found significantly higher risk for specific phobias and post traumatic stress disorder (PTSD). But the H+ADHD (AD/HD, Hyperactive/Impulsive Presentation, sic.) and H-ADHD (ADHD, Combined and Inattentive Presentation, sic.) differed only in their rates of GAD (Generalized Anxiety Disorder, sic.) and PTSD…"

Post Traumatic Stress Disorder/Panic Disorder & AD/HD

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

Obsessive Compulsive Disorder and AD/HD

- **Brown wrote, "Thus far, there have been no published reports of the incidence of OCD in adults with ADDs or of ADDs in adults with OCD, But Weiss et.al…. Have provided case descriptions of this overlap" (p. 216).**
- **Brown wrote the overlap of OCD and AD/HD in children is as high as 33%.**

Brown, T.E. (2000). Attention-Deficit Disorders and Comorbidities in Children, Adolescents, and Adults. Washington, DC: American Psychiatric Press.

OCD and AD/HD

- **Barkley indicated 4% to 14% of AD/HD adults have OCD.**
- **Barkley cited research indicating, "OCD was more common (12%) only among those adults with a comorbid tic disorder whereas the figure for those ADHD adults without tics was approximately 2%" (p. 214)**

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

OCD and AD/HD

- **Barkley concluded, "…OCD does not appear to be significantly associated with ADHD" (p. 214).**
- **Wodrich and Thull reported approximately 20% of those with OCD will develop Tics.**

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

Wodrich, D., and Thull, L. (1991). Tourette's Syndrome: Its Relationship to Obsessive Compulsive Disorder and Distinctive Thinking. Paper presented at the Arizona Psychological Association Annual Conference, Scottsdale, AZ, October 25, 1991.

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). ADHD Symptoms with OCD Represent a True Comorbid State. ADHD Report, 11, p. 12/Summary of: Geller, D.A., et. al. (2002). Attention- Deficit/Hyperactivity Disorder in Children and Adolescents with Obsessive Compulsive Disorder: Fact of Artifact? Journal of the American Academy of Child and Adolescent Psychiatry, 41, pp. 52-58.

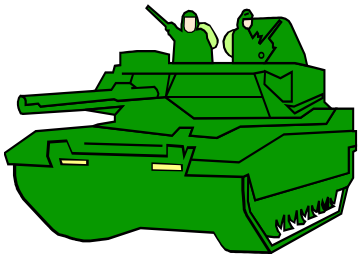
OCD: Important Points

- **Christensen stated 66% of those with OCD hide it, 44% hid it over 10 years and it take 17 years from onset of OCD to receive proper treatment.**

Christensen, D.D. (1997). Obsessive Compulsive and Impulse Control Disorder. Update on Neuropsychiatric Disorders Symposia (February 6, 1997), Tucson, AZ.

AD/HD & Other Issues

Road Rage and AD/HD



- **AD/HD and ODD in adulthood may put a person at risk for problems with road rage.**

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.

AD/HD and Sexual Activity

- **Have sexual intercourse earlier**
- **Change partners more often**
- **Less contraception**
- **40% teen pregnancy rate (males and females)**
- **More STDs.**

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..

AD/HD, OCD & Tourette's Disorder

"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). ADHD: Nature, Course, Outcomes, and Comorbidity. CotinuingEdCourses.Net. From website: http://www.continuingedcourses.net/active/courses/course003.php.

AD/HD & Personality Disorders

Obsessive-Compulsive Personality Disorder and AD/HD

Tzelepis, Schubiner and Warbasse noted a significant percentage of AD/HD adults who met criteria for Obsessive-Compulsive Personality Disorder. In most cases they considered it "compensatory compulsivity".

Tzelepis, A., Scherbiner, H., and Warbasse, L.H. (1995). Differential Diagnosis and Psychiatric Comorbidity Patterns In Adult Attention Deficit Disorder. In K. Nadeau (Ed.), A Comprehensive Guide to Attention Deficit Disorder in Adults: Research, Diagnosis and Treatment. New York, NY: Bruner Mazel, pp. 35-57.

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 Impairment. New York, NY: Routledge, p. 134.

Personality Disorders and AD/HD

- **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).**

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

Personality Disorders and AD/HD

- **11-22% of AD/HD have Antisocial Personality Disorder**
- **11% Histrionic Personality Disorder**
- **19% Passive Aggressive Personality Disorder**
- **14% Borderline Personality Disorder**

Barkley, R.A. (2002). ADHD and Oppositional Defiant Children. Seminar presented by the Institute for Continuing Education, Fairhope, AL, in Phoenix, AZ, February 19-20, The Institute for Continuing Education, Fairhope, AL.

Borderline Personality Disorder and AD/HD

- **Kreisman and Strauss wrote those with LD and/or AD/HD may be more at risk for Borderline Personality Disorder then the general population.**
- **Some with BPD have EEGs that indicate temporal lobe activity.**

Kreisman, J.J., and Strauss, H. (1989). I Hate You-Don't Leave Me: Understanding the Borderline Personality. New York, NY: Avon.

Borderline Personality Disorder and AD/HD

- Conners and Jett said the overlap of the two is especially high in males.
- Goldstein speculated AD/HD adults are at higher risk than "normals" for BPD, but BPD is not necessarily caused by AD/HD.
- Barkley stated BPD inpatients have a high rate of AD/HD.

Conners, C.K., and Jett, J.L. (1999). Attention Deficit Hyperactivity Disorder (In Adults and Children): The Latest Treatment Strategies. Kansas City, MO: Compact Clinicals.

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

Barkley, R.A. (1996). ADHD in Children, Adolescents, and Adults: Diagnosis, Assessment, and Treatment. Cape Cod Symposia, August, Pittsfield, MA.

BPD and AD/HD

Tzelipis, et. al. said a subset of those with AD/HD develop BPD. These people have early onset of emotional problems and functional difficulties, including academic problems, hyperactivity, aggressive antisocial behavior as well as substance abuse.

Tzelepis, A., Scherbiner, H., and Warbasse, L.H. (1995). Differential Diagnosis and Psychiatric Comorbidity Patterns In Adult Attention Deficit Disorder. In K. Nadeau (Ed.), A Comprehensive Guide to Attention Deficit Disorder in Adults: Research, Diagnosis and Treatment. New York, NY: Bruner Mazel, pp. 35-57.

ADHD & Borderline Personality Disorder

"There is a relationship between symptoms of childhood ADHD, BPD and depression in students. It is recommended to pay due attention to the comorbidity disorders such as BPD and depression in the treatment of ADHD disorder" (p. 68).

Mashhadi A, Soltani E, Akbari E, Farmani A. (2012). The Relationship between Childhood Attention Deficit/Hyperactivity Disorder and Adulthood Borderline Personality Disorder. Zahedan Journal of Research In Medical Sciences, 15(2), 68-73. From website: http://www.zjrms.ir/browse.php?a_code=A-10-891-1&slc_lang=en&sid=1.

Antisocial Personality Disorder and AD/HD

- **Hechtman wrote AD/HD adults who had comorbid ODD and CD prior to their majority will have significant APD and psychiatric problems in Adulthood.**
- **Conners and Jett said those with AD/HD are 10 times as likely to have APD than non-AD/HDs.**
- **Tzelepis, et. al. wrote 60% of AD/HD adults also have APD.**

Hechtman, L. (2000). Subgroups of Adult Outcome of Attention-Deficit/Hyperactivity Disorder. In T.E. Brown (Ed.), Attention-Deficit Disorders and Comorbidities in Children, Adolescents, and Adults. Washington, DC: American Psychiatric Press.

Conners, C.K., and Jett, J.L. (1999). Attention Deficit Hyperactivity Disorder (In Adults and Children): The Latest Treatment Strategies. Kansas City, MO: Compact Clinicals.)

Tzelepis, A., Scherbiner, H., and Warbasse, L.H. (1995). Differential Diagnosis and Psychiatric Comorbidity Patterns In Adult Attention Deficit Disorder. In K. Nadeau (Ed.), A Comprehensive Guide to Attention Deficit Disorder in Adults: Research, Diagnosis and Treatment. New York, NY: Bruner Mazel, pp. 35-57.)

APD and AD/HD

Barkley stated 40% to 60% of those in prison have AD/HD. AD/HD is not the cause of the sociopathy; its only one factor.

Barkley, R.A. (1996). ADHD in Children, Adolescents, and Adults: Diagnosis, Assessment, and Treatment. New England Educational Institute, Cape Cod Symposia, August, Pittsfield, MA.

AD/HD, Medication & Criminality

"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, P., Halldner, L., Zetterqvist, J., Sjolander, A., Serlachius, E., Fazel, S., Langstrom, N., and Larsson, H. (November 22, 2012). Medication for Attention Deficit–Hyperactivity Disorder and Criminality. New England Journal of Medicine, 367, 2006-2014. DOI: 10.1056/NEJMoa1203241.

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).

Reference

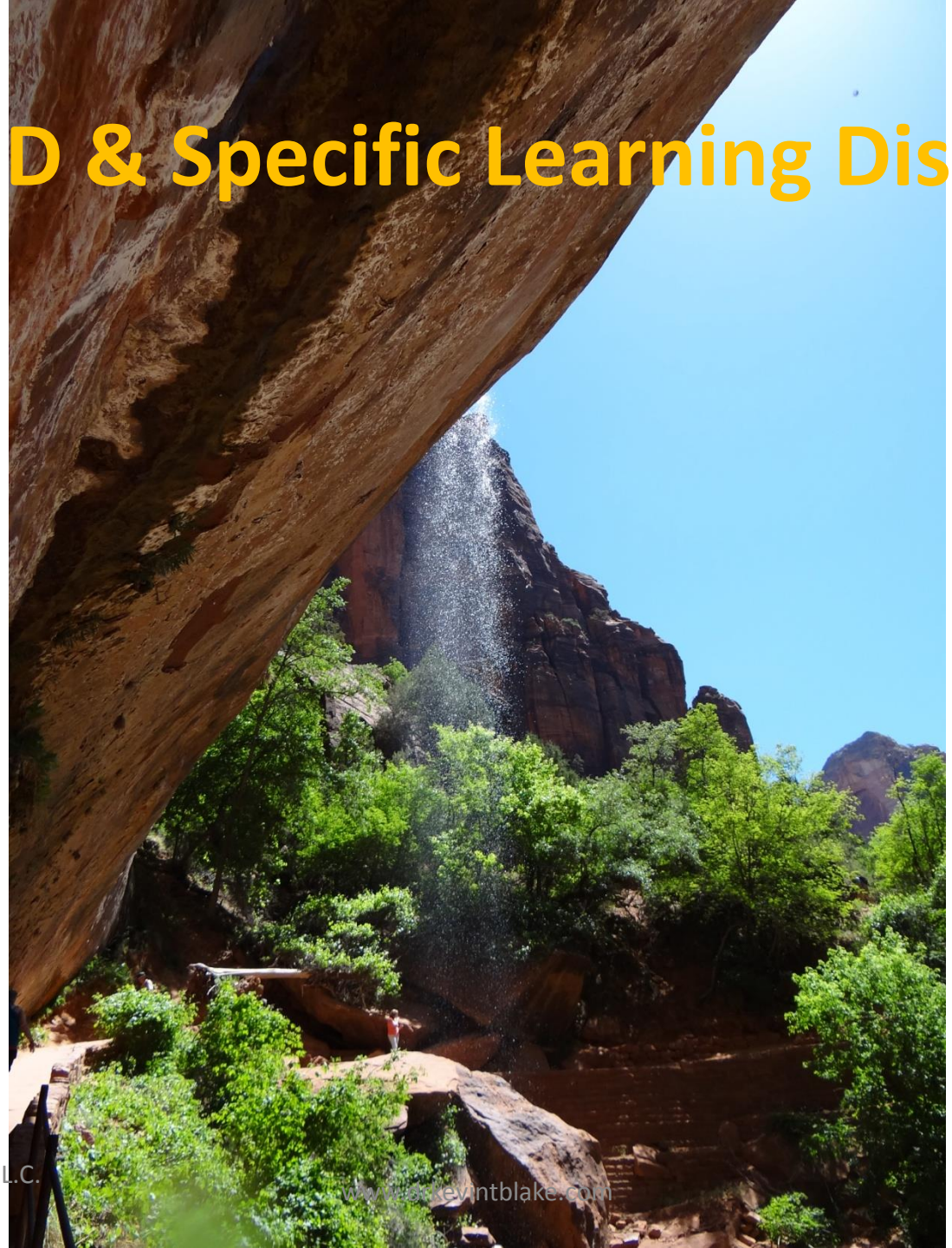
Lindsay, W.R. et al (December 18, 2012). The Impact of Known Criminogenic Factors on Offenders with Intellectual Disability: Previous Findings and New Results on ADHD. Journal of Applied Research In Intellectual Disabilities, 26(1), 71-80. From website: http://onlinelibrary.wiley.com/doi/10.1111/jar.12011/abstract.

Life-Changing Interventions for the New AD/HD: Beyond the DSM-5

Extra Information Slides E

Kevin T. Blake, Ph.D., P.L.C.
Tucson, Arizona
Cross Country Education
Brentwood, Tennessee

AD/HD & Specific Learning Disorder



AD/HD and Learning Disorders

- **Barkley stated 35% to 50% of adults with AD/HD have Learning Disorders.**
- **Hynd reported that 60% of those with Inattentive AD/HD have Learning Disorders.**

Barkley, R.A. (1996). ADHD in Children, Adolescents, and Adults: Diagnosis, Assessment, and Treatment. Cape Cod Symposia, August, Pittsfield, MA.

Hynd, G. (2002). ADHD and Its Association with Dyslexia: Diagnostic and Treatment Challenges. Paper presented at the 53rd Annual International Dyslexia Association Conference, Atlanta, GE, November 16.

AD/HD and Learning Disorders

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. (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, 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.

AD/HD and Learning Disorders

Hynd indicated of those with Inattentive AD/HD:

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

Hynd, G. (2002). ADHD and Its Association with Dyslexia: Diagnostic and Treatment Challenges. Paper presented at the 53rd Annual International Dyslexia Association Conference, Atlanta, GE, November 16.

AD/HD and Learning Disorders

- **Surprise! There are more people with Learning Disorders than AD/HD!**
- **Barkley estimated 4.7% of adult population has AD/HD (all types)**
- **Lyon and the NICHD have found that 15% to 20% of the general population meets criteria for Reading Disorder-Dyslexia Alone!**

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. 8.

Lyon, G.R. (1996). The State of Research. In S.C. Cramer, and W. Ellis (Eds.), Learning Disabilities: Lifelong Issues, Baltimore, MD: Paul Brookes, pp. 3-64.

Dyslexia and Auditory Speech Processing

Researchers used fMRI with adults with dyslexia to monitor their brain activity while they attended to phonemes as opposed attending to other speech sounds. When they attended to phonemes their medial geniculate body (MGB) of the thalamus responded abnormally. The researchers concluded the MGB of dyslexics are not tuned to optimize speech processing from this result.

Diaz, B., et al. (August 6, 2012). Dysfunction of the Auditory Thalamus in Developmental Dyslexia. Proceedings of the National Academy of Sciences of The Unites States of America, DOI: 10.10731PNAS.111988819/-

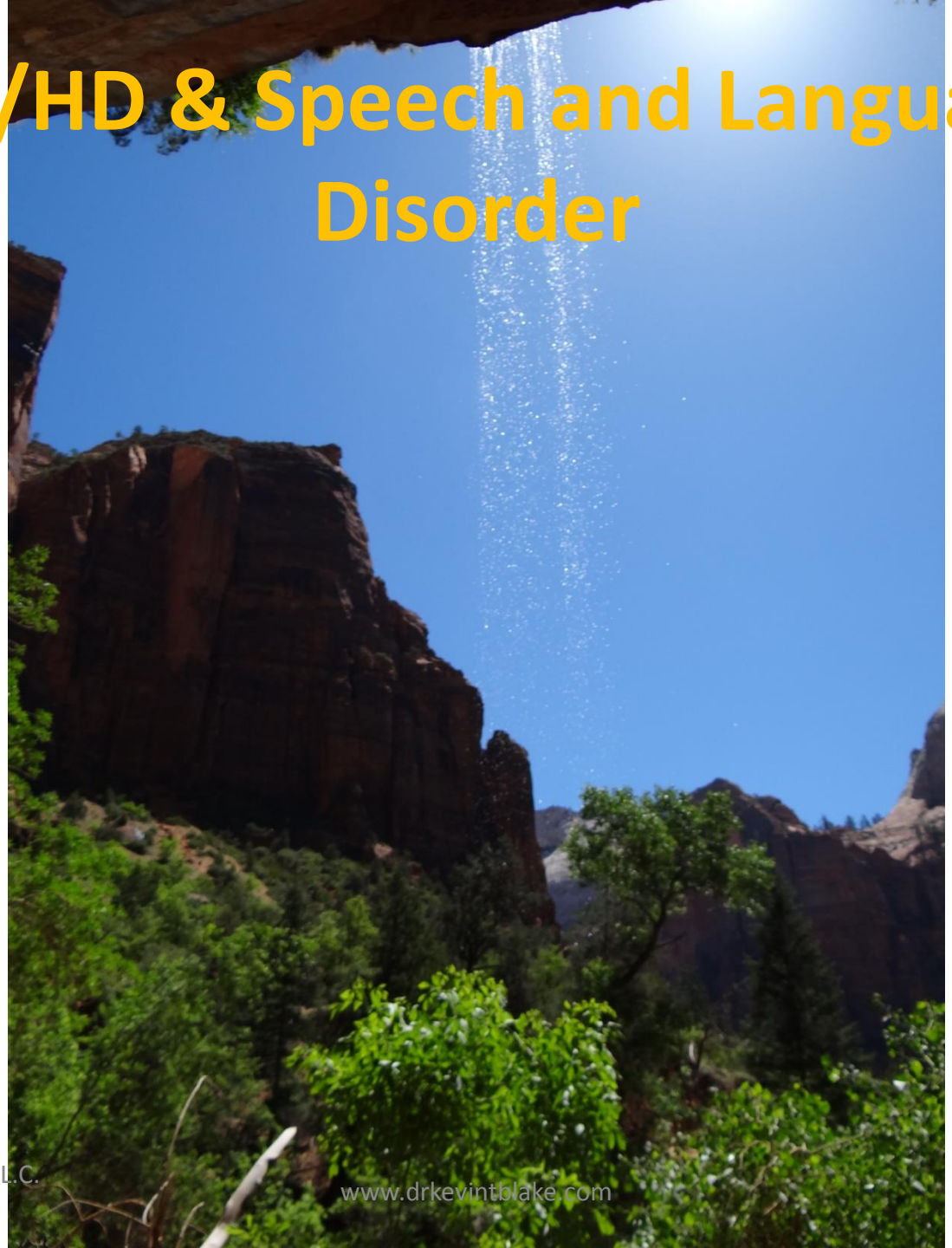
Other Reading Disorders Often Found in those with AD/HD-Symptoms

- **Reading Disorder-Recall/Comprehension-**
- **Working Memory Problem Causes Comprehension Problem**
- **Acquired Dyslexia-Accident Proneness of the AD/HD**
- **Hyperlexia**

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

Blake, K.T. (April 10, 2001). Dyslexia In Adults: Its Not Just For Little Kids Anymore! Paper presented at Arizona Western College, Disability Awareness Week, Yuma, AZ.

AD/HD & Speech and Language Disorder



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.

AD/HD and Speech and Language Disorders

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

AD/HD and Speech and Language Disorders

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

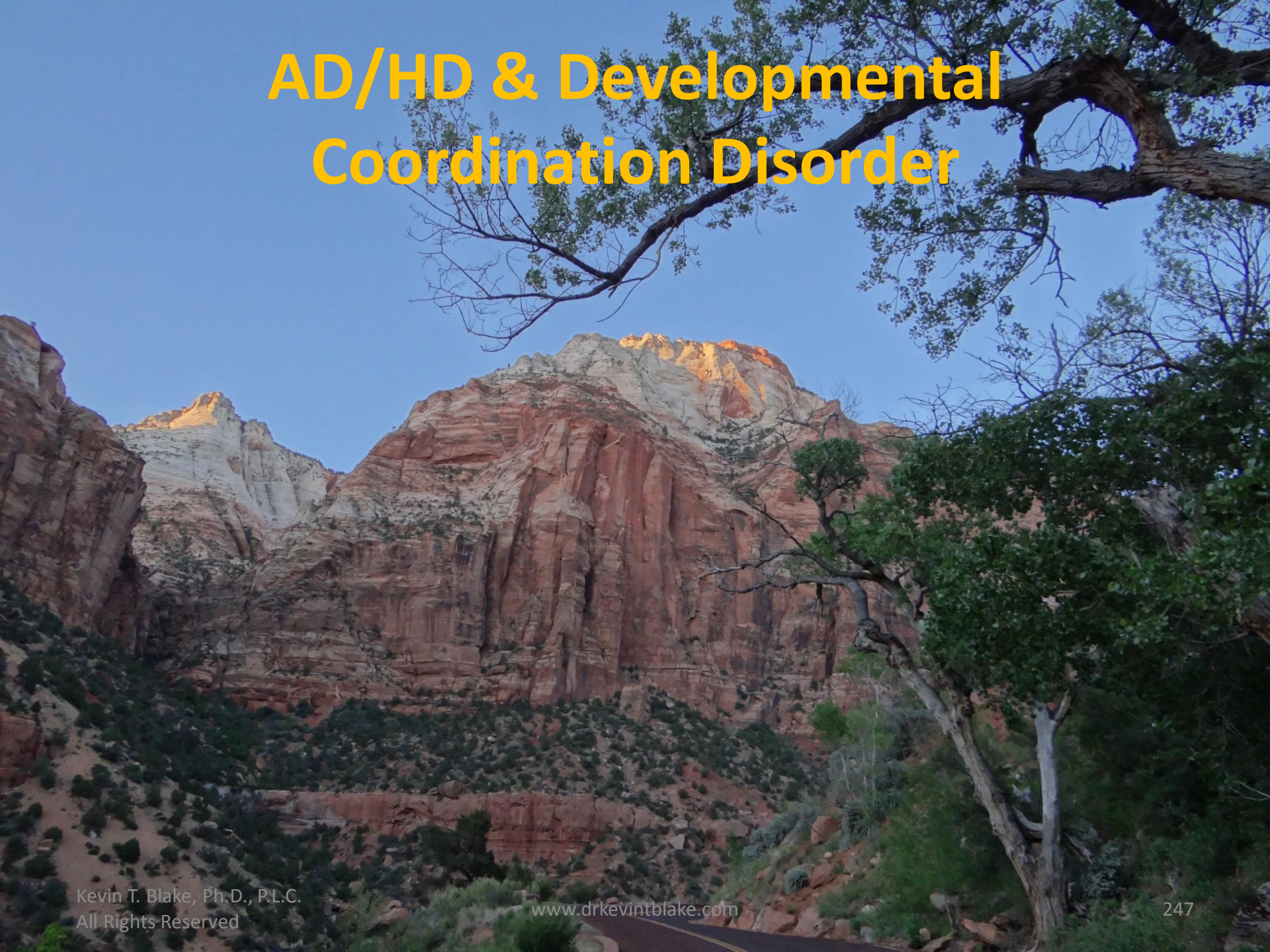
Barkley, R.A. (1998). Attention Deficit Hyperactivity Disorder, Second Edition. New York, NY: Guilford.

AD/HD & Speech Disorders

"A higher prevalence of speech and language disorders has also been documented in many studies of ADHD children, typically ranging from 30% to 64% of the samples... The converse is also true; children with speech and language disorders have a higher than expected prevalence of ADHD (approximately 30% to 58%), among other psychiatric disorders..."

Barkley, R.A. (January 25, 2013). ADHD: Nature, Course, Outcomes, and Comorbidity. CotinuingEdCourses.Net. From website: http://www.continuingedcourses.net/active/courses/course003.php.

AD/HD & Developmental Coordination Disorder



AD/HD and Developmental Coordination Disorder

- **Barkley stated 50%+ of those with ADHD meet criteria for DCD.**
- **They have Poor Physical Fitness**
- **They are Accident Prone (Especially those with ODD)**

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.

AD/HD & DCD

"The vast majority of the available research, therefore, supports the existence of deficits in motor control, particularly when motor sequences must be performed, in those with ADHD."

Barkley, R.A. (January 25, 2013). ADHD: Nature, Course, Outcomes, and Comorbidity. CotinuingEdCourses.Net. From website: http://www.continuingedcourses.net/active/courses/course003.php.

Disorganization, Developmental Coordination Disorder & AD/HD

"A significantly increased rate of attention deficit in children with organizational deficit was identified. Attention deficit in children with specific motor disorder was exclusively associated with an organizational deficit. Organizational deficit in childhood is highly associated with attention deficit, and this association is particularly relevant in children with specific coordination disorder."

Reference

Lifshitz, N., Josman, N. and Tirosh, E. (December 26, 2013). Disorganization as Related to Discoordination and Attention Deficit. Journal of Child Neurology, doi: 10.1177/0883073812469295. From website: http://jcn.sagepub.com/content/early/2012/12/25/0883073812469295.abstract.

AD/HD and Developmental Coordination Disorder (DCD)

"Significantly poorer perceptual reasoning ability was seen in DCD and ADHD+DCD groups but not in the ADHD group. The findings provide evidence that a deficit in visuo-spatial ability may underlie DCD but not ADHD. These findings revealed different cognitive profiles for ADHD and/or DCD, thus the current study does not lend support to the common aetiology hypothesis in understanding the basis of ADHD and DCD comorbidity". (p. 1260).

Loh, P.R., Piek, J.P., and Barret, N.C. (2011). Comorbid ADHD and DCD: Examining Cognitive Functions Using the WISC-IV. Research in Developmental Disabilities, 32(4), 1260-1269.

European Perspectives of AD/HD

Disorder of Attention Motor Control and Perception (DAMP): Swedish researchers have been doing longitudinal research since 1977 with a group of children with AD/HD and Developmental Coordination Disorder which they view as one disorder called DAMP. At age 22, 30% of the children still met criteria for AD/HD and DCD.

Gillberg, C. (2001). ADHD with Comorbid Developmental Coordination Disorder: Long-Term Outcome in a Community Sample, ADHD Report, 9 (2), pp. 5-9.

Gillberg, C., and Kadesjo, B. (2000). Attention-Deficit/Hyperactivity Disorder and Developmental Coordination Disorder. In T.E. Brown (Ed.), Attention-Deficit Disorders and Comorbidities in Children, Adolescents and Adults. Washington, DC: American Psychiatric Press, pp. 393- 406.

AD/HD & Autism Spectrum Disorder

AD/HD and ASD

Brown (2013) indicated that 6.0% of those with AD/HD have co-occurring ASD compared to 0.6% of controls.

Brown, T.E. (2013). A New Understanding of ADHD In Children and Adults: Executive Function Impairment. New York, NY: Routledge, p. 131.

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, S., and Naglieri, J.A. (August, 2011). Neurocognitive and Behavioral Characteristics of Children with ADHD and Autism: New Data and Strategies. The ADHD Report, 19(4), 10-12,16.

Asperger's Disorder, Depression & Anxiety

- **Research conducted in Sweden recently indicates that 70% of those with Asperger's Disorder have experienced at least one Major Depressive Episode, and 50% have experienced recurring episodes. Fifty percent had Anxiety Disorders. None of the subjects had psychosis, but almost 50% meeting criterion for personality disorders.**

Lugnegård, T., Unenge Hallerbäck, M., Gillberg, C. (2011). Psychiatric comorbidity in young adults with a clinical diagnosis of Asperger syndrome. Research in Developmental Disabilities, *32, 1910-1917.*

ASD & Comorbid AD/HD With Social Skills Training

"Children with ASD and children with an ASD and comorbid anxiety disorder improved in their parent reported social skills. Children with ASD and comorbid attention deficit/hyperactivity disorder failed to improve" (p. 439).

Antshel, K.M., Polacek, C., McMahon, M., Dygert, K., Spencely, L., Dygert, L., Miller, L., and Faisal. F. (July-August, 2011). Comorbid ADHD and anxiety affect social skills group intervention treatment efficacy in children with autism spectrum disorders. Journal of Developmental and Behavioral Pediatrics, 32(6), 439-446.

ASD Vs AD/HD
On Response Inhibition

- **A study comparing adults with AD/HD and adults with ASD found ASD adults had a slow but accurate response style, but AD/HD adults had an inaccurate and rapid response style.**

Johnston, K., Madden, A. K., Bramham, J. and Russell, A.J. (2011). Response Inhibition in Adults with Autism Spectrum Disorder Compared to Attention Deficit/Hyperactivity Disorder. Journal of Autism and Developmental Disorders, 41 (7), pp. 903-912.

Attention & Autism

“Conclusions Our findings suggest that the co-occurrence of ADHD traits and autistic traits in adults is not determined by problems with hyperactivity, social skills, imagination or routine preferences. Instead, the association between those traits is due primarily to shared attention-related problems (inattention and attentional switching capacity). As the etiology of this association is purely genetic, biological pathways involving attentional control could be a promising focus of future studies aimed at unraveling the genetic causes of these disorders.”

Reference

Polderman T.J.C, Hoekstra, R.A., Vinkhuyzen A.A.E., Sullivan, P.F., van der Sluis, S. and Posthuma, D. (Decwember 21, 2012). Attentional Switching Forms a Genetic Link Between Attention Problems And Autistic Traits In Adults. Psychological Medicine, Published On-Line. From website: http://journals.cambridge.org/action/displayAbstract?fromPage=online&aid=8788882.

(C)APD & AD/HD

Central Auditory Processing Disorder

- "The inability to understand spoken language in a meaningful way in the absence of what is commonly considered a hearing loss." (Sineps and Hunter, 1997)
- "…auditory processing disorders can coexist with hearing loss…" (Bellis, 2002)

Sineps, D. and Hunter, L. (1997). I Can Hear But…When Auditory Perception and Listening Break Down: Implications For Language and Reading. Paper presented at the International Dyslexia Association Annual Conference, Minneapolis, MN, November 13, 1997, Session T-45.

Bellis, T.J. (2003). When The Brain Can't Hear: Unraveling The Mystery of Auditory Processing Disorder. New York, NY: Atria, p. 22.

Auditory Processing

"Auditory processing is the ability to attend, discriminate and understand the spoken message, particularly in the presence of competing stimuli and adverse listening conditions." (p. 2)

Geffner, D. (June, 2006). Language and Auditory Processing Problems in ADHD. ADHD Report, 14 (3), 1-6.

Central Auditory Processing

"Central auditory processing is the perceptual processing of auditory information in the central nervous system. It involves several mechanisms that underlie abilities such as discrimination, recognition, temporal integration, localization of the signal in the presence of competing conditions and under degraded acoustic signals." (p. 2)

Geffner, D. (June, 2006). Language and Auditory Processing Problems in ADHD. ADHD Report, 14 (3), 1-6.

NIDCD Definition of (C)APD

"Auditory processing is a term used to describe what happens when your brain recognizes and interprets the sounds around you. Humans hear when energy that we recognize as sound travels through the ear and is changed into electrical information that can be interpreted by the brain. The 'disorder' part of auditory processing disorder means that something is adversely affecting the processing or interpretation of the information." (p. 1 of 3)

NIDCD (no date). Auditory Processing Disorders in Children. From website: www.nidcd.nih.gov/health/voice/auditory.html.

American Speech-Language Hearing Association

Definition of (Central) Auditory Processing Disorder:

"(C)APD is a deficit in neural processing of auditory stimuli that is not due to higher order language, cognitive, or related factors. However, (C)APD may lead to or be associated with difficulties in higher order language, learning and communications functions. Although (C)APD may coexist with other disorders(e.g., attention deficit hyperactivity disorder [ADHD], language impairment, and learning disability) it is ***not the result of*** these disorders." (p. 1 of 26)

American Speech-Language Hearing Association (April, 2005). Central Auditory Processing Disorders: Working Group on Auditory Processing Disorders, Technical Report. From website: www.asha.org/docs/html/TR2005-00043.html, p. 1 of 26.

Symptoms of (C)APD

"Children with auditory processing disorders appear to be uncertain about what they hear, and may have difficulties listening when there is background noise, following oral instructions and understanding rapid or degraded speech in the presence of normal peripheral hearing." (p. 361)

Bamiou, D.E., Musiek, F.E., and Luxon, L.M. (2001). Aetiology and Clinical Presentations of Auditory Processing Disorders-A Review. Archives of Disease in Childhood, 85, 361-365.

Symptoms of (C)APD

- Difficulty performing multi-step directions
- Poor listening skills
- Slow auditory processing speed
- Language problems –developing vocabulary and understanding the spoken word, etc.
- Problems with reading, verbal and reading comprehension, spelling and vocabulary
- Poor academic performance

Symptoms of (C)APD

- Behavior problems
- Problems remembering and recalling information presented orally
- Problems attending to auditory information

NIDCD (no date). Auditory Processing Disorders in Children. From website: www.nidcd.nih.gov/health/voice/auditory.html

Behavioral Symptoms of CAPD

- “difficulty understanding speech in the presence of competing background noise or reverberant acoustic environments
- problems with the ability to recognize the source of a signal
- difficulty hearing on the phone
- difficulty following rapid speech
- difficulty or inability to detect the subtle changes in the prosody that underlie humor and sarcasm

Behavioral Symptoms of CAPD

- difficulty learning a foreign language or novel speech materials, especially technical language
- difficulty maintaining attention
- a tendency to be easily distracted
- poor singing, musical ability, and/or appreciation of music
- academic difficulties, including reading, spelling and/or learning problems." (p. 5)

American Academy of Audiology (August 24, 2010). Diagnosis, Treatment, and Management of Children and Adults wiith Central Auditory Processing Disorder. From website: www.audiology.org/resources/documentlibrary/documents/CAPD%20guidelines%208-2010.pdf.

Behavioral Symptoms of CAPD

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American Academy of Audiology (August 24, 2010). Diagnosis, Treatment, and Management of Children and Adults wiith Central Auditory Processing Disorder. From website: www.audiology.org/resources/documentlibrary/documents/CAPD%20guidelines%208-2010.pdf.

Central Auditory Processing Disorder

- CAPD is not well defined
- May be due to under myelinated neurons in the corpus callosum.
- Those with CAPD process sounds at a slower rate.
- High rate of Otitis Media (ear infections)

Barkley, R. A. (2002). ADHD and Oppositional Defiant Children. Seminar Presented February 19-20, 2002, Phoenix, AZ.

Sineps, D. and Hunter, L. (1997). I Can Hear But…When Auditory Perception and Listening Break Down: Implications for Language and Reading. Paper Presented at the International Dyslexia Association Annual Conference, Minneapolis, MN, November 13, 1997, Session T-45.

Bellis, T.J. (2002). When the Brain Can't Hear: Unraveling The Mystery of Auditory Processing Disorder. New York, NY: Atria.

Causes of CAPD

"Perhaps the most obvious examples are cases of complete central deafness, in which individuals show pronounced auditory deficits due to lesions existing primarily in the brain, despite presence of normal peripheral systems." (p. 5)

American Academy of Audiology (August 24, 2010). Diagnosis, Treatment, and Management of Children and Adults with Central Auditory Processing Disorder. From website: www.audiology.org/resources/documentlibrary/documents/CAPD%20guidelines%208-2010.pdf

Causes of (C)APD

"In terms of pathophysiological mechanisms, APD may be classified as occurring in the presence of : neurological conditions; delayed central nervous system maturation; or other developmental disorders." (p. 362)

Bamiou, D.E., Musiek, F.E., and Luxon, L.M. (2001). Aetiology and Clinical presentations of Auditory Processing Disorders-A Review. Archives of Disease in Childhood, 85, 361-365.

Causes of (C)APD

"Although most individuals with (C)APD do not exhibit frank lesions of the CANS (Central Auditory Nervous System), there is substantial evidence that many individuals with (C)APD do, upon autopsy, exhibit neuromorphological abnormalities in auditory areas of the CNS (Central Nervous System). Moreover, the same or similar patterns of test findings that are seen in anatomically confirmed central auditory dysfunction also appear in children and adults suspected of having (C)APD who exhibit no frank lesion or pathology." (p. 10 of 26)

American Speech-Language Hearing Association (April, 2005). Central Auditory Processing Disorders: Working Group on Auditory Processing Disorders, Technical Report. From website: www.asha.org/docs/html/TR2005-00043.html, p. 10 of 26.

Causes of (C)APD

- Tumors of the Central Auditory Nervous System (CANS)
- Prematurity/Low Birth Weight
- Brain Damage
  - Meningitis
  - Head Trauma
  - Heavy Metal Poisoning
  - Lyme Disease
- Cerebrovascular Disorders
- Metabolic Disorders
- Epilepsy
- Delayed Maturation of the Auditory System

Bamiouu, B-F, Musiek, F.E., and Luxon, L.M. (2001). Aetiology and Clinical presentations of Auditory Processing Disorders-A Review. Archives of Disease in Childhood, 85, 361-365

Diagnosis of CAPD

"The diagnosis of (C)APD should be made on the basis of a carefully selected battery of sensitive and specific behavioral tests and electrophysiologic procedures, supplemented by observation and detailed case history." (p. 5)

American Academy of Audiology (August 24, 2010). Diagnosis, Treatment, and Management of Children and Adults with Central Auditory Processing Disorder. From website: www.audiology.org/resources/documentlibrary/documents/CAPD%20guidelines%208-2010.pdf.

Diagnosis of CAPD

"The diagnosis should be made by audiologists who have been properly trained in the area of (C)APD, including the administration and interpretation of these tests and procedures." (p. 5)

American Academy of Audiology (August 24, 2010). Diagnosis, Treatment, and Management of Children and Adults with Central Auditory Processing Disorder. From website: www.audiology.org/resources/documentlibrary/documents/CAPD%20guidelines%208-2010.pdf.

Diagnosis of CAPD

- Evaluations for (C)APD should be done in a soundproof room with acoustic control of environment and test stimuli.

American Academy of Audiology (August 24, 2010). Diagnosis, Treatment, and Management of Children and Adults with Central Auditory Processing Disorder. From website: www.audiology.org/resources/documentlibrary/documents/CAPD%20guidelines%208-2010.pdf.

(C)APD and Peripheral Hearing Loss

- The ASHA working group on (C)APD stated that (C)APD can be diagnosed in individual's with peripheral hearing loss.
- "The experienced audiologist can apply several strategies in administering and interpreting central auditory tests to minimize the degree to which peripheral hearing loss influences central auditory test interpretation." (p 9 of 26)

American Speech-Language Hearing Association (April, 2005). Central Auditory Processing Disorders: Working Group on Auditory Processing Disorders, Technical Report. From website: www.asha.org/docs/html/TR2005-00043.html, p. 9 of 26.

(C)APD and Peripheral Hearing Loss

- (C)APD evaluations can be done on children, adolescents and adults.
- Such evaluations can even be done with those with peripheral hearing loss if special care and procedures are followed.

American Academy of Audiology (August 24, 2010). Diagnosis, Treatment, and Management of Children and Adults wiith Central Auditory Processing Disorder. From website: www.audiology.org/resources/documentlibrary/documents/CAPD%20guidelines%208-2010.pdf.

ADHD Vs CAPD

- “It is often too difficult to differentially diagnose the two, particularly since the rate of co-occurrence is so high.” (p. 2)
- 41 to 83% of children with CAPD have comorbid ADHD.
- It is not yet known what percentage of ADHD children have CAPD.

Geffner, D. (June, 2006). Language and Auditory Processing Problems in ADHD. ADHD Report, 14 (3), 1-6.

CAPD and AD/HD

- Comorbidity rates between 45 and 75%
- CAPD will often respond to stimulant medication. (Tannock and Brown, 2000)
- Audiologist Vs Psychologist/Psychiatrist:
  - CAPD or AD/HD?
- CAPD may be Inattentive AD/HD (Barkley, 2002)

Tannock, R. and Brown, T.E. (2000). Attention-Deficit Disorders in Children and Adolescents, In T.E. Brown (Ed.), Attention-Deficit Disorders and Comorbidities in Children, Adolescents, and Adults. Washington, DC: American Psychiatric Press, pp. 231-296.

Bellis, T.J. (2002). When the Brain Can't Hear: Unraveling The Mystery of Auditory Processing Disorder. New York, NY: Atria.

Barkley, R.A. (2002). AD/HD and Oppositional Defiant Children. Seminar Presented February 19-20, Phoenix, AZ.

Barkley on AD/HD Vs CAPD

"The relationship of ADHD to the language processing problem known as central auditory processing disorder (CAPD) is uncertain. Some researchers imply that they may not be separate disorders at all, given that teacher ratings of inattention in children with ADHD were significantly related to several tests of auditory processing. The problem here is largely though not entirely due to problems in definition." (p. 131)

Barkley, R.A. (2006). Attention –Deficit Hyperactivity Disorder, 3rd Edition. New York, NY: Guilford, 131.

Barkley on AD/HD Vs CAPD

"Children with ADHD often have difficulty with auditory vigilance or attention…, and so they may automatically qualify for a diagnosis of CAPD on that basis alone." (p. 131)

Barkley, R.A. (2006). Attention –Deficit Hyperactivity Disorder, 3rd Edition. New York, NY: Guilford, 131.

Barkley on AD/HD Vs CAPD

"What is clear…is that CAPD and ADHD are not identical disorders if more rigorous definitions and criteria are used to determine the presence of CAPD, apart from merely clinical complaints of auditory inattentiveness. It remains uncertain whether CAPD should be considered a valid disorder apart from other already well-documented language disorders of children or whether it merely represents a more recent relabeling of those previously identified language disorders" (p. 131)

Barkley, R.A. (2006). Attention –Deficit Hyperactivity Disorder, 3rd Edition. New York, NY: Guilford, 131.

Barkley on AD/HD Vs CAPD

- Barkley indicated the following:
  - Some studies have found that those with CADP have an improvement in relief from their inattentive symptoms when they are administered stimulant medication. He believes such individuals have co-morbid ADHD and the stimulant medication is reducing their inattentiveness.
  - He believes 33% of those with ADHD also have CAPD. The general population's rate is 3 to 5%.

Barkley, R.A. (2006). Attention –Deficit Hyperactivity Disorder, 3rd Edition. New York, NY: Guilford, 131.

AD/HD and Central Auditory Processing Disorder

- Tannock and Brown reported 45% to 75% comorbidity between AD/HD and CAPD.
- Hynd reported 50% of those with CAPD have AD/HD and 87% of those have comorbid Learning Disorders.

Tannock, M, and Brown, T.E. (2000). Attention-Disorders With Learning Disorders in Children and Adolescents. In T.E. Brown (Ed.), Attention-Deficit Disorders and Comorbidities In Children, Adolescents, and Adults. Washington, DC: American Psychiatric Press, pp. 231-296.)

Hynd, G. (2002). ADHD and Its Association with Dyslexia: Diagnostic and Treatment Challenges. Paper presented at the 53rd Annual International Dyslexia Association Conference, Atlanta, GE, November 16.

AD/HD and Central Auditory Processing Disorder

- 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 symptom overlap with CAPD.

(February, 2003). Performance of ADHD Children on Auditory Tasks Related to Behavioral Inhibition, Not CAPD. ADHD Report, 11, p. 11/ Summary of: Brier, J.I., et. al. (2002). Dissociation of Sensitivity and Response Bias in Children with Attention Deficit/Hyperactivity Disorder During Central Auditory Masking. Neurology, 16, pp. 28-34.

Life-Changing Interventions for the New AD/HD: Beyond the DSM-5

Extra Information Slides F

Kevin T. Blake, Ph.D., P.L.C.
Tucson, Arizona
Cross Country Education
Brentwood, Tennessee

Symptom Differences

AD/HD, CT

1. Inattentive*
2. Distracted*
3. Hyperactive
4. Restless or Fidgety
5. Impulsive
6. Butts in/Interrupts

* ***Distracted Inattentive symptoms much more prevelant in ADHD, CT***

(C)APD

1. Problems hearing noise
2. Problems following oral instructions
3. Poor listening skills
4. Academic problems
5. Poor Auditory Association Skills
6. Distracted/Inattentive*

Chermak, G.D., Somers, E.K., and Siekel, (1998). Behavioral Signs of central uaditory processing disorder and attention deficit hyperactivity d isorder. Journal of the American Academy of Audiology, 9, 78-84.

Comorbidity of (C)APD and AD/HD, CT

"Item analysis revealed that only two of the most frequently cited behaviors were judged as characteristic of both disorders (i.e., inattention and distractibility). The majority of frequently cited behaviors were not seen as common to ADHD and CAPD." (p. 78)

Chermak, G.D., Somers, E.K., and Seikel, J.A. (1998). Behavioral Signs of Central Auditory Processing Disorder and Attention Deficit Hyperactivity Disorder. Journal of American Audiology, 9 (1), 78-84.

Comorbidity of (C)APD and AD/HD, CT

"These data are consistent with the hypothesis that APD and ADHD overlap partly while still being distinct entities. In addition to dimensional aspects, the parent's rating may provide a guideline for establishing a diagnosis based on categorical dimensions."

Ptok, M., Buller, N., Schwemmle, C., Bergmann, C., and Luerssen, K. (2006). Auditory processing Disorder Versus Attention Deficit/Hyperactivity Disorder. A Dysfuntion Complex or Different Entities? HNO (Otorhinolaryngology), 54 (5), 405-410, 414. Article in German: From Abstract: www.ncbi.nlm.nih.gov/pubmed/15971050.

Comorbidity of (C)APD and Dyslexia

"Approximately half of the participants with developmental dyslexia showed clinically significant diminished performance on the FPT (Frequency-Pattern Test) and DPT (Duration- Pattern Test) indicative of APD. These results indicate that the percentage of persons with developmental dyslexia and comorbid APD may be substantial enough to warrant serious clinical considerations." (p. 448)

King, W.M., Lombardino, L.J., Crandell, C.C, and Leonard, C.M. (October, 2003). Comorbid Auditory Processing Disorder in Developmental Dyslexia. Ear and Hearing, 24 (5), 448-456.

Comorbidity of (C)APD and AD/HD, IT

Research has shown when pediatricians rated symptoms related to AD/HD, Inattentive Type (SCT) and audiologists rated symptoms rated symptoms related to (C)APD from the same list of 58 symptoms there was no overlap of symptoms.

Chermak, G.D., Tucker, E., and Seikel, J.A. (2002). Behavioral Characteristics of Auditory Processing Disorder and Attention-Deficit Hyperactivity Disorder: Predominately Inattentive Type. American Journal of Audiology, 13 (6), 332-338.

Comorbidity of (C)APD and Asperger's Disorder

"We now have research evidence to confirm significant problems for children and adults with Asperger's syndrome in their ability to understand what someone says when there is background speech or noise…and perceive, discriminate and process auditory information." (p. 221)

People with Asperger's Disorder are not good at filling in gaps in hearing.

Attwood, T. (2007). The Complete Guide to Asperger's Syndrome. Philadelphia, PA: Jessica Kingsley, p. 221.

Special Treatment Considerations with Asperger's Disorder

- **After you give a child with Asperger's disorder a task ask, "Tell me what you have been asked to do?"**
- **Write down directions. The more multi-sensory they are the better.**
- **Directions must be based on the child's language comprehension, not their ability to read and speak complex words.**
- **When giving oral instructions pause a few seconds between sentences to allow the child to process the information.**

Attwood, T. (2007). The Complete Guide to Asperger's Syndrome. Philadelphia, PA: Jessica Kingsley, p. 221.

Diagnosing CAPD

- **Team approach:**
  - **Audiologist (Case Manager)**
  - **Speech-Language Pathologist**
  - **Educator**
  - **Psychologist**
  - **Parents**

Bellis, T.J. (1996). Assessment and Management of Central Auditory Processing Disorders In the Educational Setting: From Science to Practice. San Diego, CA: Singular.

*****National Coalition for Auditory Processing Disorders:*** www.ncapd.org

Diagnosing CAPD

- Physicians – “If there is a disease or disorder related to hearing, you may be referred to an otolaryngologist, a physician who specializes in diseases and disorders of the head and neck.” (National Institute on Deafness and Other Communication Disorders, May 8, 2002, p. 3)
- American Medical Association: www.ama-assn.org

Treating CAPD

- Help with Grieving Process
- Environmental Modifications
  - FM Loop Systems, Amplification, Seating, Etc.
- Remediation (Direct Therapy)
  - Phonological Awareness, Temporal Patterning, Prosody Training, Interhemispheric Training
- Compensatory Strategies

Bellis, T.J. (2002). When the Brain Can't Hear: Unraveling The Mystery of Auditory Processing Disorder. New York, NY: Atria.

Treating (C)APD

"The accumulated auditory and cognitive science literature supports comprehensive programming incorporating both bottom-up (e.g., acoustic signal enhancement, auditory training) and top-down (i.e., cognitive, metacognitive, and language strategies) approaches delivered consistent with neuroscience principles." (p. 13 of 26)

American Speech-Language Hearing Association (April, 2005). Central Auditory Processing Disorders: Working Group on Auditory Processing Disorders, Technical Report. From website: www.asha.org/docs/html/TR2005-00043.html, p. 13 of 26.

Treating (C)APD

- Audiologists may use formal auditory training to take advantage of the brain's plasticity using computer programs like:
  - FastForWord: Scientific Learning Corporation (1997), www.scilearn.com
  - Earobics: Cognitive Concepts, Incorporated, www.earobics.com

Bamiou, D.E., Musiek, F.E., and Luxon, L.M. (2001). Aetiology and Clinical presentations of Auditory Processing Disorders-A Review. Archives of Disease in Childhood, 85, 361-365.

Treating (C)APD

- Such training should take place in the workplace, home and school.
- The following training should be done simultaneously: environmental modifications, direct instruction, remediation and compensation strategies.

American Speech-Language Hearing Association (April, 2005). Central Auditory Processing Disorders: Working Group on Auditory Processing Disorders, Technical Report. From website: www.asha.org/docs/html/TR2005-00043.html, p. 13 of 26.

Treatment of (C)APD

"Environmental accommodations to enhance the listening environment my include but are not limited to preferential seating for the individual with (C)APD to improve access to the acoustic (and the visual) signal; use of visual aids; reduction of competing signals and reverberation time; use of assistive listening systems; and advising speakers to speak more slowly, pause more often and emphasize key words." (p. 14 of 26)

American Speech-Language Hearing Association (April, 2005). Central Auditory Processing Disorders: Working Group on Auditory Processing Disorders, Technical Report. From website: www.asha.org/docs/html/TR2005-00043.html, p. 13 of 26.

Classroom Environmental Modifications

"These modifications may include decreasing reverberation by covering reflective surfaces (e.g., black/white boards not in use, linoleum or wood floors, untreated ceilings), using properly spaced acoustic dividers, using other absorption materials throughout open or empty spaces(e.g., unused coat areas), and/or changing the location of "study" sights. External noise sources can be eliminated or moved away from learning space e.g., aquariums, fluorescent lights that hum, and open door or wall." (p. 14 of 26)

American Speech-Language Hearing Association (April, 2005). Central Auditory Processing Disorders: Working Group on Auditory Processing Disorders, Technical Report. From website: www.asha.org/docs/html/TR2005-00043.html, p. 9 of 26.

Classroom Accommodations

- "Accommodations that utilize technology to improve audibility and clarity of the acoustic signal itself (assistive listening devices such as FM or infrared technology) may be indicated for some individuals with (C)APD…The strongest indicators for the use of personal FM as a management strategy are deficits on monaural low redundancy speech and dichotic speech tests…" (p. 14 of 26)
- Such people have great difficulty in the acoustic environments encountered in schools, home and work.

American Speech-Language Hearing Association (April, 2005). Central Auditory Processing Disorders: Working Group on Auditory Processing Disorders, Technical Report. From website: www.asha.org/docs/html/TR2005-00043.html, p. 13 of 26.

Curriculum Adaptation

"Specific suggestions may include support for focused listening (e.g., use of note-takers, preview questions, organizers), redundancy (e.g., multisensory instruction, computer mediation), and the use of written output e.g., e-mail, mind-maps." (p. 15 of 26)

American Speech-Language Hearing Association (April, 2005). Central Auditory Processing Disorders: Working Group on Auditory Processing Disorders, Technical Report. From website: www.asha.org/docs/html/TR2005-00043.html, p. 9 of 26.

How to Make your Classroom Acoustically Available

- CAPD students sit in first row.
- Provide good lighting in the room.
- Avoid assigning a teacher to student who DOES NOT speak with a common or local accent.
- Acoustical tile in the ceiling
- Carpeting with thick carpeting pad on the floor
- Beards and moustaches need to be well trimmed away from lips. This allows for better speech reading.
- No mini-blinds! Use draperies! Draperies absorb ambient sound better.

Classroom Acoustics

- The American Speech-Language Hearing Association (www.asha.org) has a position paper on this that includes a comprehensive bibliography: Paper number 37, supplement 14.
- The Counsel of Educational Facility Planners International (CEFPI) has the following article on their website about how to build in good classroom acoustics:
- Erdreich, J. (July, 1999). Teaching in the Dark. Brief on Educational Facilities.

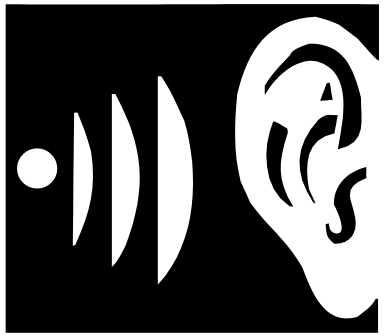
Sound Suppression Technology

Bose QuietComfort Sound suppression headphones:
www.**bose**.com

FM Loop System

Website: www.harriscomm.com

http://www.harriscomm.com/catalog/default.php?cPath=1141_46_158



Helpful Websites for CAPD

- National Institute on Deafness and Other Communication Disorders: www.nidcdinfo@nidcd.nih.gov
- American Academy of Audiology: www.audiology.org
- American Speech-Language Hearing Association: www.asha.org
- National Coalition for Auditory Processing Disorders: www.ncapd.org
- American Academy of Otolaryngology-Head and Neck Surgery (AAO-HNS): www.entnet.org

Helpful Books on (C)APD

- ✓ Bellis, T.J. (2002). When the Brain Can't Hear: Unraveling the Mystery of Auditory Processing Disorder. New York, NY: Atria.
- ✓ Bellis, T.J. (2003). Assessment and management of central auditory processing disorders in the educational setting: From science to practice. Clifton Park, NY: Delmar Learning.

Helpful Book on (C)APD

- ✓ Chermak, G.D., & Musiek, F.E. (1997). Central Auditory Processing Disorders: New Perspectives. San Diego, CA: Singular.

Hyperacusis

Hyperacusis

- A condition marked by super sensitive hearing.
- Often environmental sounds are so loud to them it is painful.

Edelson, S. (1994 Spring). Your Questions Answered. Perspectives of the Orton Dyslexia Society, 20 (2), p. 7.

Hyperacusis

"Hyperacusis has been defined as 'unusual tolerance to ordinary environmental sounds' and more pejoratively, as 'consistently exaggerated or inappropriate responses to sounds that are neither threatening nor uncomfortably loud to a typical person.' Common to both is the implication that the experience can be evoked by sounds of low intensity and that sounds in general, rather than specific sounds are problematic." (p. 582)

Baguley, D.M. (2003). Hyperacusis. Journal of the Royal Society of Medicine, 96 (12), 582-585.

Vestibular Hyperacusis

"In *vestibular hyperacusis*, exposure to sound can result in falling or loss of balance or postural control…Some of the same reactions as with cochlear hyperacusis can also occur, along with sudden vertigo and nausea." (p. 1 of 2)

- Other symptoms: loss of consciousness, confusion, fatigue, headaches

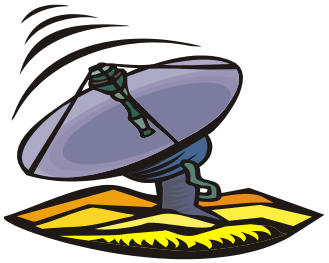
Author (May 1, 2010). Vestibular Hyperacusis. From Vestibular Association (VEDA) Website: www.vestibular.org/vestibular-disorder/specific-disorders/vestibular-hyperacusis, p. 1 to 2.

Vestibular Hyperacusis

- Causes:
  - Head/brain injury, chemical exposure, heart/artery disease, autoimmune disorders
- Treatment:
  - Low salt diet, anti-nausea drugs, anti-inflammatory drugs.

Author (May 1, 2010). Vestibular Hyperacusis. From Vestibular Association (VEDA) Website: www.vestibular.org/vestibular-disorder/specific-disorders/vestibular-hyperacusis, p. 1 to 2.

Loudness Recruitment



"*Loudness recruitment* describes an experience associated with cochlear hearing loss and specifically with dysfunction of the outer hair cells of the organ Corti: with a rising sound level, the perceived loudness increases faster than normal." (p. 582)

Baguley, D.M. (2003). Hyperacusis. Journal of the Royal Society of Medicine, 96 (12), 582-585.

Loudness Recruitment

"This phenomenon occurs because at some decibel level, the normal hair cells adjacent to the damaged hair cells (corresponding to the frequency of a hearing loss) are 'recruited.' At the decibel level at which these normal hair cells 'kick in', perceived loudness shoots up rapidly, causing discomfort." (p. 2 of 3)

Author (2010). Types of Sound Sensitivity. From Hyperacusis Network website: www.hyperacusis.net/hyperacusis/4+types+of+sound+sensitivity/default.asp, p 1 to 3.

Loudness Recruitment

- Typically occurs in people with high frequency hearing loss over the age 40.
- They have an abnormal perception of loudness and are overwhelmed by it.

Author (2010). Supplement. From the Hyperacusis Network website: www.hyperacusis.net/hyperacusis/supplement/default.asp, p. 1 to 25.

Misophonia and Phonophobia

"*Misophonia and Phonophobia* can be defined as abnormally strong reactions of the autonomic and limbic systems resulting from enhanced connections between the auditory and limbic systems." (p. 582)

- Phonophobia = Fear of sounds due to an emotional pairing. Usually the term used to describe lack of sound tolerance due to migraine headaches.
- Misophonia = Dislike of sounds due to an emotional pairing.

Jastreboff, M.M., and Jastreboff, P.J. (June 18, 2001) Hyperacusis. From: www.audiologyonline.com/articles/article_detail.asp?article_id=291, p. 2 of 3.

Baguley, D.M. (2003). Hyperacusis. Journal of the Royal Society of Medicine, 96 (12), 582-585.

Note!

- Most people will find sounds at 120 dB or higher painful.
- The maximum comfortable loudness a person can tolerate depends on the individual.
- It can also depend on your mood and the type of sound.
  - The more stressed you are the less you can tolerate sound.
- Some sounds are intolerable to everyone i.e. fingers scratching a chalkboard.

Baguley, D.M. (2007). Hyperacusis and Other Forms of Sound Tolerance. British Tinnitus Association. From website: www.tinnitus.org.uk.

Causes of Hyperacusis

- Note: In most cases no cause can be found.
- Facial nerve dysfunction
- Lyme disease
- William's Syndrome: 95% report hyperacusis
- Middle cerebral aneurysm
- Multiple sclerosis
- Migrainous cerebral infarction
- Ear surgery*

Baguley, D.M. (2003). Hyperacusis. Journal of the Royal Society of Medicine, 96 (12), 582-585.

***Baguley, D.M. (2007). Hyperacusis and Other Forms of Sound Tolerance. British Tinnitus Association. From website: www.tinnitus.org.uk.**

Possible Causes of Hyperacusis

- 5 hydroxytryptamine dysfunction: This helps modulate auditory gain and determining the importance of particular sounds.

Baguley, D.M. (2003). Hyperacusis. Journal of the Royal Society of Medicine, 96 (12), 582-585

Temporomandibular Joint Syndrome (TMJ)

Author (2010). Supplement. From the Hyperacusis Network website: www.hyperacusis.net/hyperacusis/suppliment/default.asp, p. 1 to 25.

Causes of Hyperacusis

"Specifically, improper function of the cochlear hair cells may result in a hearing loss secondary to the failure of these cells to propagate proper signals through the auditory centers. In response to an incongruous neural message, higher auditory cortical centers may adopt and remodel transmitted sound. This neuroplasticity may lead to an increased perception of volume in the auditory cortex (hyperacusis) and the perception of phantom sounds (tinnitus)." (p. 472)

Nelson, J.J., and Chen, K. (July, 2004). The Relationship of Tinnitus, Hyperacusis, and Hearing Loss. Ear, Nose and Throat Journal, 83 (7), 472-476.

Hyperacusis

- Poll of 65 AD/HD adults:
  - 50% reported hypersensitive hearing

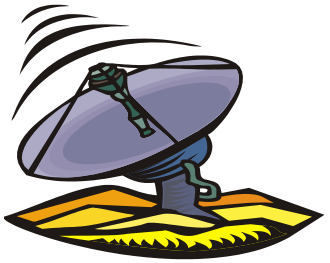
Johnson, M.J. (1998) Having ADD and Being Hypersensitive: Is There A Connection?. From website:http://www.add.org/articles/hypersen.html

Asperger's Disorder and Hyperacusis

- 70 to 80% of those with Asperger's Disorder have some form of Hyperacusis.
- The three types of sounds people with Asperger's Disorder have difficulty with:
  - Sudden Unexpected Noises – dog bark, school fire alarm, etc.
  - High Pitched Continuous Noises - electric motors. toilets, etc.
  - Confusing Multiple Sounds – shopping mall, sporting event, etc.

Attwood, T. (2007). The Complete Guide to Asperger's Syndrome. Philadelphia, PA: Jessica Kingsley, p. 221.

Hyperacute Hearing



Some say that those with Autism Spectrum Disorders who are hypersensitive to sound have “hyperacute hearing,” instead of hyperacusis because they are born with it and only certain sound frequencies cause them problems.

Author (2010). Types of Sound Sensitivity. From Hyperacusis Network website: www.hyperacusis.net/hyperacusis/4+types+of+sound+sensitivity/default.asp, p 1 to 3.

Williams Syndrome and Sensitive Hearing

- Williams Syndrome is also known as Williams-Beuren Syndrome
- "Williams Syndrome is characterized by cardiac defects, varying degrees of physical and developmental delay, stellate eye pattern, possible elevated serum calcium level, and elfin/pixie facial features." (p. 339)
- 95% of people with Williams Syndrome have hyperacusis and 61% had significant otitis media as infants and small children.

Klein, A.J, Armstrong, B.L., Greer, M.K., and Brown III, F.R. (May, 1990). Hyperacusis and Otitis Media in Individuals with Williams Syndrome. Journal of Speech and Hearing Disorders, 55, 339-344.

Williams-Beuren Syndrome (WBS)

"To begin with, individuals with WBS experience strong aversion to certain types of sounds, independent of their loudness. The sounds tend to be spectrally broad-band sounds, such as those emanating from motors, fans, fireworks, and thunder. Compared to typically developing children and children with DNS (sic. Downs Syndrome) or Autism, the WBS individuals are more than three times as likely to have suffered from auditory aversions, with 91% of respondents reporting this (compared to 27% of individuals with Autism, and fewer than 7% of individuals with DNS or normal controls." (p. 349)

Levitin, D.J., and Bellugi, U. (2006). Rhythm, Tembre and Hyperacusis in Williams,-Beuren Syndrome. In C. Morris, H. Lenhoff, and P. Wang (Eds.), Williams-Beuren Syndrome: Research and Clinical Perspectives. Baltimore, MD: John Hopkins Press, 343-358.

Williams-Beuren Syndrome (WBS)

"WBS people may suffer from four different auditory abnormalities: lowered uncomfortable loudness levels, hyperacusis, auditory fascinations, and auditory aversions. We argue for some neural basis for some of these behaviours may be in hyperexcitability of cortical neurons…WBS tend to use different regions of their brains for processing music and noise, with particular emphasis on amygdala activation." (p. 354)

Levitin, D.J., and Bellugi, U. (2006). Rhythm, Tembre and Hyperacusis in Williams,-Beuren Syndrome. In C. Morris, H. Lenhoff, and P. Wang (Eds.), Williams-Beuren Syndrome: Research and Clinical Perspectives. Baltimore, MD: John Hopkins Press, 343-358.

Williams-Beuren Syndrome (WBS)

"Hyperacusis in Williams syndrome (WS) is associated with a high-frequency hearing loss resembling the configuration of noise induced hearing loss. The hyperacusis and hearing loss in WS may stem from a deficiency in the acoustic reflex resulting from auditory nerve dysfunction. Additional mechanisms that may mediate hyperacusis in WS and should be evaluated in future studies include recruitment, malformation of the facial canal, and haploinsufficiency of the elastin gene." (p. 390)

Gothelf, D., Farber, N., Raveh, N., Apter, A., and Attias, J. (February, 2006). Neurlogy, 66 (3), 390-395.

Williams-Beuren Syndrome (WBS)

"Even as toddlers, children with William's Syndrome are extraordinarily responsive to music…" (Oliver Sacks, 2007, p. 219)

Sacks, O. (2007). Musicophilia: Tales of Music and the Brain. New York, NY: Alfred A. Knopf, 19.

Tonic Tensor Tympani Syndrome (TTTS)

"In many people with hyperacusis, increased activity develops in the tensor tympani muscle in the middle ear as part of the startle response to some sounds. The lowered reflex threshold for tensor tympani contraction is activated by the perception/anticipation of loud sound, and is called tonic tensor tympani syndrome (TTTS). In some people with hyperacusis, the tensor tympani muscle can contract just by thinking about loud sound. Following exposure to intolerable sounds, this contraction of the tensor tympani muscle tightens the ear drum, which can lead to symptoms of ear pain/a fluttering sensation/a sensation of fullness in the ear (in the absence of any middle or inner ear pathology). (Continued)

Tonic Tensor Tympani Syndrome (TTTS)

"…it does not harm the ear to experience TTTS and even though the TTTS symptoms can seem as if the ear is being damaged by some sounds, this is not the case." (p. 2 of 3)

- **Treatment of TTTS often involves sound desensitization and habituation wearing sound generators at low volume.**

Westcott, M. (2010). Tensor Tympani Syndrome. From the Hyperacusis Network website: www.hyperacusis.net/hyperacusis/tensor+tympani+syndrome/default.asp. P1 & 2, of 3.

English Language Questionnaire for Hyperacucis

Khalfa, S., Dubal, S., Veuillet, E., Perez-Diaz, F., Jouvent, R, and Collet, L. (2002). Psychometric Normalization of a Hyperacusis Questionnaire. Otorhinolaryngology, 64, 438-442.

Sensory Sensitivity Symptoms in Asperger's Disorder

- **Sensory Profile Checklist-Revised (SPCR): From - Bogdashina, O. (2003). Sensory Perceptual Issues in Autism and Asperger's Syndrome: Different Sensory Experiences, Different Perceptual Worlds. London, England: Jessica Kingsley.**
- **Sensory Behaviour Schedule (SBS): From - Harrison, J., and Hare, D. (2004). Brief Report: Assessment of Sensory Abnormalities in People with Autism Spectrum Disorders. Journal of Autism and Developmental Disorders, 34, 707-730.**

Prevalence of Hyperacusis

- Two Swedish studies indicated 8 to 9% of the population has hyperacusis.
- 40% of those with tinnitus have hyperacusis
- 86% of those with hyperacusis have tinnitus
- 48% of those with loudness recruitment complain of problems with attention as well as emotional and social concerns.

Baguley, D.M. (2003). Hyperacusis. Journal of the Royal Society of Medicine, 96 (12), 582-585.

Prevalence of Hyperacusis

- Most researchers believe the worldwide prevalence of hyperacusis is about 2%.

Baguley, D.M. (2007). Hyperacusis and Other Forms of Sound Tolerance. British Tinnitus Association. From website: www.tinnitus.org.uk.

Hyperacusis: Diagnosis

- Go to a "World Class" university medical center (i.e., Harvard Medical School, Vanderbilt Medical School, Mayo Clinic, UCLA Medical School, etc.) and have the following:
  - a thorough medical examination
  - a very detailed history taken (i.e., medical, family, educational, audiological, work, social, etc)
  - a thorough ear examination
  - a thorough hearing examination
  - a thorough hyperacusis examination that includes a loudness discomfort test.

Baguley, D.M. (2007). Hyperacusis and Other Forms of Sound Tolerance. British Tinnitus Association. From website: www.tinnitus.org.uk.

Good Book On Hyperacusis

Baguley, D., and Andersson, G. (2007). Hyperacusis: Diagnosis, Mechanisms and Therapies. London, England: Plural.

Treatment of Hyperacusis

- Some use exposure to “pink noise” with the hope that it will desensitize them to their hyperacusis.
- Pink Noise is similar to white noise.
- CDs with such sounds are available from the Hyperacusis Network, P.O. Box 8007, Green Bay, WI 54308; www.hyperacusis.net

Hyperacusis: Treatment

"There have been only a few studies outlining management for hyperacusis patients. Currently assessment indicates that the Jastreboff model for treating hyperacusis is the most widely accepted among practitioners. It is similar in purpose, to the Jastreboff approach for treating tinnitus: Tinnitus Retraining Therapy (TRT)…However, no one clinical approach has been sufficiently compelling to gain universal acceptance." (p. 1 of 2)

Sandlin, R. (May 3, 2004). Current Research in Hyperacusis. Audiology On Line: From website: www.audiologyonline.com/askexpert/display_question.asp?question_id=224, p. 1 of 2.

TRT Therapy Developer

- Pawel J. Jastreboff, Ph.D., Sc.D., M.B.A.
- Professor and Director
- Tinnitus and Hyperacusis Center
- Emory University
- Atlanta, Georgia
- www.tinnitus-pjj.com

Hyperacusis Treatment in Asperger's Disorder

"It is important to first identify which auditory experiences are perceived as painfully intense, with the child communicating distress by covering his ears, flinching or blinking in response to sudden noises, or simply telling an adult which sounds are hurting." (p. 277)

Attwood, T. (2007). The Complete Guide to Asperger's Syndrome. Philadelphia, PA: Jessica Kingsley, p. 221.

Treating Hyperacusis in Those with Asperger's Disorder

- Remove the sound from the environment
- Use sound suppression (i.e., silicone ear plugs, sound suppression – Bose Quiet Comfort headphones, a fan, etc.
- Explaining the cause and the duration of the painful sound may be helpful: Carol Gray's "Social Stories" offer such information - http://www.thegraycenter.org/social-stories

Attwood, T. (2007). The Complete Guide to Asperger's Syndrome. Philadelphia, PA: Jessica Kingsley, p. 221.

Recruitment: Treatment

"New digital hearing aids are being developed which employ sound compression and volume control. These devices hold promise as technology improves however each person with recruitment is different and a good hearing aid would have to be customized to the patient's recruited ears. In fact, the two ears on an individual with recruitment may have different levels of hearing loss, thus a pair of hearing aids may have to be tuned differently for each ear." (p. 4 of 25)

The Hyperacusis Network (No Date) Supplement. From Website: www.hyperacusis.net/hyperacusis/supplement/default.asp.

Life-Changing Interventions for the New AD/HD: Beyond the DSM-5

Extra Information Slides G

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

Controversial Hyperacusis Treatment

- Auditory Integration Therapy (Tomatis)
  - Developed by Guy Bernard of France
  - Listen to specially modulated music for 10 hours
  - ***MAY*** help somewhat, but ***no research exists to indicate its helpful and it costs a lot.***

Attwood, T. (1998). Asperger's Syndrome: A Guide for Parents and Professionals. Philadelphia, PA: Jessica Kingsley.

  - Some believe this allows the cortex to reorganize and strengthens the muscles in the ear, but no research proves this.

Silver, L. B. (2001). Theme Editor's Note. Perspectives, 27 (3), 5.

Sinha, Y., Silove, N., Williams, K., Hayden, A. (2004). Auditory Integration Training and Other Sound Therapies for Autism Spectrum Disorders. Cochrane Data Base of Systematic Reviews, Issue 1, Art. No. CD003681 DOI: 1002/14651858 CD003681 pub2. From website: www2.cochrane.org/reviews/en/ab003681.html.

Attwood, T. (2007). The Complete Guide to Asperger's Syndrome. Philadelphia, PA: Jessica Kingsley, p. 378-279.

Controversial Hyperacusis Treatment

- Sensory Integration Training:
  - "The therapy uses a range of specialized play equipment to improve the processing, modulation, organization and integration of sensory information." (p. 278)
  - "Despite the popularity of this treatment, there is remarkably little evidence of the efficacy of sensory integration therapy." (p. 278)

Attwood, T. (2007). The Complete Guide to Asperger's Syndrome. Philadelphia, PA: Jessica Kingsley.

Helpful Websites about Hyperacusis

- **The Hyperacusis Network:**

  P.O. Box 8007

  Green Bay, WI 54308

  www.hyperacusis.net

- **www.earhelp.co.uk**
- **National Institute on Deafness and Other Communication Disorders: www.nicdinfo.nidcdnih.gov**
- **American Academy of Audiology: www.audiology.org**
- **American Speech-Language Hearing Association: www.asha.org**

Helpful Websites about Hyperacusis (Continued)

- American Academy of Otolaryngology-Head and Neck Surgery (AAO-HNS): www.entnet.org
- National Coalition for Auditory Processing Disorders: www.ncapd.org
- American Tinnitus Association: www.ata.org

Classroom Acoustics

- The American Speech-Language Hearing Association (www.asha.org) has a position paper on this that includes a comprehensive bibliography: Paper number 37, supplement 14.
- The Counsel of Educational Facility Planners International (CEFPI) has the following article on their website about how to build in good classroom acoustics:
- Erdreich, J. (July, 1999). Teaching in the Dark. Brief on Educational Facilities.

AD/HD & Sleep Disorders

AD/HD and Sleep Disorders

- **Hart reported 80% of those with AD/HD have some problems with sleep.**
- **Duane indicated there is a higher rate of Sleep Disorders in those with AD/HD than the general population.**

Hart, C.E. (December, 2001). Don't Loose Sleep Over It! AD/HD and Sleep Problems. Attention!, 8 (3), pp .24-27.

Duane, D. (1993). Alertness: Vigilance and Wakefulness in Developmental Disorders of Reading and Attention. Annals of the New York Academy of Sciences, 62, p. 333-334.

AD/HD and Sleep Disorders

"Importantly, it appears that much of these behavioral problems surrounding children's bedtime are more a function of the disorders often comorbid with ADHD (ODD, anxiety disorders) than to ADHD" (p. 124).

Barkley, R.A. (1998). Attention Deficit Hyperactivity Disorder, Second Edition. New York, NY: Guilford, p. 124.

AD/HD and Sleep Disorder

"Despite this well-documented risk for sleep problems in children with ADHD, studies using polysomnograms of overnight sleep have not documented any difficulties in the nature of sleeping itself associated with this disorder" (p. 124).

Barkley, R.A. (1998). Attention Deficit Hyperactivity Disorder, Second Edition. New York, NY: Guilford, p. 124.

Sleep Disorders and AD/HD

"As the researchers expected, participants performed more poorly on the math task when they were sleep deprived than when they were rested. And consistent with the notion that sleep deprivation impairs working-memory functioning in the prefrontal cortex while participants were performing the math task after sleep deprivation than after a normal night's sleep" (p. 56).

Caprenter, S. (October, 2001). How Does the Brain Catch Up? Monitor On Psychology, 32 (9), p. 46.

AD/HD and Sleep Disorders

"Many researchers have noted that sleep-deprived teenagers appear to be especially vulnerable to psychopathologies such as depression and ADHD, and to have difficulty controlling their emotions and impulses" (p. 44-45).

Carpenter, S. (October, 2001). Sleep Deprivation May be Undermining Teen Health. Monitor On Psychology, 32 (9), pp. 42-45.

AD/HD, Sleep & Emotional Problems

"We observed an increased sleep-dependent emotional memory bias in healthy children compared to children with ADHD and healthy adults. Frontal oscillatory EEG activity (slow oscillations, theta) during sleep correlated negatively with emotional memory performance in children with ADHD. When combining data of healthy children and adults, correlation coefficients were positive and differed from those in children with ADHD…"

AD/HD, Sleep & Emotional Problems

"… Since children displayed a higher frontal EEG activity than adults these data indicate a decline in sleep-related consolidation of emotional memory in healthy development. In addition, it is suggested that deficits in sleep-related selection between emotional and non-emotional memories in ADHD exacerbate emotional problems during daytime as they are often reported in ADHD."

Reference

Prehn-Kristensen, A., Munz, M., Molzow, I., Wilhelm, I., Wiesner, C.D., et al. (2013) Sleep Promotes Consolidation of Emotional Memory in Healthy Children but Not in Children with Attention-Deficit Hyperactivity Disorder. PLoS ONE, 8(5): e65098. doi:10.1371/journal.pone.0065098

Sleep Hygiene & AD/HD

- About 30% of typically developing children have sleep disorders
- 50 to 80% of those with AD/HD will have sleep disorders
- A recent study found no difference between the sleep hygiene of typically developing children and those with AD/HD

Bessey, M., Coulombe, J.A., and CarKum, P. (May, 2013). Sleep Hygiene in Children with ADHD: Findings and Recommendations. ADHD Report, 21(3), 1-6.

Sleeplessness Can be Disabling

Simple sleepiness doesn't kill you unless:

You are behind the wheel of a car

New Jersey Law: Driving after being awake >20 hours is "reckless driving" felony. Equivalent to blood alcohol level of .09

Eichling, P. (November 14, 2012). Sleep and Attention Deficit Disorder. Paper Presented at the Monthly Meeting of The CHADD of Tucson Adult Support Group. Slide 18.

Sleep & Obesity

"Our population-based data suggest that short sleep duration is associated with elevated prevalence of obesity and adds to the growing body of evidence supporting this relationship" (P. 357).

Singh, M. et al. (2005). The Association Between Obesity and Short Sleep Duration: A Population-Based Study. Journal of Clinical Sleep Medicine, 1(4), 357-363.

Fibromyalgia, Chronic Fatigue, and AD/HD

"…it is becoming increasingly clear that these disorders are related and that effective treatment of either requires aggressive treatment of both. We believe that a cornerstone for the prevention and treatment of FMS/CFS is the recognition of underlying AD/HD…" (p. 335).

Lithman, J., and Rodin, G. (2002). Fibromyalgia/Chronic Fatigue in Women with AD/HD. In P. O. Quinn, and K.G. Nadeau (Eds.), Gender Issues and AD/HD: Research, Diagnosis and Treatment. Silver Spring, MD: Advantage, pp. 302-352.

AD/HD, Sleep & Emotional Problems

"We observed an increased sleep-dependent emotional memory bias in healthy children compared to children with ADHD and healthy adults. Frontal oscillatory EEG activity (slow oscillations, theta) during sleep correlated negatively with emotional memory performance in children with ADHD. When combining data of healthy children and adults, correlation coefficients were positive and differed from those in children with ADHD…"

AD/HD, Sleep & Emotional Problems

"… Since children displayed a higher frontal EEG activity than adults these data indicate a decline in sleep-related consolidation of emotional memory in healthy development. In addition, it is suggested that deficits in sleep-related selection between emotional and non-emotional memories in ADHD exacerbate emotional problems during daytime as they are often reported in ADHD."

Reference

Prehn-Kristensen, A., Munz, M., Molzow, I., Wilhelm, I., Wiesner, C.D., et al. (2013) Sleep Promotes Consolidation of Emotional Memory in Healthy Children but Not in Children with Attention-Deficit Hyperactivity Disorder. PLoS ONE, 8(5): e65098. doi:10.1371/journal.pone.0065098

Sleep Hygiene & AD/HD

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- A recent study found no difference between the sleep hygiene of typically developing children and those with AD/HD

Bessey, M., Coulombe, J.A., and CarKum, P. (May, 2013). Sleep Hygiene in Children with ADHD: Findings and Recommendations. ADHD Report, 21(3), 1-6.

Consequences of Poor Sleep

Increased Pain

- **Fibromyalgia**
- **Worse arthritis**
- **All pain conditions are worse**

Eichling, P. (November 14, 2012). Sleep and Attention Deficit Disorder. Paper Presented at the Monthly Meeting of The CHADD of Tucson Adult Support Group. S

Sleep Disorders and AD/HD

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

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

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

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.

AD/HD & Sleep

"These problems could be reduced to three general factors: (1) dyssomnias (bedtime resistance, sleep onset problems, or difficulty arising), (2) sleep-related involuntary movements (teeth grinding, sleeptalking, restless sleep, etc.), and (3) parasomnias (sleepwalking, night wakings, sleep terrors). Dyssomnias were primarily related to comorbid ODD or treatment with stimulant medication, while parasomnias were not significantly different from the control group. However, involuntary movements were significantly elevated in children with the Combined Type of ADHD."

Barkley, R.A. (January 25, 2013). ADHD: Nature, Course, Outcomes, and Comorbidity. CotinuingEdCourses.Net. From website: http://www.continuingedcourses.net/active/courses/course003.php.

Sleep Apnea and AD/HD

"Youth with current SDB (sleep disorded breathing, sic.) exhibited hyperactivity, attention problems, aggressivity, lower social competency, poorer communication, and/or diminished adaptive skills" (p. 517).

Perfect MM; Archbold K; Goodwin JL; Levine-Donnerstein D; Quan SF. (April 1, 2013).Risk of behavioral and adaptive functioning difficulties in youth with previous and current sleep disordered breathing. Sleep, 36(4):517-525. from website: http://www.journalsleep.org/ViewAbstract.aspx?pid=28882.

AD/HD & Social Skills Training

Social Skills Training and AD/HD

"It is widely recognized that peer problems are relatively intractable, especially among those with ADHD. Social skills training programs designed to reduce inappropriate behaviors and increase prosocial behaviors have rarely impressed classmates. Being least liked by members of a peer group is highly resistant to change" (p. 3).

Hund, A.M., and Landau, S. (June, 2012), You Never Get a Second Chance to Make a First Impression: Social Competence of Boys with ADHD. ADHD Report, 20(3), 1-4, 16.

First Impressions and ADHD

"The results of this study suggest that boys with ADHD may fail to create a desirable first impression. Initial impressions are formed quickly" (p.4).

Hund, A.M., and Landau, S. (June, 2012), You Never Get a Second Chance to Make a First Impression: Social Competence of Boys with ADHD. ADHD Report, 20(3), 1-4, 16.

ADHD Girls and Boys in Social Interaction

"Although boys and girls with ADHD experienced difficulties in all areas, girls with ADHD, especially the inattentive subtype, were more negatively affected in academics and peer relationships. Inattentive girls were less popular and more likely to be bullied than girls without ADHD, whereas inattentive boys were not. The social isolation experienced by many girls with ADHD deserves greater attention". (p. 532)

Elkins, I.J., Malone, S., Keves, M., Lacono, W.G., and McGue, M., (2011). The Impact of Attention-Deficit/Hyperactivity Disorder on Preadolescent Ajustment May Be Greater for Girls Than Boys. Journal of Clinical Child and Adolescent Psychology, 40(4), 532-545.

AD/HD & Substance Abuse

Research Behind Using Stimulant with AD/HD

- **First discovered useful in 1937**
- **Since 1960 over 200 controlled trials of stimulant medications have been conducted.**

Barkley, R.A. (2005). Attention-Deficit Hyperactivity Disorder: Handbook for Diagnosis and Treatment, Third Edition. New York, NY: Guilford, 608.

Substance Abuse and ADHD

Brown wrote that there is a 15.1% risk of having a substance abuse disorder over ones lifetime if they have AD/HD. The lifetime risk for those without AD/HD is 3 times less.

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

Substance Abuse and AD/HD

Wilens, et. al. wrote, "Substance use disorders occur at a higher rate in individuals with ADHD than in psychiatrically healthy adolescents; conversely ADHD is more prevalent in individuals with substance use disorders" (p. 320).

Wilens, et. al. (2000). Attention-Deficit/Hyperactivity Disorder With Substance Use Disorders. In T.E. Brown (Ed.)., Attention-Deficit Disorders and Comorbidity in Children, Adolescents, and Adults. Washington, DC: American Psychiatric Press, pp. 319-340.

Wilens, et al. indicated:

- **AD/HD adults with substance abuse have more severe and earlier onset of problems.**
- **AD/HD puts one at risk for alcohol/drug abuse and dependence.**
- **AD/HD adults have twice the risk of having a substance use disorder than the non-AD/HD.**
- **Comorbid CD/ASPD and/or Bipolar Disorder makes the Substance Abuse Disorder much greater.**

Wilens, et al. (2000). Attention-Deficit/Hyperactivity Disorder With Substance Use Disorders. In T.E. Brown (Ed.)., Attention-Deficit Disorders and Comorbidity in Children, Adolescents, and Adults. Washington, DC: American Psychiatric Press, pp. 319-340.

Substance Abuse and AD/HD

- **Barkley- 10% to 20% of Milwaukee follow-up had SUD.**
- **Overlap with CD.**
- **When he sees AD/HD clients in clinic 25% to 35% are actively abusing.**
- **AD/HD adults tend to be heavy smokers.**

Barkley, R.A. (1996). ADHD in Children, Adolescents, and Adults: Diagnosis, Assessment, and Treatment. Cape Cod Symposia, August, Pittsfield, MA.

Barkley said the Drugs of Choice of AD/HD Adults to Abuse are in Order of Preference:

- **Alcohol**
- **Marijuana**
- **Cocaine**

Barkley, R.A. (1996). ADHD in Children, Adolescents, and Adults: Diagnosis, Assessment, and Treatment. New England Educational Institute, Cape Cod Symposia, August, Pittsfield, MA.

Smoking and AD/HD

Smoking may be self-medicating and appears to be significantly related to AD/HD.

Zametkin, A. (August, 2002) ADHD: Smoking and Stimulants. ADHD Report, 10 (4), pp. 4-8.

Stimulants and Substance Abuse

"There are no reported individual cases of addiction or serious drug dependence to date with these medications. Several studies…have sought to determine whether children treated with CNS stimulants are more likely to abuse illicit substances as teenagers…The results suggest that there is no increased risk for drug abuse associated with treatment…" (p. 525).

DuPaul, G., Barkley, R.A., and Connor, D.F. (1998). Stimulants. In R.A. Barkley (Ed.), Attention Deficit Hyperactivity Disorder, Second Edition. New York, NY: Guilford, pp. 510-551.

Stimulants and Substance Abuse

Harvard Study Risk of Substance Abuse

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

Prince, J. (November 1, 2000). Substance Abuse Disorder Gifted. Co-Existing Conditions Workshop, 12th Annual International Conference on Attention-Deficit/Hyperactivity Disorder, CHADD, Session #W5,Chicago, IL.

Stimulants and Substance Abuse

- **Cylert (Pemoline) has a low abuse potential, but may cause liver toxicity. Must check liver enzymes every two weeks.**
- **It now has a PDR Black Box Warning & is been taken off the market.**

Prince, J., and Wilens, T. (2002). Medications Used in the Treatment of AD/HD in Women. In P.O. Quinn, and K.G. Nadeau (Eds.), Gender Issues and AD/HD. Silver Spring, MD: Advantage, pp. 144-182.

Hallowell, E.M., and Ratey, J.J. (2005). Delivered From Distraction. New York, NY: Ballantine, pp. 251.

Stimulant Medications and Substance Abuse

"Despite a lack of evidence of stimulant treatment leading to stimulant use disorders or other substance use disorders…, an increase of oral and intranasal abuse of methylphenidate, generally by youths without ADHD, has been reported in adolescents…"(p. 332).

Wilens, T.E., Spencer, T.J., and Biederman, J. (2000).Attention-Deficit/Hyperactivity Disorder With Substance Use Disorders. In T.E. Brown (Ed.). Attention-Deficit Disorders and Comorbidities in Children, Adolescents and Adults. Washington, DC: American Psychiatric Press, pp.319-339.

Stimulant Medications and Substance Abuse

- **Family Education to Prevent Diversion, etc.**
- **12 Step-Like Programs, etc.**
- **Frequent Medication Monitoring**
- **Use of Random Urine Toxicology Screens**
- **Use Different Medications**

Wilens, T.E., Spencer, T.J., and Biederman, J. (2000).Attention-Deficit/Hyperactivity Disorder With Substance Use Disorders. In T.E. Brown (Ed.). Attention-Deficit Disorders and Comorbidities in Children, Adolescents and Adults. Washington, DC: American Psychiatric Press, pp.319-339.

Stimulant Medications and Substance Abuse

Possible Medication Options:

- **Long Acting Stimulants**
- **Antidepressants**
- **Cylert – Note: Cylert is off the market**

Wilens, T.E., Spencer, T.J., and Biederman, J. (2000).Attention-Deficit/Hyperactivity Disorder With Substance Use Disorders. In T.E. Brown (Ed.). Attention-Deficit Disorders and Comorbidities in Children, Adolescents and Adults. Washington, DC: American Psychiatric Press, pp.319-339.

Stimulant Medications and Substance Abuse

- **Stimulants may reduce AD/HD and Substance Abuse Symptoms.**
- **Those with Active Substance Dependence need 1 to 2 months of stable sobriety before using stimulants-AD/HD meds.**

Murphy, K.R. (1998). Psychological Counseling of Adults with ADHD. In R.A. Barkley (Ed.), Attention Deficit Hyperactivity Disorder, Second Edition. New York, NY: Guilford, pp. 582-591.

Stimulant Medications and Substance Abuse

"If the symptoms can be controlled without a potentially addictive substance, then at least a trial without stimulants should be tried" (p. 22).

Troncale, J.A. (2003). ADHD and Addiction Treatment: Assessing a Difficult Medication Decision. Addiction Professional, 1 (1), pp. 21-23.

Stimulant Medications and Substance Abuse

"There is no doubt that some patients with ADHD plus addiction are able to use stimulants safely since their ADHD symptoms are improved with stimulants" (p. 23)

Troncale, J.A. (2003). ADHD and Addiction Treatment: Assessing a Difficult Medication Decision. Addiction Professional, 1 (1), pp. 21-23.

Stimulant Medications and Substance Abuse

"Taken together, the existing literature overwhelmingly does not indicate a strong likelihood that treatment of ADHD children with stimulants will predispose them toward a greater risk of teen or young adult drug use, dependence, or abuse" (p. 5).—The Lambert study does not control for CD.

Barkley, R. A. (February, 2003). Does Stimulant Medication Therapy for ADHD in Children Predispose to Later Drug Abuse? ADHD Report, 11 (1), pp. 2-7.

Stimulant Medications and Substance Abuse

- **A Good Review Article on This Subject:**

  Wilens, T.E., Faraone, S.V., Biederman, J., and Gunawardene, S. (2003). Does Stimulant Therapy of Attention-Deficit/ Hyperactivity Disorder Beget Later Substance Abuse? A Meta-Analytic Review of the Literature. Pediatrics, 111, pp. 179-185.

Stimulant Medications and Substance Abuse

US Department of Justice, Drug Enforcement Administration, Office of Diversion Control (December 10-12, 1996). Conference Report: Stimulant Use in the Treatment of ADHD.

Non-Medical Prescription Stimulant Use, Alcohol & ADHD

"Simultaneous use of NMPS and alcohol is high among NMPS users in our sample of undergraduate students. Simultaneous users are at increased risk of experiencing negative consequences. Thus, prevention and intervention efforts should include a focus on simultaneous NMPS and alcohol use."

Reference

Egan, K. et al. (December 27, 2012). Simultaneous Use Of Non-Medical Prescription Stimulants and Alcohol Among Undergraduate Students. Drug and Alcohol Dependence, Published On-Line. From website: www.ncbi.nlm.nih.gov/pubmed/23274057.

Cannabis, Alcohol & Stimulants

"Increases in skipping class were associated with both alcohol and cannabis use disorder, which were associated with declining GPA. The hypothesized relationships between these trajectories and NPS for studying were confirmed. These longitudinal findings suggest that escalation of substance use problems during college is related to increases in skipping class and to declining academic performance. NPS for studying is associated with academic difficulties. Although additional research is needed to investigate causal pathways, these results suggest that nonmedical users of prescription stimulants could benefit from a comprehensive drug and alcohol assessment to possibly mitigate future academic declines" (p. 1643)

Reference

Arria, A.M. et al. (March, 2013). Dispelling the myth of "smart drugs": cannabis and alcohol use problems predict nonmedical use of prescription stimulants for studying. Addictive Behavior, 38(3), 1643-1650. From website: http://www.ncbi.nlm.nih.gov/pubmed/23254212.

Life-Changing Interventions for the New AD/HD: Beyond the DSM-5

Extra Information Slides H

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Cross Country Education
Brentwood, Tennessee

Substance Abuse and AD/HD

"We found that both the ADHD groups in our studies showed a greater risk for alcohol use disorders, while the clinic-referred adults (but not the hyperactive children grown up) also showed a greater risk for cannabis use disorders compared to Community controls. Our results suggest that alcohol use disorder and risk for any drug use disorder may be specifically linked to ADHD , although…"

Substance Abuse and AD/HD

"…The level and type of drug use disorders probably have more to do with comorbid CD (Conduct Disorder, sic.) and personality disorder as well as access to specific drugs than to ADHD per se" (p. 241-242)

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

Substance Abuse and AD/HD

"Drug detoxification and rehabilitation programs will also be required for that subset of comorbid ADHD cases having drug use disorders, many of whom are also likely to have antisocial personality disorder or a history of CD (Conduct Disorder, sic.). It is our opinion that early and aggressive treatment of the ADHD seen in these comorbid conditions at entry into detox or rehabilitation programs…"

Substance Abuse and AD/HD

"…offers the best chance of assisting these individuals with their rehabilitation efforts. Ignoring it is highly likely to result in recurrent treatment failures due to the significant self-regulation and EF (Executive Function, Sic.) deficits we identified with this disorder…" (p. 244)

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

Diversion of Stimulants

"Concerns about the nonmedical use of stimulant drugs used to treat ADHD are warranted, with nearly 10% of college students reporting this is a recent national survey; in some studies, the rates are far higher.

Although relatively infrequent use is most common, perhaps 20% of nonmedical users do so regularly and engage in intranasal routes of administration. Roughly 5% of nonmedical users may meet criteria for stimulant abuse or stimulant dependence and emergency department visits associated with nonmedical use are increasing.

In addition to nonmedical use, many individuals with prescriptions for ADHD medication occasionally misuse their medication by taking it in higher doses or with greater frequency than prescribed; some also use intranasally to 'get high' and/or in conjunction with other drugs or alcohol. As with nonmedical use, this is associated with higher rates of other substance use."

References

Rabiner, D. (March, 2013). Misuse & Abuse of ADHD Meds - An Updated Review. Attention Research Update.

Johnston, L.D., O'Malley, P.M., Bachman, J.G. and Schulenberg, J.E. (February 2012). Monitoring The Future: National Results On Adolescent Drug Use – Overview of key Findings, 2011. Washington, DC: The National Institute On Drug Abuse, National Institutes of Health.

AD/HD Coaching

AD/HD Coaching

Strengths

- Personalized help
- Focus on coping skills
- Flexible follow-up with coach

Ramsay, J.R. (2010). Nonmedication Treatments for Adult ADHD: Evaluating Impact on Daily Functioning and Well Being. Washington, DC: American Psychological Association.

Weaknesses

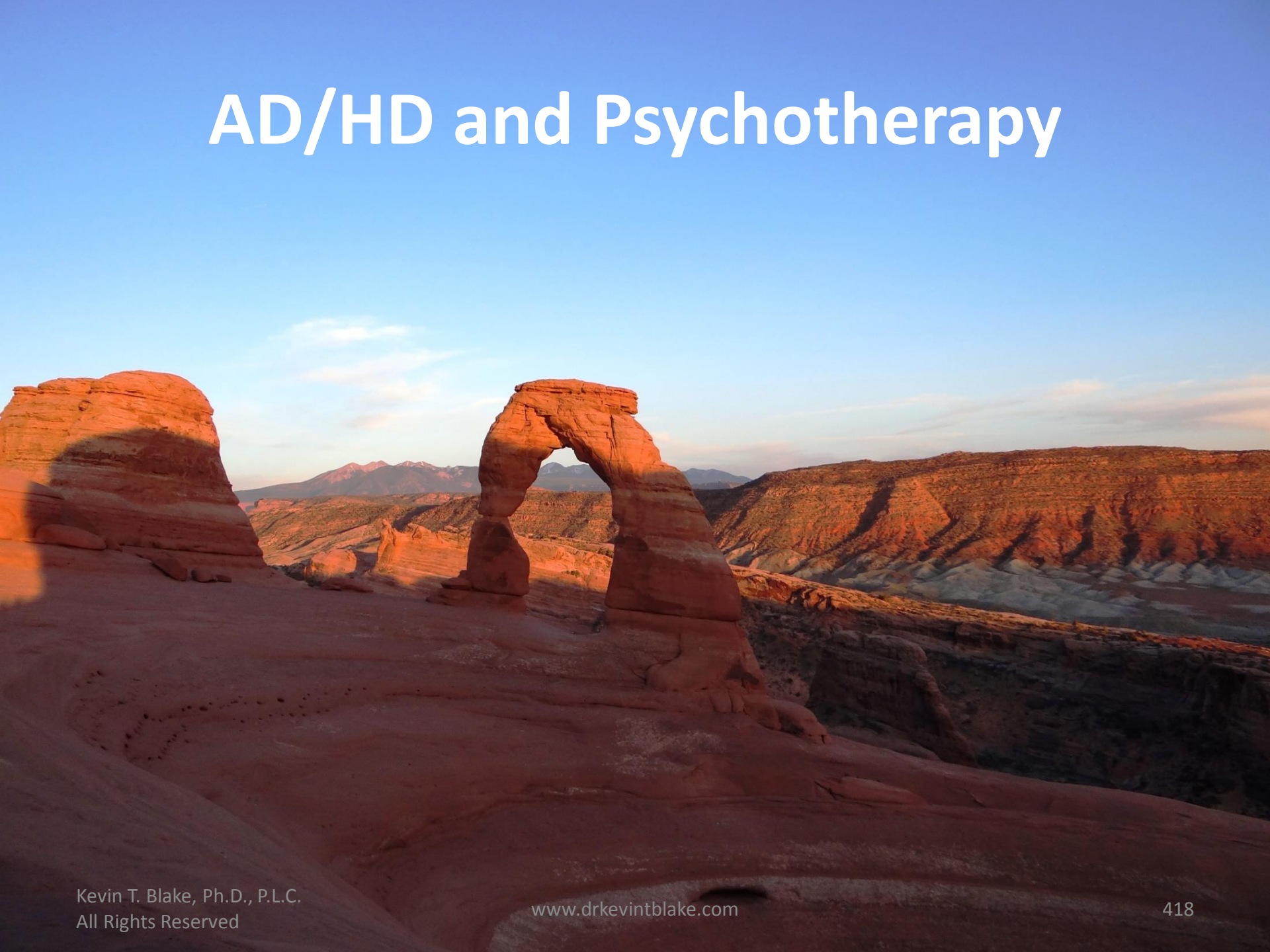
- Does not address comorbidities
- No insurance
- Coaches have vastly variable training
- Only one outcome study

AD/HD Coaching

- **The field has a long way to go to develop professional ethical guidelines**
- **More well designed outcome studies are needed**
- **It MAY be useful for those who do not require formalized psychotherapy**

Ramsay, J.R. (2010). Nonmedication Treatments for Adult ADHD: Evaluating Impact on Daily Functioning and Well Being. Washington, DC: American Psychological Association.

AD/HD and Psychotherapy



AD/HD and Psychotherapy

"The principals and treatments described are not new and in many ways are generic to psychosocial counseling with any psychiatric population" (p. 692).

Murphy, K.R. (2006). Psychological Counseling of Adults with ADHD. In R.A. Barkley (Ed.), Attention-Deficit Hyperactivity Disorder: A Handbook for Diagnosis and Treatment, Third Edition. New York, NY: Guilford, 692-703.

AD/HD and Psychotherapy

"Most practitioners would agree that pragmatic, behavioral skill-building and self-management strategies are more useful for the types of issues adults with ADHD encounter than more traditional, nondirective, insight-orientated, psychodynamic approaches are" (p. 693).

Murphy, K.R. (2006). Psychological Counseling of Adults with ADHD. In R.A. Barkley (Ed.), Attention-Deficit Hyperactivity Disorder: A Handbook for Diagnosis and Treatment, Third Edition. New York, NY: Guilford, 692-703.

AD/HD and Psychotherapy

"Multimodal treatment that combines medication, education, behavioral/self management skills, a variety of counseling approaches, coaching, and either academic or workplace accommodations is likely to result in the best outcomes" (p. 702).

Murphy, K.R. (2006). Psychological Counseling of Adults with ADHD. In R.A. Barkley (Ed.), Attention-Deficit Hyperactivity Disorder: A Handbook for Diagnosis and Treatment, Third Edition. New York, NY: Guilford, 692-703.

AD/HD and Psychotherapy

"Most adults with Attention-Deficit/Hyperactivity Disorder have suffered years of feeling demoralized, discouraged, and ineffective because of a long-standing history of frustrations and failures at school, work, family, and social domains. Many report a chronic and deep-seated sense of underachievement and intense frustration over squandered opportunities, …"

AD/HD and Psychotherapy

"…and are at a loss to explain why they cannot seem to translate their obvious assets into more positive outcomes" (p. 692).

Murphy, K.R. (2006). Psychological Counseling of Adults with ADHD. In R.A. Barkley (Ed.), Attention-Deficit Hyperactivity Disorder: A Handbook for Diagnosis and Treatment, Third Edition. New York, NY: Guilford, 692-703.

AD/HD and Psychotherapy

"An important ingredient of this counseling is to help patients view their disorder from a perspective that empowers them to believe their lives can be different, and that encourages their active and enthusiastic involvement in treatment" (p. 692).

Murphy, K.R. (2006). Psychological Counseling of Adults with ADHD. In R.A. Barkley (Ed.), Attention-Deficit Hyperactivity Disorder: A Handbook for Diagnosis and Treatment, Third Edition. New York, NY: Guilford, 692-703.

Psychotherapy and AD/HD

Wilens, Spencer, and Prince wrote, "…non-pharmacological treatment of ADD in adults remains more speculative…Adults with the disorder who have an addiction, or those who report distress related to their ADD…should be directed to appropriate psychotherapeutic intervention with clinicians who are knowledgeable about the disorder" (p. 33)

Wilens, T.E., Spencer, T.J., and Prince, J. (1997). Diagnosing ADD in Adults. Attention!, 3 (4), pp. 27-33.

Psychotherapy and AD/HD

"As psychotherapists working with persons with learning disabilities, we are presented with the results of the damage due to misunderstanding and mistreatment, and we have to help our clients heal from that damage. Helping our clients to understand what their learning disabilities are, how they have been affected by them, how their strengths and…

Psychotherapy and AD/HD

"…weaknesses have helped or hindered them in school, and how they help or hinder them in life beyond school—these tasks are at the heart of psychotherapy with persons with learning disabilities" (p. 187).

Einhorn, J. (2000). Psychotherapy of Two Invisible Sources of Distress: A Framework for Therapy. In Wren (Ed.), Hanging by a Thread: Understanding and Counseling Adults with Learning Disabilities and ADD. New York, NY: Norton, pp. 174-187.

Psychotherapy and AD/HD

"Cognitive-Behavioral based psychotherapeutic interventions, which are gaining in popularity in treating adults' ADD, appear particularly useful in those adults who have a history of addiction" (p. 33).

Wilens, T.E., Spencer, T.J., and Prince, J. (1997). Diagnosing ADD in Adults. Attention!, 3 (4), pp. 27-33.

Cognitive Behavioral Therapy and AD/HD

"CBT-oriented treatments (combined with medications) focus on addressing impairments in both individual and group formats emerged as the predominant psychosocial model for adults with ADHD, although there are diverse approaches within this framework. These findings could be in part, the result of inherent emphasis placed on session structure, collaborative problem solving, and cognitive and behavioral modification in the CBT model,…"

Cognitive Behavioral Therapy and AD/HD

"…and the obvious fact that it was the only model studied." CBT might also be helpful because it is an effective treatment for the common comorbid disorders seen in cases of adult ADHD" (p. 55).

Ramsay, J.R. (2010). Nonmedication Treatments for Adult ADHD: Evaluating Impact on Daily Functioning and Well Being. Washington, DC: American Psychological Association.

Books For Mental Health Professionals

Solanto, M.V. (2011). Cognitive Behavioral Therapy for Adult ADHD: Targeting Executive Dysfunction. New York, NY: Guilford.

Ramsay, J.R. and Rostain, A.L. (2008). Cognitive Behavioral Therapy: An Integrative Psychosocial and Medical Approach. New York, NY: Routledge.

CBT with AD/HD Children

Barkley wrote regarding using CBT with AD/HD children, "…Later, even the conceptual basis for the treatment came under attack as being inconsistent with Vygotsky's theory of the internatlization of language" (p. 28).

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

Psychotherapy and AD/HD

"In sum, self-monitoring and self-reinforcement strategies are the most promising of the self-management interventions, although the effects of these interventions for changing behavioral problems are not strong, as durable, or generalizable as once expected and are not superior to those of traditional behavioral programs" (p. 573).

Reference

Pfiffner, L.J., Barkley, R.A., and DuPaul, G.J. (2006). Treatment of ADHD in School Settings, In R.A. Barkley, (Ed.), Attention-Deficit Hyperactivity Disorder: Handbook for Diagnosis and Treatment, Third Edition. New York, NY: Guilford, 547-589.

Psychotherapy and AD/HD

"Predominately unstructured or free associative interventions do not appear to be suited for treating ADHD, and no current evidence supports their use with this clinical population, although these and other psychotherapies for adult ADHD have not yet been studied" (p. 55).

Ramsay, J.R. (2010). Nonmedication Treatments for Adult ADHD: Evaluating Impact on Daily Functioning and Well Being. Washington, DC: American Psychological Association.

Psychotherapy and AD/HD

"Although not discussed explicitly in clinical literature, helping patients identify and use personal strengths, aptitudes, and available resources goes hand in hand with addressing coping problems" (p. 58).

Ramsay, J.R. (2010). Nonmedication Treatments for Adult ADHD: Evaluating Impact on Daily Functioning and Well Being. Washington, DC: American Psychological Association.

Psychotherapy and AD/HD

Remember Alexithymia and AD/HD?

Lane and Schwartz did extensive research into matching the emotional awareness of patients to the type of psychotherapy and psychopharmocology in order to learn what worked for what type of patients.

Lane, D.D., and Schwartz, G.E. (1992). Levels of Emotional Awareness: Implications for Psychotherapeutic Integration. Journal of Psychotherapy Intergration. 2 (1), p. 1-18 [From Reprint].

Psychotherapy and AD/HD

5. **Prefrontal Cortex—Blends of Blends of Emotion—Existential crisis—Existential, Insight Therapy**
4. **Paralimbic—Blends of Emotion—Neurosis—Insight Therapy**
3. **Limbic—Discrete Emotion—Persistent conscious distress (e.g., anxiety)—Cognitive therapy**

Psychotherapy and AD/HD

2. **Diencephalon—Action Tendencies—Impulsive or compulsive behavior—Behavior modification, movement therapy, physical restraint**
1. **Brainstem—Visceral Action—Somatic distress—Pharmacological, biofeedback, relaxation**

Lane, D.D., and Schwartz, G.E. (1992). Levels of Emotional Awareness: Implications for Psychotherapeutic Integration. Journal of Psychotherapy Intergration. 2 (1), p. 1-18 [From Reprint].

Psychotherapy and AD/HD

"Treatment for adults with ADHD begins at the time they are diagnosed" (p. 584).

Murphy, K.R. (1998). Psychological Counseling of Adults with ADHD. In R.A. Barkley (Ed.), Attention Deficit Hyperactivity Disorder, Second Edition. New York, NY: Guilford, pp. 582-591.

Psychotherapy and AD/HD

- Murphy said that AD/HD adults are more apt to follow through with treatment if:
- They are taught to understand the disorder
- They are given a good explanation of what causes it
- They understand it is treatable
- They know there is hope for them

Murphy, K.R. (1998). Psychological Counseling of Adults with ADHD. In R.A. Barkley (Ed.), Attention Deficit Hyperactivity Disorder, Second Edition. New York, NY: Guilford, pp. 582-591.

Psychotherapy and AD/HD

A good knowledge base can, "…help adults make some sense of what has been troubling them, help them set realistic and attainable goals, and ease their frustration" (p. 585).

Murphy, K.R. (1998). Psychological Counseling of Adults with ADHD. In R.A. Barkley (Ed.), Attention Deficit Hyperactivity Disorder, Second Edition. New York, NY: Guilford, pp. 582-591.

Psychotherapy and AD/HD

- Things to inform an AD/HD adult during the evaluation interpretation session(s):
- Explain the diagnostic process and criteria
- AD/HD is a neurobiological condition, not a character defect
- Be empathic
- Give them a packet of AD/HD information

Psychotherapy and AD/HD

Things to explain (continued):

- **Explain how AD/HD is related to school, work, social and family problems and reframe their past in light of AD/HD**
- **Provide information about treatment strategies**
- **Educate them about medication**

Psychotherapy and AD/HD

Things to explain (continued)

- **Address fears and myths**
- **Provide memory aids (e.g. video/audio tape, notes, etc).**
- **There is no cure just symptom reduction**

Murphy, K.R. (1998). Psychological Counseling of Adults with ADHD. In R.A. Barkley (Ed.), Attention Deficit Hyperactivity Disorder, Second Edition. New York, NY: Guilford, pp. 582-591.

Psychotherapy and AD/HD

Things to keep in mind:

- **Short-term psychosocial interventions do not generalize outside therapy environment**
- **Psychosocial interventions can help with AD/HD side effects**

Murphy, K.R. (1998). Psychological Counseling of Adults with ADHD. In R.A. Barkley (Ed.), Attention Deficit Hyperactivity Disorder, Second Edition. New York, NY: Guilford, pp. 582-591.

Psychotherapy and AD/HD

Steps in Individual Counseling:

1. **Educate about AD/HD and set goals**
2. **Monitor progress, medication concerns, and treatment approaches**
3. **Teach self-management strategies**
4. **Teach how AD/HD can influence life decisions (+/-)**
5. **Self-knowledge – goodness of fit life decisions**

Psychotherapy and AD/HD

6. **Be an active pragmatic therapist**
7. **Provide specific training in time management, organizational skills, communication skills, anger control, etc.**

Murphy, K.R. (1998). Psychological Counseling of Adults with ADHD. In R.A. Barkley (Ed.), Attention Deficit Hyperactivity Disorder, Second Edition. New York, NY: Guilford, pp. 582- 591.

Psychotherapy and AD/HD

"STRESS THE POSITIVE!"

Murphy, K.R. (1998). Psychological Counseling of Adults with ADHD. In R.A. Barkley (Ed.), Attention Deficit Hyperactivity Disorder, Second Edition. New York, NY: Guilford, pp. 582-591.

Psychotherapy and AD/HD

Group Counseling:

- No research
- Need well informed
- facilitator
- CHADD, ADDA, LDA, IDA, etc.

Murphy, K.R. (1998). Psychological Counseling of Adults with ADHD. In R.A. Barkley (Ed.), Attention Deficit Hyperactivity Disorder, Second Edition. New York, NY: Guilford, pp. 582-591)

Psychotherapy and AD/HD

"The primary focus of this chapter is to introduce a structured treatment approach referred to as *Neurocognitive Psychotherapy*, a term employed to highlight the overriding importance of treating AD/HD as a neurobiological disorder" (p. 221).

Nadeau, K. (2002). Neurocognitive Psychotherapy for Women with AD/HD. In P.O. Quinn, and K.G. Nadeau (Eds.), Gender Issues and AD/HD: Research, Diagnosis and Treatment. Silver Spring, MD: Advantage, pp. 220-254.

Psychotherapy and AD/HD

"The clinician must develop a set of therapeutic tools to help their client address the cognitive challenges of AD/HD in concrete and practical ways…Many psychotherapists, however, especially those trained in a more psychodynamic approach, may find these techniques alien, or may feel these issues should be addressed outside the context of psychotherapy" (p. 221).

Nadeau, K. (2002). Neurocognitive Psychotherapy for Women with AD/HD. In P.O. Quinn, and K.G. Nadeau (Eds.), Gender Issues and AD/HD: Research, Diagnosis and Treatment. Silver Spring, MD: Advantage, pp. 220-254.

Psychotherapy and AD/HD

"Clinicians trained in more 'traditional' psychotherapy techniques may have a tendency to focus on the psychological 'baggage' of ADHD—depression, anxiety, and low self-esteem—never relating them to the AD/HD issues that generate such feelings. Instead, such feelings may be interpreted psychodynamically, while the real, practical challenges posed by AD/HD go entirely unexplained" (p. 222).

Nadeau, K. (2002). Neurocognitive Psychotherapy for Women with AD/HD. In P.O. Quinn, and K.G. Nadeau (Eds.), Gender Issues and AD/HD: Research, Diagnosis and Treatment. Silver Spring, MD: Advantage, pp. 220-254.

Psychotherapy and AD/HD

"MANY WOMEN WHO SEEK treatment for AD/HD are already engaged in more traditional psychotherapy. They have known that 'something was wrong,' but neither they not their psychotherapist knew that the 'something' was related to AD/HD. Often such traditional psychotherapy has been helpful in dealing with destructive early childhood experiences, trauma, or depression…"

Psychotherapy and AD/HD

"…However, even when such issues have been dealt with effectively, these women are left with a feeling of being out of control in their daily lives, overwhelmed by issues that others deal with more evenly" (p. 223).

Nadeau, K. (2002). Neurocognitive Psychotherapy for Women with AD/HD. In P.O. Quinn, and K.G. Nadeau (Eds.), Gender Issues and AD/HD: Research, Diagnosis and Treatment. Silver Spring, MD: Advantage, pp. 220-254.

Psychotherapy and AD/HD

Therapeutic issues that must be considered:

- **Lateness – therapeutic resistance, time blindness, or both?**
- **Poor Social Awareness – narcissistic self-absorption or AD/HD inattentiveness?**

Psychotherapy and AD/HD

Therapeutic issues (continued):

- **Intense Emotional Overreactions – Borderline Personality Disorder, limbic system, or both**
- **Forgetfulness – unconscious avoidance, or AD/HD? (Nadeau, 2002, p. 224)**

Nadeau, K. (2002). Neurocognitive Psychotherapy for Women with AD/HD. In P.O. Quinn, and K.G. Nadeau (Eds.), Gender Issues and AD/HD: Research, Diagnosis and Treatment. Silver Spring, MD: Advantage, pp. 220-254.

Psychotherapy and AD/HD

"When neurologically –driven patterns are interpreted and treated as intrapsychic issues, not only is treatment unsuccessful, but it is often damaging to the client" (p. 224).

Nadeau, K. (2002). Neurocognitive Psychotherapy for Women with AD/HD. In P.O. Quinn, and K.G. Nadeau (Eds.), Gender Issues and AD/HD: Research, Diagnosis and Treatment. Silver Spring, MD: Advantage, pp. 220-254.

Psychotherapy and AD/HD

"Recently, cognitive-based psychotherapies…have been found to be effective, leading to improvements in AD/HD, anxiety, depression, and overall global functioning much greater than could be achieved through medication alone" (p. 225).

Nadeau, K. (2002). Neurocognitive Psychotherapy for Women with AD/HD. In P.O. Quinn, and K.G. Nadeau (Eds.), Gender Issues and AD/HD: Research, Diagnosis and Treatment. Silver Spring, MD: Advantage, pp. 220-254.

Psychotherapy and AD/HD

"…consensus seems to be growing…that the self-defeating habits developed by adults with AD/HD can be improved, over time, with a combination of medications, support, environmental manipulations, education, anticipatory guidance, and coaching" (p. 225).

Nadeau, K. (2002). Neurocognitive Psychotherapy for Women with AD/HD. In P.O. Quinn, and K.G. Nadeau (Eds.), Gender Issues and AD/HD: Research, Diagnosis and Treatment. Silver Spring, MD: Advantage, pp. 220-254.

Psychotherapy and AD/HD

Therapeutic Goals:

- **Improving Cognitive Functions**
- **Developing Compensatory Strategies**
- **Restructuring the environment**

Nadeau, K. (2002). Neurocognitive Psychotherapy for Women with AD/HD. In P.O. Quinn, and K.G. Nadeau (Eds.), Gender Issues and AD/HD: Research, Diagnosis and Treatment. Silver Spring, MD: Advantage, pp. 220-254.

Psychotherapy and AD/HD

AD/HD Friendly Therapy Session

- **Provide lots of structure**
- **No rambling**
- **Homework assignments**
- **Memory aids for continuity (e.g., tape, notes)**
- **Treat comorbitities**

Nadeau, K. (2002). Neurocognitive Psychotherapy for Women with AD/HD. In P.O. Quinn, and K.G. Nadeau (Eds.), Gender Issues and AD/HD: Research, Diagnosis and Treatment. Silver Spring, MD: Advantage, pp. 220-254.)

Psychotherapy and AD/HD

Therapist should have ongoing contact with AD/HD coach.

Nadeau, K. (2002). Neurocognitive Psychotherapy for Women with AD/HD. In P.O. Quinn, and K.G. Nadeau (Eds.), Gender Issues and AD/HD: Research, Diagnosis and Treatment. Silver Spring, MD: Advantage, pp. 220-254.

Psychotherapy and AD/HD

Therapy can be especially useful for AD/HD comorbidities.

Triolo, S.J. (1999). Psychotherapeutic Treatment of AD/HD Adults. In S. J. Triolo (Ed.). Attention Deficit Hyperactivity Disorder in Adults: A Practitioner's Handbook. Philadelphia, PA: Bruner/Mazel, pp. 145-194.

Psychotherapy and AD/HD

"The overall impression regarding treatment is that medication is effective in providing relief of ADHD symptoms and that it has an advantage in its ability to deliver acute remedy. However, long-term maintenance and sensitivity to changing environments throughout the patient's life require psychotherapeutic forms of treatment" (p. 146).

Triolo, S.J. (1999). Psychotherapeutic Treatment of AD/HD Adults. In S. J. Triolo (Ed.). Attention Deficit Hyperactivity Disorder in Adults: A Practitioner's Handbook. Philadelphia, PA: Bruner/Mazel, pp. 145-194.

Psychotherapy and AD/HD

Two Main Points:

1. **Not all people with AD/HD are alike**
2. **Therapy needs to treat the entire person; not just AD/HD.**

Triolo, S.J. (1999). Psychotherapeutic Treatment of AD/HD Adults. In S. J. Triolo (Ed.). Attention Deficit Hyperactivity Disorder in Adults: A Practitioner's Handbook. Philadelphia, PA: Bruner/Mazel, pp. 145-194.

Life-Changing Interventions for the New AD/HD: Beyond the DSM-5

Extra Information Slides I

Kevin T. Blake, Ph.D., P.L.C.
Tucson, Arizona
Cross Country Education
Brentwood, Tennessee

Psychotherapy and AD/HD

If the person identifies too much with being AD/HD they *MAY* also have a character disorder. They may also feel an inner emptiness. Do not terminate too early – Treat the entire person.

Triolo, S.J. (1999). Psychotherapeutic Treatment of AD/HD Adults. In S. J. Triolo (Ed.). Attention Deficit Hyperactivity Disorder in Adults: A Practitioner's Handbook. Philadelphia, PA: Bruner/Mazel, pp. 145-194.

Psychotherapy and AD/HD

Obsessive-Compulsive traits may be used by AD/HD adults to compensate for tendencies to lose concentration and focus. They may even have trouble attending to their O-C compensations.

Triolo, S.J. (1999). Psychotherapeutic Treatment of AD/HD Adults. In S. J. Triolo (Ed.). Attention Deficit Hyperactivity Disorder in Adults: A Practitioner's Handbook. Philadelphia, PA: Bruner/Mazel, pp. 145-194.

Psychotherapy and AD/HD

Longitudinal studies of AD/HD adults demonstrate they tend to have significant problems with depression, anxiety, communications with others and family conflicts.

Triolo, S.J. (1999). Psychotherapeutic Treatment of AD/HD Adults. In S. J. Triolo (Ed.). Attention Deficit Hyperactivity Disorder in Adults: A Practitioner's Handbook. Philadelphia, PA: Bruner/Mazel, pp. 145-194.

Psychotherapy and AD/HD

The Purposes of Psychosocial Treatments

- **Educate about nature, causes and course of AD/HD and comorbidities**
- **Educate about the risks and benefits of treatments**
- **Monitor patients and adjust treatments**

Psychotherapy and AD/HD

Purposes (Continued):

- **Teach life and advocacy skills**
- **Provide therapy and support**

Brown, T.E. (2000). Psychosocial Interventions for Attention-Deficit Disorders and Comorbid Conditions. In T.E. Brown (Ed.), Attention-Deficit Disorders and Comorbidities in Children, Adolescents and Adults. Washington, DC: American Psychiatric Press, pp. 537-568.

Psychotherapy and AD/HD

The Cognitive Therapy Treatment Sequence

1. **Medication Stabilization**
2. **Psychoeducation**
3. **Modified Standard Cognitive Therapy**
4. **Cognitive Avoidance**

Psychotherapy and AD/HD

Cognitive Sequence (Continued)

5. Schema Work

6. Environmental Restructuring

McDermott, S.P. (2000). Cognitive Therapy for Adults with Attention-Deficit/Hyperactivity Disorder. In T.E. Brown (Ed.), Attention-Deficit Disorders and Comorbidities in Children, Adolescents and Adults. Washington, DC: American Psychiatric Press, pp. 598.

Psychotherapy and AD/HD

Keep ongoing contact with the prescribing physician:

- **To learn what side effects to look for**
- **To inform them when there are side effects**
- **To keep them apprised of the medication's efficacy**
- **To keep lines of communication open**

(Kevin's Addition)

Family Therapy and AD/HD

Family therapy can help with negative communication, expressing anger, problem solving, and behavior management training.

Triolo, S.J. (1999). Psychotherapeutic Treatment of AD/HD Adults. In S. J. Triolo (Ed.). Attention Deficit Hyperactivity Disorder in Adults: A Practitioner's Handbook. Philadelphia, PA: Bruner/Mazel, pp. 145-194.

Family Therapy and AD/HD

Marriage and Family Counseling

- Deal with non-AD/HD spouse's marital dissatisfaction
- Locke-Wallace Marital Inventory
- Help spouse understand disorder
- AD/HD person must be seen as trying to change
- Align with spouse to reduce conflict

Murphy, K.R. (1998). Psychological Counseling of Adults with ADHD. In R.A. Barkley (Ed.), Attention Deficit Hyperactivity Disorder, Second Edition. New York, NY: Guilford, pp. 582-591.

Family Therapy and AD/HD

Things to keep in mind in M & F Therapy:

- **Non-AD/HD spouse struggles to understand and appreciate partner's struggles**
- **Hard to understand that the AD/HD spouse's behavior is not under their control**
- **Those with AD/HD become flooded with emotion and may need 20 minute break to help regain composure and control: relaxation & exercise**

Family Therapy and AD/HD

More to keep in mind with M & F therapy:

- **Angry/resentful/neglected feelings of non-AD/HD spouse**
- **Keep information in small chunks for AD/HD person**
- **Slow therapy process down for memory deficits**
- **Mirrored feedback from AD/HD spouse for empathy**

Psychotherapy and AD/HD

More to keep in mind in M & F therapy:

- **Constantly check emotional level**
- **AD/HD is not the only problem in the marriage**
- **Also focus on non-AD/HD spouse's deficits**

Kelly, K, and Luquet, M. (1998). The Impact of Adult Attention-Deficit Disorder On Couples. In W. Luquet and M.T. Hannah (Eds.), Healing in the Relational Paradigm: The Imago Relationship Therapy Casebook. Bristol, PA: Bruner/Mazel, pp. 183-211.

Family Therapy and AD/HD

"A premature focus on family conflict will diffuse the clarity of the ADHD diagnosis" (p. 226).

Everett, A.A., and Volgy-Everett, S. (1999). Therapeutic Interventions for Adults with ADHD and their Families, Family Therapy for ADHD: Treating Children,Adolescents, and Adults. New York, NY Guilford, pp. 221-264.

Family Therapy and AD/HD

"Unlike the procedure in more general marital therapy, in therapy for ADHD a specific treatment plan for improving the ADHD symptoms must be established first, preceding the broader marital and family treatment plan. If the ADHD symptoms do not improve, the marital therapy will often get bogged down in unresolved layers of past and current conflicts" (p. 226).

Everett, A.A., and Volgy-Everett, S. (1999). Therapeutic Interventions for Adults with ADHD and their Families, Family Therapy for ADHD: Treating Children, Adolescents, and Adults. New York, NY Guilford, pp. 221-264.

Family Therapy and AD/HD

AD/HD spouse explains with the therapist's support, the diagnosis to non-AD/HD spouse and children 8 years or older. The goals are to provide hope for treatment and acceptance of the disorder. This can also be done with the family of origin of the AD/HD adult.

Everett, A.A., and Volgy-Everett, S. (1999). Therapeutic Interventions for Adults with ADHD and Their Families, Family Therapy for ADHD: Treating Children, Adolescents, and Adults. New York, NY Guilford, pp. 221-264.

Family Therapy and AD/HD

The therapist needs to advocate for the AD/HD adult with regard to explaining AD/HD symptoms and providing information about AD/HD.

Everett, A.A., and Volgy-Everett, S. (1999). Therapeutic Interventions for Adults with ADHD and their Families, Family Therapy for ADHD: Treating Children, Adolescents, and Adults. New York, NY Guilford, pp. 221-264.

Family Therapy and AD/HD

AREAS OF CONFLICT IN ADULT AD/HD HOME

1. Communication
2. Personal intimacy, attentiveness and sexuality
3. Leisure time for personal activities
4. Finances and money management

Family Therapy and AD/HD

5. **Parenting responsibilities**
6. **Household tasks and responsibilities**
7. **Work and career issues**
8. **Alcohol and substance abuse (p. 233-234).**

Everett, A.A., and Volgy-Everett, S. (1999). Therapeutic Interventions for Adults with ADHD and Their Families, Family Therapy for ADHD: Treating Children, Adolescents, and Adults. New York, NY Guilford, pp. 221-264.

Family Therapy and AD/HD

More traditional family therapy can begin after the AD/HD symptoms have stabilized. If this happens too early, without evidence of change, anger and frustration of non-AD/HD spouse will control sessions.

Everett, A.A., and Volgy-Everett, S. (1999). Therapeutic Interventions for Adults with ADHD and their Families, Family Therapy for ADHD: Treating Children, Adolescents, and Adults. New York, NY Guilford, pp. 221-264.

Family Therapy and AD/HD

GOALS OF FAMILY THERAPY

"1. Repair Personal Damage to partner and erosion of trust in the relationship

2. Develop a plan for accommodation by non-AD/HD spouse

AD/HD and Family Therapy

3. **Build trust, companionship, communication, and intimacy**
4. **Develop a co-parenting partnership" (p. 241-242)**

Everett, A.A., and Volgy-Everett, S. (1999). Therapeutic Interventions for Adults with ADHD and their Families, Family Therapy for ADHD: Treating Children, Adolescents, and Adults. New York, NY Guilford, pp. 221-264.)

Family Therapy and AD/HD

* AD/HD spouses are not aware of non-AD/HD spouses concerns and complaints
* The non-AD/HD feel ignored and not heard

Everett, A.A., and Volgy-Everett, S. (1999). Therapeutic Interventions for Adults with ADHD and their Families, Family Therapy for ADHD: Treating Children, Adolescents, and Adults. New York, NY Guilford, pp. 221-264.