Developmentally Disconnected: Evidence-Based Tools for Transforming Social Competence

WEBSITE SLIDES

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

International Classifications of Diseases-11th Edition (ICD-11)

(WEBSITE-1)

- **Due to be published in 2015**
- **Is coordinating diagnostic terms with DSM-5®.**
- **American Psychological Association (APA) is very involved with development of ICD-11® and the Functional Mental and Medical Health Companion to ICD-11®.**
- **Psychologists will be strongly encouraged to use the ICD-11® by APA.**

Clay, R. A. (July 2010). Defining disease worldwide.: The 11th revision of the International Classification of Diseases includes psychologists in key roles. Monitor On Psychology, 41 (7), 54.

Goodheart, C. (October 16, 2010). Psychology Practice: Preparing for Tomorrow. Paper Presented at the 2010 Annual Arizona Psychological Association Convention, Tucson, AZ.

Author (2012). The International Classification of Diseases 11th Revision is due by 2015 . Geneva, Switzerland: World Health Organization. From website: http://www.who.int/classifications/icd/revision/en/.

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).

Genetics and Dyslexia (WEBSITE-3)

- **Colorado Learning Disabilities Research Center:**
  - **Heritability linkage for dyslexia- Chromosomes 2, 3, 6, 15, 18**

Olsen, R.K. (November 11, 2005). Norman Geshwin Lecture-Genes, Environment and Dyslexia. Paper presented at the 53rd Annual International Dyslexia Association Conference, Denver, CO.

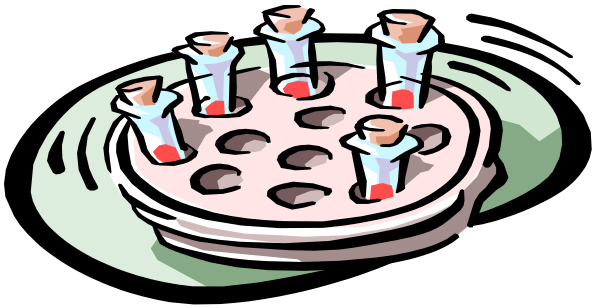
"Dr. Andrew Wakefield struck off medical register" (WEBSITE-4)

"Andrew Wakefield, the doctor who triggered the MMR vaccine scare has been struck off the medical register…Dr. Wakefield has been found guilty of serious professional misconduct over "unethical" research that sparked unfounded fears that the vaccine was linked to bowel disease and autism…The panel is profoundly concerned that Dr. Wakefield repeatedly breached fundamental principles of research medicine. Immunization rates fell, leading to a resurgence of potentially deadly measles cases in recent years. The Lancet, which had withdrawn contested parts of the paper in 2004, subsequently retracted in full."

Sanchez, R. and Rose, D. (May 25, 2010). Dr. Andrew Wakefield struck off medical register. Timesonline, www.timesonline.co.uk/to/news/uk/article7134893.ece.

Genes & ASD (WEBSITE-5)

- **Fragile X Syndrome (5 to 15%)**
- **NLGN3**
- **NLGN4X**
- **SHANK3**
- **NRXN1**
- **5p14.1**
- **16p11.2, Etc.**



Pinto, D., et al. (June 9, 2010). Functional impact of global rare copy number variations in autism spectrum disorders. Nature, www.nature.com/nature/journal/vaop/ncurrent/full/nature09146.html.

Possible Medication for Fragile X (WEBSITE-6)

Drug manufacturer Novartis stated it is developing a medication called AFQ056 which initial research demonstrated to have been very promising in treating Fragile X Syndrome. It may be that this medication help synapses reduce background "noise."

Harris, G. (April 29, 2010). Promise Seen in Drug for Retardation Syndrome. New York Times: www.nytimes.com/2010/04/30/health/research/30fragile.html.

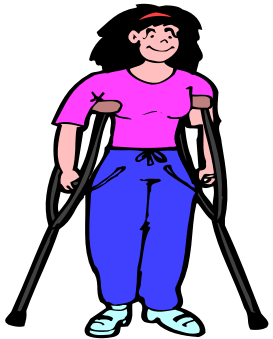
Author (May 13, 2010). Efficacy, Safety and Tolerability of AFQ056 in Fragile X Patients: www.clinicaltrials.gov/ct/show/NCT00718341.

Americans with Disabilities Act, Amendment Act of 2008

(WEBSITE: 7)

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 (WEBSITE: 8)

- **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 (WEBSITE:9)

- **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 (WEBSITE: 10)

- **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

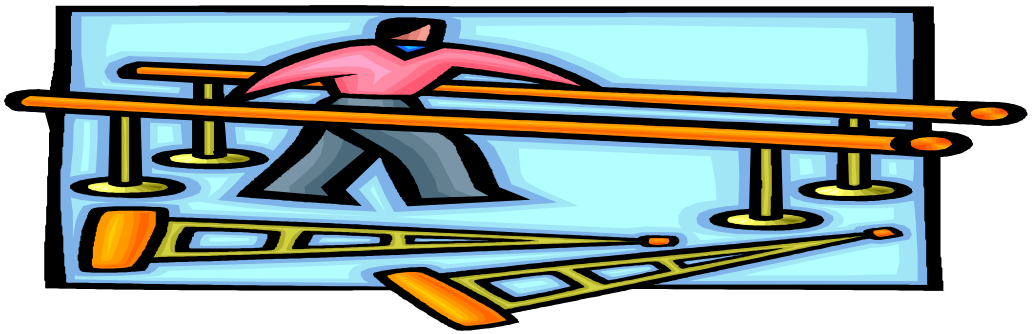
National Disability Rights Network (WEBSITE: 11)

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
(WEBSITE: 12)

- **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
(WEBSITE: 13)

- **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

(WEBSITE: 14)

- **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

Protecting Students with Disabilities (WEBSITE: 15)

- **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/**

Ostracism and the Brain (WEBSITE: 16)

- **All people, no matter what their psychological makeup feel the pain of rejection equally.**
- **Within minutes ostracized people experience significantly lower self-esteem, a lack of meaning in their life, a lack of control, sadness and anger.**
- **People can feel rejected even by people they do not know, or hate.**
- **Being rejected can lead to physical and psychological illness.**

Williams, K.D. (January/February, 2011). The Pain of Exclusion. Scientific American Mind, 21 (6), 30-37.

Ostracism and the Brain

(WEBSITE: 17)

- **"Even in a verbal or physical altercation, individuals are still connected. Total exclusion, however, severs all bonds. Social rejection also deals a uniquely harsh blow to self-esteem, because it implies wrongdoing." (p. 34)**
- **"After all, social exclusion interferes not only with reproductive success, but also with survival." (p. 34)**

Williams, K.D. (January/February, 2011). The Pain of Exclusion. Scientific American Mind, 21 (6), 30-37.

Ostracism and the Brain (WEBSITE: 18)

- **In an MRI study,…"As soon as students began to feel ostracized, the scanners registered a flurry of activity in the dorsal anterior cingulate cortex – a brain region associated with the emotional aspects of physical pain." (p. 34)**
- **Also the insula activates and judges the severity of the pain.**

Williams, K.D. (January/February, 2011). The Pain of Exclusion. Scientific American Mind, 21 (6), 30-37.

Ostracism and the Brain
(WEBSITE: 19)

- **"…social rejection and physical injury are not much different experiences and share underlying neural pathways." (p. 35)**
- **MRI studies have shown that painkillers can reduce the pain of social rejection.**
- **To reduce the pain of social rejection people will agree, mimic, obey, or cooperate with the rejecting group. Even if it goes against their beliefs and/or judgment.**

Williams, K.D. (January/February, 2011). The Pain of Exclusion. Scientific American Mind, 21 (6), 30-37.

Ostracism and the Brain (WEBSITE: 20)

- **Depressed and/or socially anxious people take longer to recover from ostracism than others.**
- **"In extreme cases, ostracized humans may resort to aggressive or violent acts when they have lost hope of being included in any socially acceptable group." (p. 36)**

Williams, K.D. (January/February, 2011). The Pain of Exclusion. Scientific American Mind, 21 (6), 30-37.

Ostracism and the Brain (WEBSITE: 21)

❖**What to do if you are ostracized:**

1. **Remove yourself from the situation and distract yourself.**
2. **Remind yourself of your strengths.**
3. **Exercise more control in your life; assert yourself.**
4. **Reconnect with family and friends.**

Williams, K.D. (January/February, 2011). The Pain of Exclusion. Scientific American Mind, 21 (6), 30-37.

Psychosocial Impairment Scale (WEBSITE: 22)

Barkley, R.A. (2011). Barkley Functional Impairment Scale: Rating Scale, Norms, Interpretive Guide. New York, NY: Guilford.

Employment & ADHD (WEBSITE: 23)

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

Ramsay, R. J. (2010). Non-Medication Treatments for Adult ADHD. Washington, DC: American Psychological Association, p. 79.

AD/HD & DSM-5® (WEBSITE: 24)

In DSM-5® there will be one type of Attention-Deficit/Hyperactivity Disorder and it will be Attention-Deficit/Hyperactivity Disorder, Combined Type. What has been learned since 1994 when the DSM-IV® was published through longitudinal studies is that what was called Attention-Deficit/Hyperactivity Disorder, Hyperactive/Impulsive Type is the early manifestation of the Combined Type of…

AD/HD & DSM-5® (WEBSITE: 25)

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

AD/HD & DSM-5® (WEBSITE: 26)

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

Swanson, J., Hinshaw, S., Hechtman, L. and Barkely, R. (November 9, 2012). Research Symposium 1: Montreal Study; Milwaukee Study; Berkeley Girls ADHD Longitudinal Study (BGALS). Symposium presented at the 24th Annual CHADD International Conference, November 8-10, 2012, Burlingame, CA.

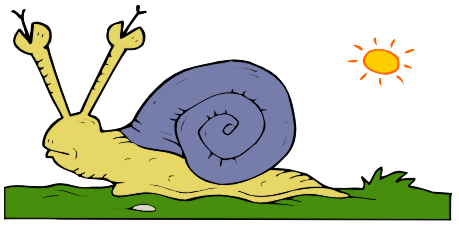
AD/HD & DSM-5® (WEBSITE: 27)

- **Tzelepis stated she has only seen Combined Type adults in her work and doubts the Predominately Hyperactive-Impulsive Type exists in adults.**

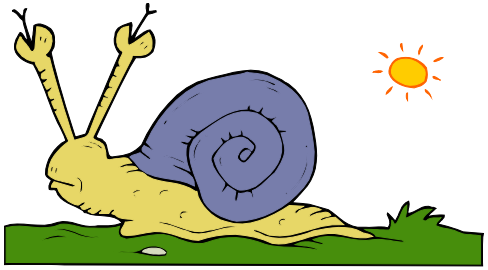
Tzelepis, A. and Mapou, R. (1997, May). Assessment. Paper presented at the Pre-Conference Professional ADD Institute of the 3rd Annual National ADDA Adult ADD Conference, St. Louis, MO.

- **Barkley, Murphy and Fischer make similar observations.**

Barkley, R.A., Murphy, K.R., & Fischer, M. (2008). ADHD in Adults: What The Science Says. New York, NY: Guilford, p. 37-38.



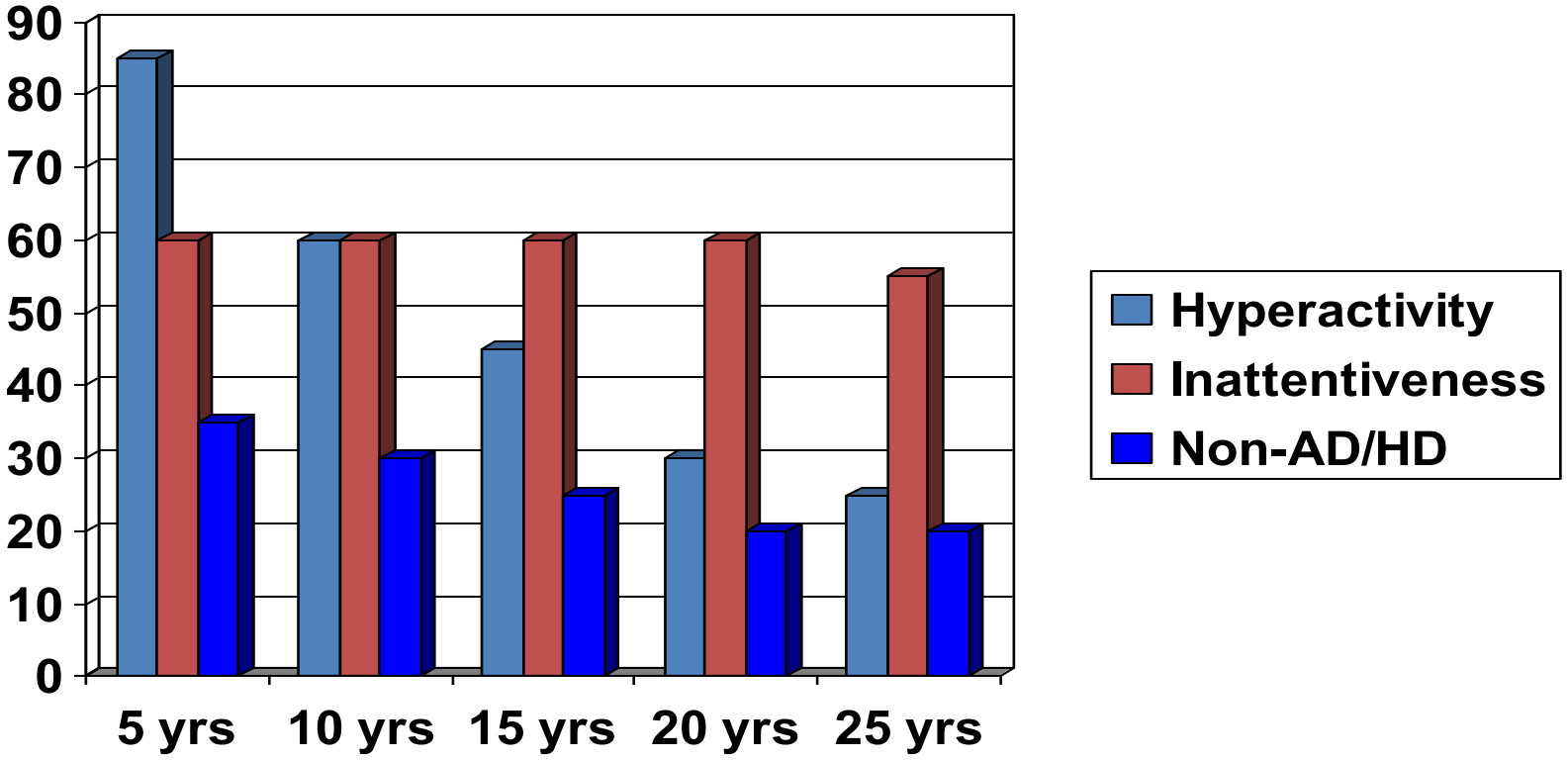
AD/HD & DSM-5®
(WEBSITE: 28)



Brown called those who met DSM® criteria for Hyperactive-Impulsive Type or Combined Type in Childhood, but only met criteria for Inattentive Type in Adulthood, '*CROSSOVERS*'.

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

Longitudinal Studies of AD/HD (WEBSITE: 29)



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

Weiss, G., & Hechtman, L. (1993). Hyperactive Children Grown Up. New York, NY: Guilford.

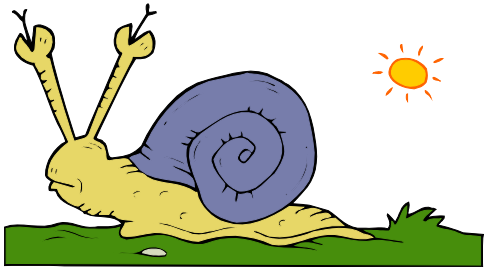
AD/HD & DSM-5® (WEBSITE: 30)

Barkley wrote when the Combined Type changes to the Inattentive Type by adolescence or adulthood then the person should be thought of as having the Combined Type.

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

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

Barkley, R.A., Murphy, K.R., & Fischer, M. (2008). ADHD in Adults: What The Science Says. New York, NY: Guilford, p. 37-38.



Inattentive AD/HD? (WEBSITE: 31)

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

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

THIS SLIDE WAS REMOVED TO BE IN COMPLIANCE WITH THE AMERICAN PSYCHIATRIC ASSOCIATION'S INTELLECTUAL PROPERTY LINCENSURE REQUIREMENTS.

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DSM-5 & Learning Disorders (WEBSITE: 37) May 2012 to December 2012

- **As of May 1, 2012 "Dyslexia" was going to replace "Reading Disorder". Afterward the government and insurance companies warned the committee about raising the prevalence of disorders. The NICHD research indicated Dyslexia's prevalence was about 15%, DSM-IV,TR's Reading Disorder's prevalence was estimated at 4%. After being consulted by Larry Silver, M.D. the committee decided to drop Dyslexia and Dyscalculia from DSM-5® and use Silver's paradigm of Specific Learning Disorder (Reading), (Writing), and (Math) to insure lower prevalence rates and to match what most public schools in the USA call such disorders.**

DSM-5 & Learning Disorders (WEBSITE: 38) May 2012 to December 2012

Author (2010). Reading Disorder. Washington, DC: American Psychiatric Association; www.dsm5.org/ProposedRevisions/Pages/proposedrevision.aspx?rid=84#.

Author (2010). Mathematics Disorder. Washington, DC: American Psychiatric Association; www.dsm5.org/ProposedRevisions/Pages/proposedrevision.aspx?rid=85#.

Author (July, 2012). An Insightful Q&A with Dr. Larry Silver: An Inside Look At DSM-5. Pittsburg, PA: Learning Disabilities Association of America. From Website: http://www.ldanatl.org/legislative/pubs/120820_DSM-5_Q-A_with-Larry-Silver.pdf.

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

DSM-5® & Learning Disorders (WEBSITE: 39) May 2012 to December 2012

- **The International Dyslexia Association sent 12,000 plus petitions to leave dyslexia in the DSM-5.**
- **The Yale Center for Dyslexia and Creativity 8629 petitions to leave dyslexia in.**

Author (No Date). IDA Position Statement on DSM-5. From website: http://www.interdys.org/IDAPositionDSM5.htm.

Burgess, T. (December 1, 2012). Dyslexia is Out of DSM-5: Psychiatrists Voted Saturday, December 1, 2012. Examiner.com. From website: http://www.examiner.com/article/dyslexia-is-out-of-dsm-5-psychiatrists-voted-saturday-dec-1-2012.

DSM-5® & Learning Disorders (WEBSITE: 40)
May 2012 to December 2012

At the last minute Sally Shaywitz, M.D., and Bennett, Shaywitz, M.D. of Yale, Ruth Colker, J.D. of Ohio State University Law School and Jo Anne Simon, J.D. of Yale Law School submitted the following document to the DSM-5® Committee: (See next slide)

DSM-5® & Learning Disorders (WEBSITE: 41)
May 2012 to December 2012

Comments on Proposed DSM-5 Criteria for Specific Learning Disorder from a Legal and Medical/Scientific Perspective

Professor Ruth Colker, J.D.
Distinguished University Professor
Heck-Faust Memorial Chair in Constitutional Law
The Ohio State University
Moritz College of Law
Professor Sally Shaywitz, M.D.
The Audrey G. Ratner Professor in Learning Development
Co-Director, Yale Center for Dyslexia & Creativity
Yale University School of Medicine
Professor Bennett Shaywitz, M.D.
The Charles and Helen Schwab Professor in Dyslexia and Learning Development
Co-Director, Yale Center for Dyslexia & Creativity
Yale University School of Medicine
Jo Anne Simon, J.D.
Attorney and Adjunct Associate Professor, Fordham University School of Law
Lead Counsel, Bartlett v. New York State Board of Law Examiners

From website:
http://dyslexia.yale.edu/CommentsDSM5ColkerShaywitzSimon.pdf.

DSM-5® & Learning Disorders (WEBSITE: 42)
May 2012 to December 2012 ("The Next Day")

"DSM- 5 Update

from Lee Grossman, IDA Interim Executive Director and CEO

IDA is closely monitoring the American Psychiatric Association's (APA) proposed revision to its' Diagnostic and Statistical Manual of Mental Disorders diagnostic criteria. We are pleased to share that it appears that the DSM-5 Committee will have the term dyslexia within the list of specific learning disorders.

We appreciate the Committee's work and thank them for listening to the concerns of our constituents and the LD community. We will continue to monitor this and will pass on updates from the DSM-5 Committee's decisions as those are available".

Grossman, l. (December 3, 2012). DSM-5 Update. IDA In an Instant. Baltimore, MD: International Dyslexia Association.

DSM-5® & "Specific Learning Disorder" as of December 5, 2012 (WEBSITE: 43)

Author (July, 2012). An Insightful Q&A with Dr. Larry Silver: An Inside Look At DSM-5. Pittsburg, PA: Learning Disabilities Association of America. From Website: http://www.ldanatl.org/legislative/pubs/120820_DSM-5_Q-A_with-Larry-Silver.pdf.

Grossman, l. (December 3, 2012). DSM-5 Update. IDA In an Instant. Baltimore, MD: International Dyslexia Association.

Colker, R., Shaywitz, S., Shaywitz, B., Simon, J.A., (No Date) Comments on Proposed DSM-5 Criteria for Specific Learning Disorder from a Legal and Medical/Scientific Perspective. Yale Center for Dyslexia and Creativity. From Website: http://dyslexia.yale.edu/CommentsDSM5ColkerShaywitzSimon.pdf.

Grohol, J.M. (December 5, 2012). Final DSM Approved by American Psychiatric Association. World of Psychology: PsychCenteral. From website: http://psychcentral.com/blog/archives/2012/12/02/final-dsm-5-approved-by-american-psychiatric-association/.

Williams Syndrome
(WEBSITE: 44)

"Williams Syndrome is a genetic condition that is present at birth and can affect anyone. It is characterized by medical problems, including cardiovascular disease, developmental delays and learning disabilities. These occur side by side with striking verbal abilities, highly social personalities and an affinity for music… Individuals with Williams Syndrome have a very endearing personality. They have a unique strength in their expressive language skills and are extremely polite. They are typically unafraid of strangers and show a greater interest in contact with adults than with their peers."

Author (No Date). What Is Williams Syndrome? From Williams Syndrome Association website: http://www.williams-syndrome.org/what-is-williams-syndrome.

Williams Syndrome (WEBSITE: 45)

Williams Syndrome is a rare condition caused by missing genes. Parents may not have any family history of the condition. However, a person with Williams syndrome has a 50% chance of passing the disorder on to each of his or her children. The cause usually occurs randomly.

Williams Syndrome occurs in about 1 in 8,000 births.

One of the 25 missing genes is the gene that produces elastin, a protein that allows blood vessels and other tissues in the body to stretch. It is likely that having only one copy of this gene results in the narrowing of blood vessels seen in this condition.

A.D.A.M. Medical Encyclopedia (November 14, 2011). Williams Syndrome (Williams-Beuren Syndrome). Bethesda, MD: National Center for Biotechnology Information, U.S. National Library of Medicine. From website: http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0002105/.

Williams Syndrome (WEBSITE: 46)

Those with Williams Syndrome have brains that are 20% smaller, particularly in the back of the brain which includes the occipital and parietal lobes. The temporal lobes are either normal in size or larger than normal. Their planum temporale is larger than normal and hence they often have perfect pitch. Finally, they use their cerebellum, brain stem and amygdala to process music thus it provides them an uniquely emotional experience when they hear it.

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

ASD and Williams Syndrome (WEBSITE: 47)

ASD and Williams Syndrome, "two sides of the same coin," Allan Reiss Stanford Medical School professor said. Social behavior and communication are underdeveloped in ASD and overdeveloped in Williams Syndrome.

Inman, E. (May 20, 2010). New Findings About Williams Syndrome May Shed Light On Autism Research. The Stanford Daily. From website: http://www.stanforddaily.com/2010/05/20/new-findings-about-williams-syndrome-may-shine-light-on-autism-research/.

Neurology of SLD-Dyslexia Differs in Males & Females (Website: 48)

"...In a replication study of men, we obtained the same findings of less GMV in dyslexics in left middle/inferior temporal gyri

and right postcentral/supramarginal gyri as reported in the literature. However, comparisons in women with and without dyslexia did not yield left hemisphere differences, and instead, we found less GMV in right precuneus and paracentral lobule/medial frontal gyrus. In boys, we found less GMV in left inferior parietal cortex (supramarginal/angulargyri), again consistent with previous work, while in girls differences were within right central sulcus, spanning adjacent gyri, and left primary visual cortex..."

Neurology of SLD-Dyslexia Differs in Males & Females (Website: 49)

"...Our investigation into anatomical variants in dyslexia replicates existing studies in males, but at the same time shows that dyslexia in females is not characterized by involvement of left hemisphere language regions but rather early sensory and motor cortices (i.e., motor and premotor cortex, primary visual cortex). Our findings suggest that models on the brain basis of dyslexia, primarily developed through the study of males, may not be appropriate for females and suggest a need for more sex - specific investigations into dyslexia."

Reference (Website: 50)

Evans, T.M., Flowers, D.L., Napoliello, E.M. and Eden, G.F. (April, 2013). Sex - Specific gray matter volume differences in females with developmental dyslexia. Brain Structure and Function, DOI 10.1007/s00429-013-0552-4. From website: http://link.springer.com/article/10.1007%2Fs00429-013-0552-4# .

Mirror Neurons (WEBSITE: 51)

- There are visual and audiovisual mirror neurons in the brain in several places.
- Areas involved in the brain:
  - Inferior Frontal Gyrus: guidance of movement/assessment of intentions
  - Anterior Cingulate Cortex: regulation of empathy
  - Angular Gyrus: semantic comprehension combining sensory input
  - Insula/Amygdala: pain & disgust

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

Ramachandran, V.S. and Oberman, L.M. (November, 2006). Broken Mirrors. Scientific American, 296(5), pp. 62-69.

Psychopathy and the Brain (WEBSITE: 52)

- **"Aided by EEGs and brain scans, scientists have discovered that psychopaths possess significant impairments that affect their ability to feel emotions, read other people's cues and learn from their mistakes" (p. 24).**
- **"These deficiencies may be apparent in children who are as young as five years old" (p. 24).**

Kiehl, K., and Buckholtz, J.W. (September/October, 2010). Inside The Mind of a Psychopath. Scientific American Mind, 21 (4), 22-29.

Neurology of Psychopathy (WEBSITE: 53)

"A horseshoe-shaped band of tissue nestled in the deepest recesses of the brain may be the area that malfunctions in psychopaths. Known as the paralimbic system, it includes several interconnected brain regions that register feelings and other sensations and assign emotional value to experiences. These brain regions also handle decision making, high level reasoning and impulse control. People with brain damage in these areas tend to develop psychopathic traits and behaviors. And imaging studies reveal that in psychopaths, the paralimbic areas tend to be underdeveloped." (p. 27)

Kiehl, K., and Buckholtz, J.W. (September/October, 2010). Inside The Mind of a Psychopath. Scientific American Mind 21 (4), 22-29.

COGMED and ADHD (WEBSITE: 54)

"This study evaluated the impact of two interventions—a training program and stimulant medication—on working memory (WM) function in children with attention deficit hyperactivity disorder (ADHD). Twenty-five children aged between 8 and 11 years participated in training that taxed WM skills to the limit for a minimum of 20 days, and completed other assessments of WM and IQ before and after training, and with and without prescribed drug treatment. While medication significantly…"

COGMED and ADHD

(WEBSITE: 55)

"…improved visuo-spatial memory performance, training led to substantial gains in all components of WM across untrained tasks. Training gains associated with the central executive persisted over a 6-month period. IQ scores were unaffected by either intervention. These findings indicate that the WM impairments in children with ADHD can be differentially ameliorated by training and by stimulant medication". (p. 827)

Holmes, J., Gathercole, S., Place, M., Dunning, D., Hilyon, K., and Elliot, J. (2010). Working Memory Deficits Can be Overcome: Impacts of Training and Medication On Working Memory in Children with ADHD. Applied Cognitive Psychology, 24, 827-836.

COGMED(www.cogmed.com)

(Research-56)

- **Problems with research:**
  - **Unclear if positive outcomes connect to improved life functioning.**
  - **How does it work?**
  - **May be one of the first attempts of cognitive training that has been successful. (Barkley, 2008)**

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

Barkley, R.A. (2008). Advances in ADHD: Theory, Diagnosis and Management. J & K Seminars, L.L.C., 1861 Wichersham Lane, Lancaster, PA 17603; 800-801-5415; www.jkseminars.com, Disc 7, Tack 1.

COGMED and ADHD (WEBSITE: 57)

- **Barkely (2012) still remains skeptical about COGMED, feels other programs (e.g., Lumosity, etc.) may be just as useful, it costs, too much and it may only help the person improve on working memory tests for a short period of time.**

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

Literature Review of Working Memory Training (WEBSITE:58)

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

Shipstead, Z., Redick, T.S., and Randall, W.E. (2012). Is Working Memory Training Effective? Psychological Bulletin, DOI: 10.1037/a0027473.

Meta-Analytic Review of Working Memory Training (WEBSITE: 59)

"…Meta-analyses indicated that the programs produced reliable short-term improvements in working memory skills. For verbal working memory, these near-transfer effects were not sustained at follow-up, whereas for visuospatial working memory, limited evidence suggested that such effects might be maintained…"

Meta-Analytic Review of Working Memory Training (WEBSITE: 60)

"…More importantly, there was no convincing evidence of the generalization of working memory training to other skills (nonverbal and verbal ability, inhibitory processes in attention, word decoding, and arithmetic). The authors conclude that memory training programs appear to produce short-term, specific training effects that do not generalize…."

Melby-Lervag, M., and Hulme, C. (May 12, 2012). Is Working Memory Training Effective? A Meta-Analytic Review. Developmental Psychology. From website:

http://www.ncbi.nlm.nih.gov/pubmed/22612437 .

Neurobiofeedback (NF) and ADHD (WEBSITE: 61)

- Recently two important studies on neurobiofeedback and ADHD have been done in Germany.
- The first study was a standard randomized control study. The second one was a 6 month follow up study of the subjects in the first study.
- There are some concerns about both studies because the study was not double-blind.

Neurobiofeedback (NF) and ADHD (WEBSITE: 62)

The researcher of these studies wrote:

“”A reduction of at least 25% in the primary outcome measure (responder criterion) was observed in 50% of the children in the NF group. In conclusion, behavioural improvements induced by NF training in children with ADHD were maintained at a 6-month follow-up. Though treatment effects appear to be limited…NF may be recommended as a treatment module for children with ADHD besides conventional and behavioural training and medication.” (p. 715 and 722) (May, 2010 article)

Neurobiofeedback (NF) and ADHD (WEBSITE: 63)

- Gevensleben, H., Holl, B.,Albrecht, B., Vogel, C., Schlamp, D., Kratz, O., Studer, P. Rothenberger A., Moll, G.H., and Heinrich, H. (July, 2009). Is Neurobiofeedback an Efficacious Treatment fro ADHD? A Randomized Controlled Clinical Trial. Journal of Child Psychology and Psychiatry, 50 (7), p. 767-768.
- Fisher, C. (February 20, 2009). Children with ADHD Realize Significant Benefits From Neurofeedback Training In a Randomized Clinical Trial. The Behavioral Medicine Report. From website: www.bmedreport.com/archieves/1037.

Neurobiofeedback (NF) and ADHD (WEBSITE: 64)

- Gevensleben, H., Holl, B.,Albrecht, B., Vogel, C., Schlamp, D., Kratz, O., Studer, P. Rothenberger A., Moll, G.H., and Heinrich, H. (May, 2010). Neurofeedback Training in Children with ADHD: 6-Month Follow-up of a Randomized Control Trial. European Child and Adolescent Psychiatry, 19, 715-724.

Neurobiofeedback and ADHD (WEBSITE: 65)

NIMH Pilot Study of Double-Blind Randomized Control Neurobiofeedback Use with ADHD:

- **Conducted at the Nisonger Center at Ohio State University**
  - **Gene Arnold and Nicholas Lofthouse, primary investigators**
  - **Used Smartbrain Neurobiofeedback Technology**
  - **39 ADHD, 6 to 12 year olds randomly assigned to two groups: (1) Sham Control and (2) Treatment**

Abranwitz, A. , Lofthouse, N., deBeus, R., Hirshberg, L., and Barkley, R. (November 12, 2010). EEG Neurobiofeedback for ADHD: Review of Science, New Findings. Paper and Symposium presented at the 22nd Annual CHADD Conference, Atlanta, GA, Session FD10.

Neurobiofeedback and ADHD (WEBSITE: 66)

NIMH Neurobiofeedback Pilot Study Results:

- **Retention rate 24 sessions 92%; 40 sessions 87%**
- **Three treatments per week tolerated best**
- **Twenty-four session optimal number**

Abranwitz, A. , Lofthouse, N., deBeus, R., Hirshberg, L., and Barkley, R. (November 12, 2010). EEG Neurobiofeedback for ADHD: Review of Science, New Findings. Paper and Symposium presented at the 22nd Annual CHADD Conference, Atlanta, GA, Session FD10.

Neurobiofeedback and ADHD (WEBSITE: 67)

NIMH Pilot Study Results (Continued):

- **No difference between treatment and sham control groups in parent and teacher ratings for ADHD, hyperactive/impulsive symptoms, inattentive symptoms, Oppositional Defiant symptoms, and executive function symptoms.**
- **The treatment group saw no change in their theta-beta ratios.**

Abranwitz, A. , Lofthouse, N., deBeus, R., Hirshberg, L., and Barkley, R. (November 12, 2010). EEG Neurobiofeedback for ADHD: Review of Science, New Findings. Paper and Symposium presented at the 22nd Annual CHADD Conference, Atlanta, GA Session FD10.

Neurobiofeedback and ADHD (WEBSITE: 68)

NIMH Pilot Study Results (Continued):

- **Barkley stated after hearing the above data regarding what clinicians should say to clients interested in pursuing neurobiofeedback as a treatment for ADHD:**
- **"The status of the evidence does not allow a recommendation to be made (sic. For neurobiofeedback).**
- **The clinician should give the information, but not render a suggestion. Allow the client to use their own informed consent.**

Abranwitz, A. , Lofthouse, N., deBeus, R., Hirshberg, L., and Barkley, R. (November 12, 2010). EEG Neurobiofeedback for ADHD: Review of Science, New Findings. Paper and Symposium presented at the 22nd Annual CHADD Conference, Atlanta, GA, Session FD10.

Recent Review of Neurobiofeedback Research Results with AD/HD (WEBSITE: 69)

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

Lofthouse, N, Arnold, E., Hersch, S. Hurt, E., and DeBeus, R. (November 16, 2011). A Review of neurobiofeedback Treatment for Pediatric ADHD. Journal of Attention Disorders. doi: 10.1177/1087054711427530 .

Recent Review of Neurobiofeedback Research Results with AD/HD (WEBSITE: 70)

According to Rabiner (January 2012). The "probably efficacious" rating of the American Psychological Association is the third highest rating out of a potential 5 levels research can obtain with 5 being the highest. "Probably efficatious" means the research in question has, "Shown to produce positive effects in more than one clinical, observational wait list or within-subject or between-subject study. When writing regarding the Lofthose study (November 16, 2011). Rabiner stated, "When averaged across the studies for which appropriate outcome data was available, the overall mean effect size (ES) was .79 for inattention measures, and .71 for hyperactivity/impulsivity measures…"

Recent Review of Neurobiofeedback Research Results with AD/HD (WEBSITE:71)

"…These are in a range that would be considered 'large' for inattention and 'moderate' for hyperactivity/impulsivity and are below what is typically reported for stimulant medication. Five of the studies showed neurophysiological changes that were specific to neurofeedback treatment. Overall, these results are consistent with beneficial effects of neurofeedback treatment for ADHD."

Rabiner, D. (January, 2012). New Review of Neurobiofeedback Treatment for ADHD-State of the Science. Attention Research Update. E-mail newsletter: attentionresearchupdate@helpforadd.com.

Attention & Mindfulness (WEBSITE: 72)

- **A type of mindfulness training based on Chinese medicine called integrative body-mind training (IBMT) has been found to increase the activation and self-regulation functions of the anterior cingulate cortex in 5 days and significant improvement in alerting in a month. In addition, after 5 days of training, subjects' cortisol levels are lower before beginning tasks and after 30 days of training their baseline cortisol levels are lower. This has also been connected to immune system function improvement. The white matter connectivity between the attention networks in the brain improved. IBMT has been used in children as young as 4 and in people 55 and over and has been shown to be more effective than aerobic exercise in helping to retain memory and attention.**

Attention & Mindfulness
(WEBSITE: 73)

- **All of the above has been found in double-blind randomized studies with a control group that receives relaxation training. The relaxation training groups have not experienced the same benefits of their training.**
- **Michael Posner said, "In theory, at least, this might be applied to children with ADHD." (November 12, 2010, CHADD Conference)**
- **Note: IBMT has not been studied with AD/HD**

Attention & Mindfulness

(WEBSITE: 74)

- Posner, M.I., Swanson, J., and Fowler, J. (November 12, 2010). Research Symposium. 22 Annual CHADD International Conference, Atlanta, GA.
- Yi-Yuan Tang, Qilin, Lu, Xiujuan Geng, Stein, E.A., Yihong Yang and Posner, M.I. (August 31, 2010). Short-term Meditation Induces White Matter Changes in the Anterior Cingulate. Proceedings of the National Academies of Sciences of the United States of America, 107 (35), 15649-15652.

Attention & Mindfulness
(WEBSITE: 75)

- Yi-Yaun, Tang, et. Al. (October 23, 2007). Short-term Meditation Training Improves Attention and Self-regulation. Proceedings of the National Academy of Sciences of the United States of America, 104 (43), 17152-17156.
- Yi-Yuan Tang, et. al. (June 2, 2009). Central and Autonomic Nervous System Interaction is Altered by Short-Term Meditation. Proceedings of the National Academies of Sciences of the United States of America, 106 (22), 8865-8870.

Mindfulness Training and AD/HD (Website: 76)

"There was a significant reduction of parent –rated ADHD behavior of themselves and their child from pre-to post test and from pre-to follow-up test. Further, there was a significant increase of mindful awareness from pre-to post test and a significant reduction of parental stress and overreactivity from pre-to follow-up test. Teacher-ratings showed non-significant effects. Our study shows preliminary evidence for the effectiveness of mindfulness for children with ADHD and their parents, as rated by parents. However, in the absence of substantial effects on teacher-ratings, we cannot ascertain effects are due to specific treatment procedures." (p. 139)

Mindfulness Training and AD/HD (Website: 77)

Van der Oord, S. Bogels, S.M. And Peijnenburg, D. (February, 2012). The Effectiveness of Mindfulness Training for Children with ADHD and Mindful Parenting for their Parents. Journal of Child and Family Studies, 21(1), 139-147. From website: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3267931/.

Mindfulness and AD/HD (Website: 78)

"Mindfulness meditation training is garnering increasing empirical interest as an intervention for ADHD in adulthood, although no studies of mindfulness as a standalone treatment have included a sample composed entirely of adults with ADHD or a comparison group. The aim of this study was to assess the feasibility, acceptability, and preliminary efficacy of mindfulness meditation for ADHD, executive functioning (EF), and emotion dysregulation symptoms in an adult ADHD sample. Method: Adults with ADHD were stratified by ADHD medication status and otherwise randomized into an 8-week group-based mindfulness treatment (*n* = 11) or waitlist group (*n* = 9)…"

Mindfulness and AD/HD
(Website: 79)

"… Results: Treatment feasibility and acceptability were positive. In addition, self-reported ADHD and EF symptoms (assessed in the laboratory and ecological momentary assessment), clinician ratings of ADHD and EF symptoms, and self-reported emotion dysregulation improved for the treatment group relative to the waitlist group over time with large effect sizes. Improvement was not observed for EF tasks. Conclusion: Findings support preliminary treatment efficacy, though require larger trials".

Reference (Website: 80)

Mitchell, J.T., McIntyre, E.M., English, J.S., Dennis, M.F., Beckham, J.C., Kollins, S.H. (December 4, 2013). A Pilot Trial of Mindfulness Meditation Training for ADHD in Adulthood: Impact on Core Symptoms, Executive Functioning, and Emotion Dysregulation. Journal of Attention Disorders. doi: 10.1177/1087054713513328

Rabiner's Review of the Above Study (Website: 81)

- Two groups: 1. treatment; 2. waitlist controls
- 8 weeks of training; 2 ½ hours of train per week with daily home practice for treatment group.
- Most in treatment group were on medication to treat AD/HD, before, during and after study.
- Treatment and control groups given pre and post tests of how they believed their AD/HD symptoms had, or had not changed, executive functions, and were administered executive function lab tests, and were interviewed by clinicians.

Rabiner's Review of the Above Study (Website: 82)

- "Results from this study suggests mindfulness training for adults with ADHD hold significant promise."
- 64% of adults with AD/HD reported at least a 30% decline from training
- 0% of waitlist controls reported an improvement
- Lab tests of Executive Functioning showed no difference Pre-Post from Mindfulness Training
  - Executive Function Tests have a high false negative rate with those with ADHD
- The study's sample size was way, too small to be significant (22 adults, 12 females, mean age 32)

Rabiner's Review of the Above Study (Website: 83)

- Clinicians who were not blind to the study who interviewed the study's subject found similar results.
- Subjects were not blind to the study and not randomly assigned to groups
- Treatment was not compared to a typically administered treatment (i.e., medication, etc.)

Rabiner's Review of the Above Study (Website: 84)

- **This study needs to be redone with proper size and effect size as well as with all the aforementioned confounds corrected and it needs to be replicated.**

Reference (Website: 85)

Rabiner, D. (December, 2013). New Study of Mindfulness Meditation Training for Adults with ADHD. Attention Research Update. From website: www.helpforadd.com. David Rabiner, Ph.D.
Research Professor
Dept. of Psychology & Neuroscience
Duke University.

AD/HD & Mindfulness
(Website: 86)

"Findings: After reviewing 18,753 citations, we included 47 trials with 3515 participants. Mindfulness meditation programs had moderate evidence of improved anxiety (effect size, 0.38 [95% CI, 0.12-0.64] at 8 weeks and 0.22 [0.02-0.43] at 3-6 months), depression (0.30 [0.00-0.59] at 8 weeks and 0.23 [0.05-0.42] at 3-6 months), and pain (0.33 [0.03- 0.62]) and low evidence of improved stress/distress and mental health–related quality of life. We found low evidence of no effect or insufficient evidence of any effect of meditation programs on positive mood, attention, substance use, eating habits, sleep, and weight. We found no evidence that meditation programs were better than any active treatment (i.e., drugs, exercise, and other behavioral therapies)…

AD/HD & Mindfulness

(Website: 87)

"…Conclusions and Relevance: Clinicians should be aware that meditation programs can result in small to moderate reductions of multiple negative dimensions of psychological stress. Thus, clinicians should be prepared to talk with their patients about the role that a meditation program could have in addressing psychological stress. Stronger study designs are needed to determine the effects of meditation programs in improving the positive dimensions of mental health and stress-related behavior."

Madhav Goyal Goyal, M. et al (January 6, 2014). Meditation Programs for Psychological Stress and Well-being: A Systematic Review and Meta-analysis . Journal of The American Medical Association-Internal Medicine. doi:10.1001/jamainternmed.2013.13018 .

Memes (Website: 88)

- **"A meme (pronounced 'meem') is 'an idea, behavior, style or usage that spreads from person to person within a culture'…But controversy has erupted over the proposal, presented here by psychologist ,Susan Blackmore, that human's uncanny ability to imitate, and thus to transmit memes, is what sets us apart from other species. Memes, she argues, have been (and are) a powerful force shaping our cultural – and biological – evolution." (p. 65)**

Blackmore, S. (October 2000). The Power of Memes (Editor's Introduction). Scientific American, 283 (4), pp. 64-66,68-71,73.

Memes (Website: 89)

- **In a final twist, it would pay for people to mate with the most proficient imitators, because by and large, good imitators have the best survival skills. Through this effect, sexual selection guided by memes, could have played a role in creating our big brains. By choosing the best imitator for a mate, women help propagate the genes needed to copy religious rituals, colorful clothes, singing, dancing, and so on…our big brains are selective…**

Memes (Continued)
(Website: 90)

- **"…imitation devices built by and for the memes such as for genes" (p. 69).**

Blackmore, S. (October 2000). The Power of Memes (Editor's Introduction). Scientific American, 283 (4), pp. 64-66,68-71,73.

Memes & AD/HD (Website: 91)

- **Barkley spoke of how many of those with AD/HD have difficulty with the internalization of speech, and how this in turn can make AD/HD people vulnerable to others "stealing their ideas."**
- **In addition, their impulsivity may cause problems with vicarious learning. Those with AD/HD may have trouble "stealing" the ideas of others.**

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

Barkley, R. A. (2006). Attention-Deficit Hyperactivity Disorder, Third Edition. New York, NY: Guilford, p. 310

Childhood Makes Us Special! (Website: 92)

- **Human childhood is about 500,000 years old.**
- **The new born brain is 25% of adult size. This is not the case of other primates.**
- **"…complex brain wiring develops when people interact with others and the outside world." (p. B7)**
- **This allows for the development of language, a social system, parental bonds and culture.**

Begley, S. (September 16, 2004). Childhood May Separate Humans From Apes. The Wall Street Journal, 244 (54), p. B1 and B7.

Play
(Website: 93)

"…one of the primary purposes of play is to develop the brain." (p. 121)

"…play teaches the young animal how to handle novelty and surprise, such as the shock of being knocked off balance or a surprise attack." (p. 123)

Grandin, T. (2005). Animals in Translation. New York, Scribner.

Play (Website: 94)

- **Dyslexia can negatively effect the ability to have relationships, playmates and play opportunities.**

Ryan, M. (1994). The Other Sixteen Hours: The Social and Emotional Problems of Dyslexia. Baltimore, MD: Orton Dyslexia Society.

- **AD/HD Children are at great risk for being socially rejected due to their AD/HD symptamatology.**

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

- **Children with Autism Spectrum Disorder treat other children like objects, they have little or no "theory of mind," imaginative play, or the "memes of life." They do not seek out others to play with.**

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

Play
(Website: 95)

- **Children develop fine and gross motor skills through play.**
- **This in turn creates relationships, self-esteem and acceptance by others.**

Lerner, J. (1997). Learning Disabilities: Theories, Diagnosis, and Teaching Strategies, Seventh Edition. Boston, MA: Houghton Mifflin.

Play (Website: 96)

- **Isolation hinders children's social and cognitive development.**
- **Play also directly affects the development of the frontal lobe…executive function.**
- **Isolation may worsen the genetic problems with executive function caused by AD/HD.**
- **It can hinder the development of "theory of mind."**
- **It may also hinder the development of a sense of morality, social roles and the ability to bond with others.**

Azar, B. (March, 2002A). It's More Than Just Fun and Games. Monitor On Psychology, 33 (3), pp. 50-51.

Azar, B. (March 2002B). The Power of Pretending. Monitor On Psychology 33 (3), pp. 46-47.

Dyssemia
(Website: 97)

Dyssemia
(Website: 98)

- **"Dyssemia is a term that ……. refers to any significant difficulty in understanding or sending nonverbal information." (Nowicki and Duke, 2002, p. 2)**

Nowicki, S. and Duke, M. (2002). Will I Ever Fit In? New York, NY: Free Press.

Dyssemia
(Website: 99)

- **Nowicki and Duke believed about 10 percent of those with Dyssemia have a neurobiological form of the disorder.**

Nowicki, S. and Duke, M. (2002). Will I Ever Fit In? New York, NY: Free Press.

- **About 7 to 10% of the general population is socially incompetent.**

Semrud-Clikeman, M. (2007). Social Competence in Children. New York, NY: Springer, p. 1.

Dyssemia
(Website: 100)

- **The ability to learn through vicarious learning is very important to learning non-verbal social skills and about the non-verbal environment.**

Nowicki, S. and Duke, M. (2002). Will I Ever Fit In? New York, NY: Free Press.

Types of Dyssemia (Website: 101)

- Expressive Dyssemia
- Receptive Dyssemia
- Proxemics: The use of space
- Facial expressions
- Paralanguage: Inflection
- Gestures: Give emphasis to speech
- Postures: Long distance social interaction
- Fashion/Objects: Memes
- Chromemics: Time and Rhythm

Nowicki, S. and Duke, M. (2002). Will I Ever Fit In? New York, NY: Free Press.

Dyssemia
(Website 102)

Those with AD/HD have trouble with vicarious learning and would be expected to have trouble learning non-verbal social interaction which is not directly taught. Their impulsivity would make it difficult for them to attend to the non-verbal cues of others, too.

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

Mimicry (Website: 103)

- "Our talent for mimicry may serve an important purpose. Some studies imply that spontaneous imitation acts as a 'social glue' promoting feelings of friendliness and a sense of togetherness." (p. 55)
- If you mimic someone you are seen as friendly; if not, you are seen as less friendly.
- People with Autism Spectrum Disorders can mimic, but they have difficulty inferring intention.
- You must inhibit imitation to coordinate interactions with others.

Sebanz, N. (December 2006/January 2007). It Takes 2 To…Scientific American: Mind. 17 (6), pp.52-57.

Dyssemia
(Website: 104)

Those with Level 1 Severity of Autism Spectrum Disorder have problems with Theory of Mind which can cause problems with receptive interpretation of non-verbal cues from others. It can also cause problems in putting importance on their own non-verbal cues.

Klin, A., Volkmar, F.R. and Sparrow, S.S. (2000). Asperger Syndrome. New York, NY: Guilford.

Dyssemia
(Website: 105)

- **About 80% of those with Specific Learning Disorder have some type of impairment in reading/Dyslexia which is a language disorder.**

Shaywitz, S. (2003). Overcoming Dyslexia. New York, NY: Knopf.

- **Part of language is Non-verbal Paralanguage which includes humming, voice quality, loudness and noises between words.**

Nowicki, S. and Duke, M. (2002). Will I Ever Fit In? New York, NY: Free Press.

Evaluating for Dyssemia (Website: 106)

- **Diagnostic Analysis of Nonverbal Behavior 2 (DANVA2)**
  - **Adult faces and voices**
  - **Child faces and voices**
  - **African American faces and voices**
  - **Postures**

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

Assessment for Nonverbal Behavior

(Website: 107)

Magill-Evans, J., Koning, C., Cameron-Dadava, A. and Manyk, K. (September, 1995). The Child and Adolescent Social Perception Test. Journal of Nonverbal Behavior, 19 (3), pp. 151-169.

More of Nicolson and Fawcett's (WEBSITE: 108)

Nicolson, R.I., and Fawcett, A.J. (2008). Dyslexia, Learning, and The Brain. London, England: MIT Press.

Summary of Dyscalculia (WEBSITE: 109)

Berch, D.B., and Mazzocco, M.M.M. (2007). Why is Math So Hard For Some Children?: The Nature and Origins of Mathematical Learning Difficulties and Disabilities. New York, NY: Guilford.

British Dyslexia Association: Definition of Dyslexia (WEBSITE:110)

"Dyslexia is a specific learning difficulty which mainly effects the development of literacy and language related skills.

It is likely to be present at birth and to be lifelong in its effects. It is characterized by difficulties with phonological processing, rapid naming, working memory, processing speed and automatic development of skills that may not match up to an individual's other cognitive abilities." (Continued)

British Dyslexia Association: Definition of Dyslexia (Continued) (WEBSITE: 111)

"It tends to be resistant to conventional teaching methods, but its effects can be mitigated by appropriately specific intervention, including the application of information technology and supportive counseling." (P. 1)

British Dyslexia Association (No Date). Dyslexia Research Information . From website: www.bdadyslexia.org.uk/about-dyslexia/further-information/dyslexia-research-info. Page 1 of 4.

Tend and Befriend (WEBSITE: 112)

Taylor, S.E., Klien, L.C., Lewis, B.P., Gruenwald, T.A., Gurung, R.A.R. and Updegraff, J.A. (2002). Biobehavioral Responses to Stress in Females: Tend-and-Befriend, Not Fight-or-Flight. Psychological Review, 107 (3), pp. 411-429.

Tend and Befriend (Website: 113)

"Elevated plasma oxytocin was associated with distress in the pair-bond relationship for women, but not for men. Vasopressin, which is closely related to oxytocin in molecular structure and significantly related to male pair-bond behavior in animal studies, was elevated in men who experienced distress in the pair-bond relationship, but not in women. Controlling for estradiol and testosterone did not alter these findings. We conclude that plasma oxytocin in women and plasma vasopressin in men may be biomarkers of distressed pair bond relationships." (p. 3)

Taylor, S.E., Saphire-Bernstein, S., and Seeman, T.E. (2009). Are Plasma Oxytocin in Women and Plasma Vasopressin in Men Biomarkers of Distressed Pair-Bond Relationships? Psychological Science, 21 (1), p. 3-7. From website: http;//pss.sagepub.com/content/21/1/3.abstract.

Great Ape Predators (WEBSITE: 114)

"Current models of social organization assume that predation is one of the major forces that promotes group living in diurnal primates. As large body size renders some protection against predators, gregariousness of great apes and other large primate species is usually related to other parameters. The low frequency of observed cases of nonhuman predation on great apes seems to support this assumption. However, recent efforts to study potential predator species have increasingly accumulated direct and indirect evidence of predation by leopards (Panthera pardus) on chimpanzees and gorillas. The following report provides the first evidence of predation by a leopard on bonobos (Pan paniscus)". (p. 212)

D'Amour, D.E., Hohmann, G., and Fruth, B. (2006). Evidence of leopard predation on bonobos (Pan paniscus). Folia Primatol (Basel) (International Journal of Primatology), 77(3), 212-217. From website: http://www.ncbi.nlm.nih.gov/pubmed/16612095.

Female Bonobo Response to Male Violence (WEBSITE: 115)

"Once I saw Tatango, an unusually aggressive bonobo male, run up to Mimi, the alpha female, and backhand her across the face. He hit her so hard he almost gave her whiplash. Within seconds, five females in the group ran to Mimi's rescue. They chased Tatango around the night building until he fled into the forest. When he continued his aggressive outbursts, those five females beat him so badly [that] they nearly ripped off his testicles. After that, Tatango never caused another problem".

Woods, V. (No Date). Is There Any Violence In The Bonobo Community? Curosity.com: Human Evolution. From website: http://curiosity.discovery.com/question/violence-bonobo-community.

Bonobo Hunting
(WEBSITE: 116)

"We present evidence for the consumption of a diurnal, arboreal, group living primate by bonobos. The digit of an immature black mangabey (Lophocebus aterrimus) was found in the fresh feces of a bonobo (Pan paniscus) at the Lui Kotale study site, Democratic Republic of Congo. In close proximity to the fecal sample containing the remains of the digit, we also found a large part of the pelt of a black mangabey. Evidence suggests that the Lui Kotale bonobos consume more meat than other bonobo populations and have greater variation in the mammalian species exploited than previously thought…

Bonobo Hunting
(WEBSITE: 117)

"...The current finding supports Stanford's argument [Current Anthropology 39:399-420] that some differences in the diet and behavior between chimpanzees (P. troglodytes) and bonobos are an artefact of the limited number of bonobo study populations. If bonobos did obtain the monkey by active hunting, this would challenge current evolutionary models relating the intra-specific aggression and violence seen in chimpanzees and humans to hunting and meat consumption". (p. 171)

Surbeck, M. Fowler, A., Deimel, C., and Hohmann, G. (February, 2009). Evidence For The Consumption of Aboreal, Diurnal Primates by Bonobos (Pan Paniscus). American Journal of Primatology, 71(2), 171-174.

Bonobo Hunting
(WEBSITE: 118)

- **There is evidence that bonobo females actively take part in hunts along with males.**
- **Chimpanzee females never take part in hunts.**

Surbeck, M. Fowler, A., Deimel, C., and Hohmann, G. (February, 2009). Evidence For The Consumption of Aboreal, Diurnal Primates by Bonobos (Pan Paniscus). American Journal of Primatology, 71(2), 171-174.

- **Bonobos are a female dominate species.**
- **Chimpanzees are a male dominate species.**

DeWaal, F., and Lanting, F. (1997). Bonobo: The Forgotten Ape. Berkley, CA: University of California Press.

Female Bonobo Dominance (WEBSITE: 119)

"…Bonobos showed evidence of female feeding priority in small, but not in large, food patches. Male–male competition for mating opportunities at the start of the food bout was related to some, but not all, differences in time spent feeding between the sexes. Female dominance similar to that seen in prosimians was not observed in these bonobos. Males were consistently dominant in dyadic interactions. Female feeding priority with male dyadic social dominance implies that male deference during feeding cannot be excluded as one explanation of interpretations of female dominance in bonobos…"

Female Bonobo Dominance

(WEBSITE: 120)

"…Additionally, dominance of male bonobos by females appears to require the presence of female coalition partners. As in other primates with female feeding priority, bonobo females express this trait where food is economically defendable. Unlike prosimians, however, bonobo female feeding priority may result from male deference and the importance of female coalitions in nondyadic interactions". (p. 1)

White, F., and Wood, K. (2007). Female feeding Priority in Bonobos, Pan Paniscus, and Questions of Female Dominance. American Journal of Primatology, 69, 1-14. From website: http://pages.uoregon.edu/fwhite/Female%20feeding%20priority%20in%20bonobos,%20Pan%20paniscus,%20and%20the%20question%20of%20female%20dominance.pdf.

Melting Down
(WEBSITE: 121)

"New research demonstrates that acute, uncontrollable stress sets off a series of chemical events that weaken the influence of the prefrontal cortex while strengthening the dominance of older parts of the brain. In essence, it transfers high-level control over thought and emotion from the prefrontal cortex to the hypothalamus and earlier evolved structures…"

Melting Down
(WEBSITE: 122)

"…As the older parts take over, we find ourselves either consumed by paralyzing anxiety or else subject to impulses that we usually manage to keep in check: indulgence in excess food, drink, drugs or a spending spree at a local specialty store. Quite simply, we loose it." (p. 50)

Arnsten, A., Mazure, C.M., Sinha, R. (April, 2012). This is Your Brain in Meltdown. Scientific American, 306 (4), 48-53.

Melting Down (WEBSITE: 123)

- **Some people are more at risk of melting down due to genetic factors or previous stress exposure.**
- **" Chronic stress appears to expand the intricate web of connections among neurons in our lower emotional centers, whereas the areas engaged during flexible, sustained reasoning… -- start to shrivel." (p. 53)**

Arnsten, A., Mazure, C.M., Sinha, R. (April, 2012). This is Your Brain in Meltdown. Scientific American, 306 (4), 48-53.

Melting Down (WEBSITE: 124)

- **With stress there is a shrinkage of the prefrontal gray matter while the amygdala enlarges.**

Arnsten, A., Mazure, C.M., Sinha, R. (April, 2012). This is Your Brain in Meltdown. Scientific American, 306 (4), 48-53.

- **Temple Grandin, Ph.D.'s amygdala is larger than normal.**
- **Her colitis left after she took an antidepressant for anxiety.**

Grandin, T. (May 4, 2012). Autism and My Sensory Based World. Paper presented at the Conference On Autism & Asperger's Syndrome, Grandin, T., Cutler, E. and Moyes, R. Presenters, Tucson, AZ. Future Horizons; Arlington, TX.

Exercise & ADHD
(Website: 125)

Exercise and AD/HD

(Website: 126)

"Following a single 20-minute bout of exercise, both children with ADHD and healthy match control children exhibited greater response accuracy and stimulus-related processing, with the children with ADHD also exhibiting selective enhancements in regulatory processes, compared with after a similar duration of seated reading. In addition, greater performance in the areas of reading and arithmetic were observed following exercise in both groups…These findings indicate that single bouts of moderately intense aerobic exercise may have positive implications for aspects of neurocognitive function and inhibitory control in children with ADHD." (p. 543)

Reference (Website: 127)

Pontifex, M.B., Saliba, B.J., Raine, L.B., Picchetti, D.L. , and Hillman, C.H. (March, 2013). Exercise Improves Behavioral, Neurocognitive, and Scholastic Performance in Children with Attention-Deficit/Hyperactivity Disorder. Journal of Pediatrics, 162(3), 543-551. From website: http://www.jpeds.com/article/S0022-3476(12)00994-8/abstract.

Exercise & AD/HD (Website: 128)

"Researchers haven't quantified how long the spike in dopamine and norepinephrine lasts after exercise, but anecdotal evidence suggests an hour or maybe ninety minutes of calm and clarity. I tell people who need medication to take it at the point when the effects of exercise are wearing off, to get the most benefit from both approaches." (pp. 166-166)

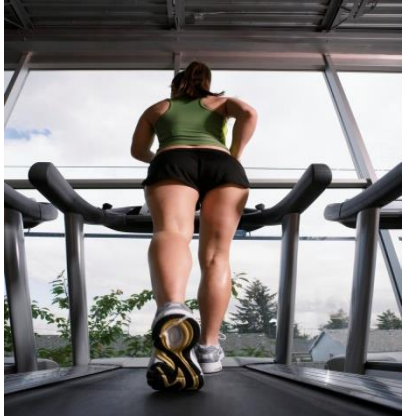
Ratey, J. (2008). Spark: The Revolutionary New Science of Exercise and The Brain. New York, NY: Little, Brown.

Exercise and ADHD (Website: 129)

- Ratey (2008) stated that aerobic exercise for 30 minutes a day can increase dopamine and norepinephrine (two neurotransmitters related to ADHD) for up to 90 minutes. “For most of my patients, I suggest exercise as a tool to help them manage their symptoms along with their medication.” (p. 164)

Ratey, J.J. (2008). Spark: The Revolutionary New Science of Exercise and the Brain. New York, NY: Little, Brown and Company.

ADHD & Exercise (Website: 130)



- **Barkley (2008) stated if you have combined type ADHD you should take a run just before an examination instead of reviewing your notes one more time. He recommends people with ADHD have a regular mild aerobic exercise routine, too.**

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; disc 7, track 11.

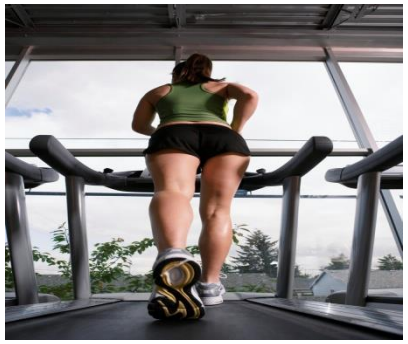
Good Resources on Exercise and Counseling

(Website: 131)

- **Ratey, J.J. (Fall, 2010). Your Brain On Exercise. ADDitude, 11 (1), 36-39.**
- **Ratey, J.J. (2008). Spark: The Revolutionary New Science of Exercise and The Brain. New York, NY: Little, Brown.**
- ✓ ***Always consult a physician before starting an exercise program!***

Exercise Suggestions for AD/HD (Website: 132)

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



Naperville Central High School Exercise Program (Website: 133)

- **See description of this in chapter 1, Welcome to the Revolution: A Case Study On Exercise and The Brain, in the following book:**

Ratey, J.J. (2008). Spark: The Revolutionary New Science of Exercise and The Brain. New York, NY: Little, Brown.

Prosopagnosia is Highly Genetic (WEBSITE: 134)

Wilmer, J.B., Germine, L. Chabris, C.F. Chatterjee, G., Williams, M., Loken, E., Nakayama, K., and Duchaine, B. (Submitted). Human Face Recognition Ability is Highly Heritable. Proceedings of the National Academy of Sciences of the United States of America.

Computer Programs to Treat Prosopagnosia (WEBSITE: 135)

Tanaka, J.W., Wolf, J.M., Klaiman, C., Koenig, K., Cockburn, J., Herlihy, L., Brown, C., Stahl, S., Kaiser, M.D., and Schultz, R.T. (in press). Using Computerized Games to Teach Face Recognition in Children with Autism Spectrum Disorder: The Let's Face It! Program, Journal of Child Psychology and Psychiatry.

Warning: Stimulants & AD/HD (WEBSITE: 136)

- **"The FDA's review of sudden death or cardiovascular incidents in patients taking AD/HD medications found 25 reports of death between 1999 and 2005 and 54 reports of serious cardiovascular problems. Some of these patients had pre-existing heart conditions or hypertension, the report noted."**

Goodman, B. (2/23/2006). FDA Warning on AD/HD Medications "Premature"; National AD/HD Advocacy Group Urges Further Research. From Website: www.chadd.org/whatsnew/FDAHearings.htm

Warning: Stimulants & AD/HD (WEBSITE: 137)

- According to the Center for Disease Control (CDC) about 2,500,000 children between 4 and 17 take AD/HD medications.
- "According to the Surgeon General, medication is effective for about 80 percent of the people who have the disorder." (sic. AD/HD)

Goodman, B. (2/23/2006). FDA Warning on AD/HD Medications "Premature"; National AD/HD Advocacy Group Urges Further Research. From Website: www.chadd.org/whatsnew/FDAHearings.htm

Warning: Cylert & AD/HD (WEBSITE: 138)

- 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.

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.

Connor, D. (2006). Stimulants (Chapter 17), In R.A., Barkley, Ed, Attention-Deficit Hyperactivity Disorder, Third Edition. New York, NY: Guilford, p. 636.

Warning: Strattera and AD/HD (WEBSITE: 139)

- **PDR Warning about liver problems. Two people have had liver function problems who have been placed on this medication.**

Surman, C. (May 12, 2005). AD/HD and Comorbidity. Paper presented at the National Attention Deficit Disorder Association Annual Conference, May 12-15, 2005, Tucson, AZ.

Spencer, T.J. (2006). Antidepressant and Specific Norephinephrine Reuptake Inhibitor Treatments, Chapter 18, In R.A. Barkley, Ed., Attention-Deficit Hyperactivity Disorder. New York, NY: Guilford, p. 653.

POPULATIONS
(WEBSITE: 140)

- **World's projected population as of 11/4/12:**

  7,056,450,082 X 5

- **US Population as of 11/04/12: 314,882,992 X 1 (Year)**

From US Census Bureau World Population Clock Projections: www.census.gov/main/www/popclockworld.html **and** www.census.gov/ipc/popclockworld.html**.**

"My daughter died after taking aspirin." (WEBSITE: 141)

- **"Health experts have issued a warning that children under the age of 19 should not take aspirin because the risk of a rare but potentially fatal condition called Reye's Syndrome."**
- **Each year there are an estimated 7600 deaths and 76,000 hospitalizations from taking non-steroidal anti-inflammatory drugs (NSAID). What is a NSAID? Aspirin!**

BBC News World Edition (10/23/2002). "My Daughter Died After Taking Aspirin". From website: www.newsbbc.uk/2/hi/health/2353187.stm

From website: www.drugwarfacts.org/causes.htm#nsaid

Adult AD/HD in DSM-5
Multiple Field Trial Studies Ignored by DSM-5®
(WEBSITE: 142)

1. "Is often easily distracted by extraneous stimuli
2. Often makes decisions impulsively
3. Often has difficulty stopping activities or behavior when he/she should do so
4. Often starts a project or task without reading or listening to directions carefully
5. Often shows poor follow-through on promises or commitments made to others
6. Often has trouble doing things in their proper order or sequence…"

Adult AD/HD in DSM-5
Multiple Field Trial Studies Ignored by DSM-5®
(WEBSITE: 143)

7. **Often more likely to drive a motor vehicle much faster than others**
8. **Often has difficulty sustaining attention in tasks or leisure activities**
9. **Often has difficulty organizing tasks and activities" (p. 10)**

❖ **Cutoff: 6 of 9; in two settings; onset before age 16**

Barkley, R.A. and Murphy, K.R. (August 2006). Identifying New Symptoms for Diagnosing ADHD in Adulthood. ADHD Report, 14 (4), 7-11.

Barkley, R.A. Murphy, K.R. and Fischer, M. (2008). ADHD in Adults: What The Science Says. New York, NY: Guilford, p. 437.

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

DSM-5® & Adult AD/HD (WEBSITE: 144)

Suggestion:

No matter what the DSM-5® says about diagnosing adult AD/HD use as part of your assessment The Barkley Functional Impairment Scale. That will indicate if the person is significantly impaired compared to the Average American. His new adult rating scale has recent norms and has a SCT/Inattentive AD/HD scale.

Barkley, R.A. (February, 2011). Barkley Adult ADHD Rating Scales IV, (BAARS-IV). New York, NY: Guilford.

Barkley, R.A. (February, 2011). Barkley Functional Impairment Scale, (BFIS). New York, NY: Guilford.

RGS14 Gene & Memory (WEBSITE: 145)

- **Researchers recently learned if they remove the RGS14 Gene/protein from rat brains the rats will have significantly better memories and will learn faster.**
- **Humans have the same gene/protein and it appears to have the same function.**
- **This may help those with memory and Learning Disabilities.**

Emerson, L., et al (September, 2010). RGS14 is a Natural Suppressor of Both Synaptic Placticity in CA2 Neurons and Hippocampal–Based Learning Memory. Proceedings of the National Academy of Sciences of the United States of America. dio: 10.1073/pnas.1005362107.

Computer Programs to Treat Prosopagnosia (WEBSITE: 146)

"We concluded that using *The transporters* significantly improves emotion in children with ASC" (Autism Spectrum Conditions). (p. 269)

Golan, O., Ashwin, E., Granader, Y., Mclintock, S.,Day, K., Leggett, V., and Baron-Cohen, S. (2009). Enhancing Emotion in Children with Autism Spectrum Conditions: An Intervention Using Animated Vehicles with Real Emotional Faces. Journal of Autism and Developmental Disorders, 40 (3), pp. 269-279.

Computer Glasses and ASD (WEBSITE: 147)

el Kalioby, R., Picard, R., and Baron-Cohen, S. (2006). Affective Computing and Autism. Annual of the New York Academy of Sciences, 1093, pp. 228-248.

NVLD/Asperger's/ASD Suggestions (WEBSITE: 148)

- Make abstract concrete
- Help with transitions
- Motivate
- Generalize:
  - Mass Practice to Learn Vs Distributed Practice - Generalization and Maintain over time

Ozonoff, S. Dawson, G. and McPartland, J. (2002). A Parent's Guide to Asperger Syndrome & High – Functioning Autism. New York, NY: Guilford.

Harrison, L. (May 12, 2006). Personal Communication.

Social Thinking
(WEBSITE: 149)

- "Social thinking is how we think about our own and others's minds." (p. 2)

Garcia Winner, M. and Crooke, P. (2011). Social Thinking At Work: Why Should I Care. San Jose, CA: Social Thinking.

Four Steps of Communication (WEBSITE: 150)

1. **"Think about the people with whom you want to communicate.**
2. **Use your body to establish a physical presence.**
3. **Use your eyes to think about people as you relate to them.**
4. **Use your words to relate to people when you talk to them." (p. 71)**

Garcia Winner, M., and Crooke, P. (2011). Social Thinking At Work: Why Should I Care. San Jose, CA: Social Thinking.

Excellent Social Skills Program (WEBSITE: 151)

Social Thinking Center

Innovative, Practical Treatment of High-Functioning Autism, Asperger's Syndrome, NLD, ADHD and other Undiagnosed Social-Cognitive Challenges

The Social Thinking Center

3031 Tisch Way, Suite 800

San Jose, CA 95128

Phone (toll free): 877-464-9278

Website: www.socialthinking.com

Social Competence Intervention Program (SCIP) (WEBSITE: 152)

Guli, L.A., Wilkinson, A.D., and Semrud-Clikeman, M. (2006). Social Competence Intervention Program (SCIP): A Drama-Based Intervention for Youth on the Autism Spectrum. Champaign, IL: Research Press.

DIR/Floortime (WEBSITE: 153)

"This includes helping children to develop capacities to attend and remain calm and regulated, engage, and relate to others, initiate and respond to all types of communication beginning with emotional and social affect based gestures, shared social problem solving and intentional behavior involving a continuous flow of interactions in a row, use of ideas to communicate needs and think and play creatively, and build bridges between ideas in logical ways which lead to higher level capacities to think in multicausal , grey area and reflective ways."

Interdisciplinary Counsel on Developmental and Learning Disorders (ICDL) (8/11/2010). What is dir/floortime?. www.icdl.com/dirFloortime/overview/index.shtml/

DIR/Floortime (WEBSITE: 154)

- **This model takes into account each child's unique biology and temperament.**
- **The model describes how helping professionals, caregivers, teachers, etc. can tailor their work to meet each child's unique needs.**

Interdisciplinary Counsel on Developmental and Learning Disorders (ICDL) (8/11/2010). What is dir/floortime?. www.icdl.com/dirFloortime/overview/index.shtml/

DIR/Floortime
(WEBSITE: 155)

"Floortime is a specific technique to both follow a child's natural emotional interests (lead) and at the same time challenge the child towards greater and greater mastery of the social, emotional, and intellectual capacities."

Interdisciplinary Counsel on Developmental and Learning Disorders (ICDL) (8/11/2010). What is dir/floortime?. www.icdl.com/dirFloortime/overview/index.shtml/

Applied Behavior Analysis (WEBSITE: 156)

- **40 year of research has shown these techniques are effective with those with intellectual disabilities and autism spectrum disorders.**
- **Many professional organizations and state governments have endorsed the use of these techniques with such individuals.**

Hagopian, L.P., and Boelter, E.W. (8/27/2010). Applied Behavior Analysis and Neurodevelopmental Disorders: Overview and Summary of Scientific Support. Kennedy Krieger Institute: www.kennedykrieger.org/kki_misc.jsp?pid=4761

Joel Nigg on the Inattentive Type (WEBSITE: 157)

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

Nigg, J. (November 11, 2010). Mechanisms and Causes of ADHD. Paper presented at the 22nd Annual CHADD International Conference, Atlanta, GA, November 11-13, Session TA-1.

Nigg, J., et al (November 11, 2010). Through The Looking Glass: Gaze Into The Future of DSM-5. Paper presented at 22nd Annual CHADD International Conference, Atlanta, GA November 11-13, Session TB-1.