

UNDERSTANDING THE STUDENT WITH ANXIETY

Kevin T. Blake, P.H.D., P.L.C
Association of Educational Therapists
Dallas, Texas
January 23, 2016

Saturday, January 23, 2016

2015 10 21

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

Understanding The Student with Anxiety

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

owns shares in the following companies:

Amgen, Inc.

Johnson & Johnson, Inc.

**“DSM[®], DSM-IV-TR[®], and DSM-5[®]
are registered trademarks of the
American Psychiatric Association.
The American Psychiatric
Association is not affiliated with nor
endorses this seminar.”**

“Road Rules” and What To Expect

- **Lecture 8:45 to 10:15**
- **Break 10:15 to 10:30**
 - **Answer to the most important question of the day?**
- **Lecture 10:30 to 12:00**
- **Lunch (Provided) 12:00 to 1:00**
- **Lecture 1:00 to 2:30**
- **Break 2:30 to 2:45**
- **Lecture 2:45 to 4:15**
- **End: 4:15**



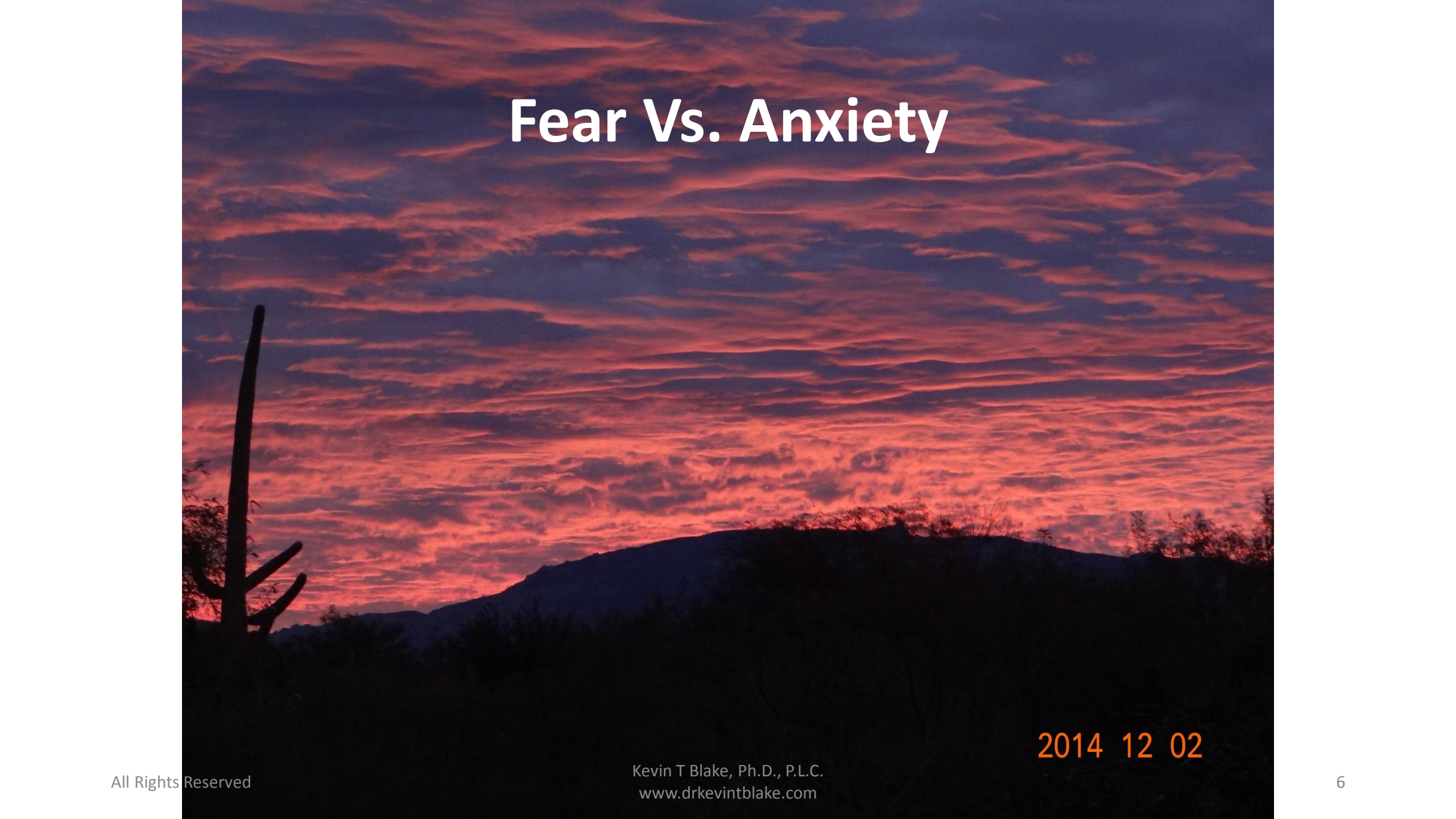
Updates

❖ **New information on Autism Spectrum Disorders, Specific Learning Disorders, and AD/HD can be found at:**

www.drkevintblake.com



Fear Vs. Anxiety



2014 12 02

What is Fear?

The emotional reaction to a real or imagined immediate threat. Fear involves escape behaviors, thoughts of avoiding immediate threats and autonomic arousal (Flight-or-Flight/Tend-and-Befriend).

Author (2013). Diagnostic and Statistical Manual of Mental Disorders, 5th Edition. American Psychiatric Association: Washington, DC.

What is Fear?

“... is the natural reaction to a threat that happens at a certain point in the stress response, when the sympathetic nervous system and the hypothalamic-pituitary-adrenal (HPA) axis shift into high gear...The physical symptoms range feeling tense, jittery, and short of breath to experiencing a racing heart, sweating, and in the case of full-blown panic attacks, severe chest pains.”

Ratey, J.J. (2008). Spark: The Revolutionary New Science of Exercise and The Brain. Little, Brown, and Company: New York, NY, 87.

What is Anxiety?

The anticipation of a future danger is anxiety. It evolves avoidant/cautious behavior, vigilance, preparing for future threats, and muscle tension.

Author (2013). Diagnostic and Statistical Manual of Mental Disorders, 5th Edition. American Psychiatric Association: Washington, DC.

Child and Adolescent Anxiety

“Anxiety can be a normal reaction to stress”.

Author (No Date). Anxiety Disorders in Children and Adolescents (Fact Sheet). Washington, DC: National Institute of Mental Health (NIMH). From website:

<http://www.nimh.nih.gov/health/publications/anxiety-disorders-in-children-and-adolescents/index.shtml>.

Child and Adolescent Anxiety

- **A survey indicated 8% of teens between the ages of 13 and 18 have an anxiety disorder that typically emerges about age 6.**
- **Only 6% of these teens ever get treatment.**
- **Through brain imaging scientists have discovered the “anxiety” areas of the brain and have started to learn how they are affected by various anxiety disorders.**
- **Girls have more neurological risk of anxiety disorders than boys.**

Author (No Date). Anxiety Disorders in Children and Adolescents (Fact Sheet). Washington, DC: National Institute of Mental Health (NIMH). From website:

<http://www.nimh.nih.gov/health/publications/anxiety-disorders-in-children-and-adolescents/index.shtml>.

Childhood Symptoms of Anxiety and Depression

- “Depressed or irritable mood
- Difficulty sleeping or concentrating
- Change in grades, getting into trouble at school, or refusing to go to school
- Change in eating habits
- Feeling angry or irritable
- Mood swings
- Feeling worthless or restless
- Frequent sadness or crying
- Withdrawing from friends and activities
- Loss of energy
- Low self-esteem
- Thoughts of death or suicide”

Author (2015). Anxiety and Depression in Children. Silver Spring, MD: Anxiety and Depression Association of America. From website: <http://www.adaa.org/living-with-anxiety/children/anxiety-and-depression>.

Anxiety + Depression

Almost half of those with depression are suffering from comorbid anxiety.

Author (2015). Facts and Statistics. Silver Spring, MD: Anxiety and Depression Association of America.
From website: <http://www.adaa.org/about-adaa/press-room/facts-statistics>.

Working Memory & Anxiety

There are experienced skydivers with many jumps who died because they are so stressed just prior to their jumps they fail to pull their cords. This is due to their working memories being so overcome with fear. “Acute stress can almost halve a person’s mental capacity.”

Klingberg, T. (2013). The Learning Brain: Memory and Brain Development in Children. New York, NY: Oxford University Press.

Working Memory & Anxiety

- **“Acute stress can almost halve a person’s mental capacity.”**

Klingberg, T. (2013). The Learning Brain: Memory and Brain Development in Children. New York, NY: Oxford University Press.

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

Minahan, J. (November 12, 2014). Theory Into Practice: Effective Intervention for Students with Anxiety. Paper Presented as part of The Impact of Stress and Anxiety on Cognition and Behavior in Students with Dyslexia: What to Know and What to Do Symposium (Symposium W3) of the 65 the Annual International Dyslexia Association Conference, San Diego, CA.

Flight, or Flight Vs. Tend and Befriend



Anxiety



- **Fight or Flight Response**

Benson, H. (1983). The Relaxation Response. New York, NY: Outlet Books.

Benson, H. (1994). Beyond The Relaxation Response. New York, NY: Berkley Books.

Fight-or-Flight Response Vs. Tend-and-Befriend Response



- ***Shelley Taylor,
Ph.D.***

**Taylor, S.E. (2002). The Tending Response.
New York, NY: Holt.**



Tend-and-Befriend



Taylor, S.E. (2002). The Tending Instinct: How Nurturing is Essential To Who We Are And How We Live . New York, NY: Holt.



Tend-and-Befriend



Taylor, S.E., Klein, L.C., Lewis, B.P., Gruenwald, T.L., Reagan, A.R., Updegraff, J.A. (2000). Behavioral Response to Stress in Females: Tend-and-Befriend, not Flight-or- Flight. Psychological Review, 107(3), 411-429.

Compassion

2014 11 06

Compassion

- **Three things make humans behaviorally different from all other species:**
 - **Our capacity to delay our response to our environment (Bronowski, 1977).**
 - **Our capacity for compassion (Leakey, 1995).**
 - **Our capacity for long-term compassion (Grandin, 1995).**

Bronowski, J. (1977). Human and Animal Languages: In a Sense of Future. Cambridge, MA: MIT Press. pp. 104-131.

Leakey, R. (1995). Speech given to the National Press Club, Washington, DC, Played on National Public Radio.

Grandin, T. (1995). Thinking In Pictures: And Other Reports From My Life With Autism. New York, NY: Vintage.

Compassion

“In the summer of 1982 Kat was newly pregnant and Washoe doted over her belly, asking about her BABY. Unfortunately, Kat suffered a miscarriage. Knowing that Washoe had lost two of her own children, Kat decided to tell her the truth. MY BABY DIED, Kat signed to her. Washoe looked down to the ground. Then she looked into Kat’s eyes and signed CRY, touching her cheek just below the eye. When Kat had to leave that day, Washoe would not let her go. PLEASE, PERSON HUG, she signed.” (Fouts, 1997; Edwards, 2000)

Fouts, R. (1997). *Next of Kin: My Conversations with Chimpanzees*. New York, NY: William Morrow.

Edwards, M. (Spring, 2000). Book Review. *The Harvard Brain*. From website:

hcs.harvard.edu/~husn/BRAIN/vol7-spring2000/fouts.htm.

Compassion

Bonobo: Pan Paniscus Vs.

Chimpanzee: Pan Troglodytes

- Shares 98% of its genetic profile with humans.
- They have been compared to australopithecines
- “In physique, a bonobo is as different from a chimpanzee as a Concorde is from a Boeing 747.” (p. 3 of 14)

DeWaal, F.B.M. (March 1995). Bonobo Sex and Society. Scientific American. pp. 82 - 88. From Website: <http://primates.com/bonobos/bonobosexsoc.html>.

Chimpanzee, Bonobos, Humans & Vasopressin

“Similar genetic variation in the human *AVPR1A* may contribute to variations in human social behavior including extremes outside the normal range of behavior and those found in autism spectrum disorders.” (p. 2187)

Hammock, E.A.D. and Young, L.J. (December, 2006). Oxytocin, Vasopressin and Pair Bonding: Implications for Autism. Philosophical Transactions of the Royal Society of Biological Sciences, 361(1476), pp. 2187-2198. From Website:
<http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=1764849>.

Chimpanzee, Bonobos, Humans & Vasopressin

“Our two closest primate cousins – chimpanzees and bonobos –also have different lengths of this gene, which match their social behaviors. Chimpanzees, who have the shorter gene, live in territorially based societies controlled by males who make frequent, fatal war raids on neighboring troops. Bonobos are run by female hierarchies and seal every interaction with a bit of sexual rubbing...”

“...they are exceptionally social and have a long version of the gene. The human version of the gene is more like the bonobo gene. It would seem that those with the longer version of the gene are more socially responsive. For example, this gene is shorter in humans with autism...” (p. 74)

Brizendine, L. (2006). The Female Brain. New York, NY: Morgan Road.

Teco, The Autistic Bonobo Toddler

- **Bonobo social brain closer to humans than chimps.**
- **18 month old bonobo, Teco, male is autistic.**
- **Has repetitive movements**
- **Strict adherence to routines, or gets agitated**
- **Repetitive behaviors**
- **Likes objects, not bonobos**

- **Likes parts of objects**
- **No joint attention**
- **Avoids eye contact**
- **At two months nursing difficulties**

Deweert, S. (April 15, 2011). An Ape With Autism. New York, NY: Simons Foundation, Autism Research Initiative (SFARI). From website: <https://sfari.org/about-sfari/contact-us>.

Fight-or-Flight/Tend-and-Befriend Vs Rage

“...the core emotion of RAGE evolved from the experience of being captured and held immobile by a predator. Stimulation of subcortical brain areas causes an animal to go into rage. RAGE gives the captured animal the explosive energy it needs to struggle violently and maybe shock a predator into loosening its grip enough that the captured animal can get away.”

Grandin, T. , and Johnson, C. (2009). Animals Make Us Human: Creating the Best Life for Animals. New York, NY: Houghton Mifflin.



Biological Consequences of Stress/Anxiety

All Rights Reserved

Kevin T Blake, Ph.D., P.L.C.
www.drkevintblake.com

Melting Down



“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



“...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



- **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



- **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.

“Savanna Anxiety”



“In general, when dominance hierarchies are unstable, glucocorticoid levels rise. This makes sense, because such instabilities make for stressful times. Looking at individual baboons, however, shows a more subtle pattern: given the same degree of instability, males whose ranks are dropping have elevated glucocorticoid levels, while male whose ranks are rising amid the tumult don’t show this endocrine trait.” (p. 263)

“Thus after factoring out rank, lower basal glucocorticoid levels are found in males who are best at telling the difference between threatening and natural interactions; who take the initiative if the situation is clearly threatening; who are best at telling who won or lost; and, in the latter case who are most likely to make someone pay for the defeat.” (p. 314)

Saploski, R.M. (2004). Why Zebras Don’t Get Ulcers, Third Edition. New York, NY: Holt, p.221.

The “Whitehall” Study

“The Whitehall study of British civil servants begun in 1967, showed a steep inverse association between social class, as assigned by grade of employment, and mortality from a wide variety of diseases.” (p. 1387) A second “Whitehall Study” was conducted from 1985 to 1988. “...and found an inverse relationship between employment grade and prevalence of angina, electrocardiogram evidence of ischemia and symptoms of chronic bronchitis. Self-perceived health status and symptoms were worse in subjects with lower status jobs. There were clear employment grade differences in health risk behaviors including...”

“...smoking, diet, and exercise, in economic circumstances, in possible effects of early-life environment as reflected by height, in social circumstances at work..., and social supports.” (p. 1387).

Marmot, M.G. et al. (June, 1991). Health inequalities among British civil servants: the Whitehall II study. Lancet, 337(8754), 1387-1393.



Isolation and The Immune System

- ✓ From 1985 to 2005 the typical American said the average number of people they could rely upon to help them with a significant concern dropped from 3 to 2.
- ✓ In 2005 twenty-five percent reported they had no trusted friend they could rely upon which is double the rate of 1985.

McPherson, M., Smith-Lovin, L. and Brashears, M.E. (2006); Azar (May, 2011); Miller, Chen, and Cole, (January, 2009); Cole, Hawkley, Arevalo, Sung, Rose, and Cacioppo (2007); Cole, Hawkley, Arevalo, and Cacioppo (February 15, 2011)

- ✓ Lonely people have more active genes that promote inflammation and less active genes that inhibit inflammation.
 - ✓ This puts them at risk for some cancers, degenerative neurological disorders and cardiovascular problems.
- ✓ Lonely people's immune systems are geared toward fighting bacteria not viruses.
- ✓ Sociable people have immune systems geared toward viruses.

Isolation and The Immune System

Azar, B. (May, 2011). The Psychology of Cells. Monitor On Psychology, 42 (5), 32-35.

Miller, G., Chen, E. and Cole, S. (January, 2009). Health Psychology: Developing Biologically Plausible Models Linking the Social World and Physical Health. Annual Review of Psychology, 60, 501-524.

Cole, S.W., Hawkley, L.C., Arevalo, J.M., Sung, C.Y., Rose, R.M. and Cacioppo, J.T. (2007). Social Regulation of Gene Expression in Human Leukocytes. Genome Biology, 8 (9), doi:10.1186/gb-2007-8-9-r189.

Cole, S.W., Hawkley, L.C., Arevalo, J.M.G. and Cacioppo, J.T. (February 15, 2011). Transcript Origin Analysis Identifies Antigen-Presenting Cells as Primary Targets of Socially Regulated Gene Expression In Leukocytes. Proceedings of the National Academy of Sciences of the United States of America (PNAS), 108 (7), 3080-3085.

McPherson, M., Smith-Lovin, L. and Brashears, M.E. (2006). Social Isolation in America: Changes in Core Discussion Networks Over Two Decades. American Sociological Review, 71 , 353-375.

Ostracism and the Brain

- **“No matter how and why people are left out their response is swift and powerful, inducing a social agony that the brain registers as physical pain.” (p. 32)**
- **“All social animals use this form of group rejection to get rid of burdensome group members. In nonhuman animals, an unaccepted member usually ends up dead.**

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

Ostracism and the Brain



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, 2011). The Pain of Exclusion. Scientific American Mind, 21(6), 30-37.

Anxiety & Dementia

A recent study by researchers from University of Southern California found after reviewing the medical records of the Swedish Adoption (Identical) Twin Study of Aging for 28 years that individual twins who were exposed to periods of high anxiety during the course of their lives were 48% more likely to develop dementia than their non-exposed twin.

Petkus, A.J. et al. (November 5, 2015). Anxiety is associated with increased risk of dementia in older Swedish twins. Alzheimer's and Dementia. DOI: <http://dx.doi.org/10.1016/j.jalz.2015.09.008>.

Medical Conditions That Cause Anxiety-like Symptoms

2015 10 22

Medical Conditions That can Cause Symptoms that Look Like Anxiety

- **“Heart disease**
- **Diabetes**
- **Thyroid problems, such as hypothyroidism or hyperthyroidism**
- **Asthma**
- **Drug abuse or withdrawal**
- **Withdrawal from alcohol, anti-anxiety medications (benzodiazepines) or other medications**

- **Irritable bowel syndrome**
- **Rare tumors that produce certain "fight-or-flight" hormones**
- **Premenstrual syndrome”**

Author (August 15, 2014). Anxiety: Causes. Rochester, MN. From website: <http://www.mayoclinic.org/diseases-conditions/anxiety/basics/causes/con-20026282>.

PANDAS

(Pediatric Autoimmune Neuropsychiatric Disorder Associated with Streptococcus)

“The hallmark trait for PANDAS is sudden acute and debilitating onset of intense anxiety and mood lability accompanied by Obsessive Compulsive-like issues and/or Tics in association with a streptococcal-A (GABHS) infection that has occurred immediately prior to the symptoms. In some instances, the onset will be 4 to 6 months after a strep infection because the antibiotics did not fully eradicate the bacteria.”

Author (2015). What is PANDAS?. Menlo Park, CA: PANDAS Network. From website: <http://pandasnetwork.org/understandingpandas/pans/about-pandas/pans/whatispandas/>.

Symptoms:

- **OCD-like, AD/HD-like behavior, & Tics**
- **Separation Anxiety**
- **Hyperactivity**
- **Generalized Anxiety**
- **Sensory Abnormalities – Distortions/Hallucinations**
- **Reduced Math Ability**
- **Irritability**
- **Behavioral and Motor Regression**

Author (No date) Information about PANDAS. Bethesda, MD: National Institute of Mental Health. From website: <http://www.nimh.nih.gov/labs-at-nimh/research-areas/clinics-and-labs/pdnb/web.shtml>.

PANDAS Treatment

- 1. Start with a SSRI medication that treats Obsessive-Compulsive Disorder. Titrations should be much slower than with non-PANDAS patients.**
- 2. If that doesn't work, or if any strep symptoms seen use an antibiotic that treats strep.**
- 3. If that does not work plasma exchange (plasmapheresis) and intravenous immune globulin is administered.**

Author (No date) Information about PANDAS.
Bethesda, MD: National Institute of Mental Health.
From website: <http://www.nimh.nih.gov/labs-at-nimh/research-areas/clinics-and-labs/pdnb/web.shtml>.

PANS

(Pediatric Acute-Onset Neuropsychiatric Syndrome)

PANS includes all cases of abrupt onset OCD, not just those associated with streptococcal infections.

Symptoms:

- **Acute dramatic onset of OCD-like symptoms**
- **Anxiety (particularly, separation anxiety)**
- **Emotional lability (extreme mood swings) and/or depression**
- **Irritability, aggression and/or severely oppositional behaviors**

- **Behavioral (developmental) regression (examples, talking baby talk, throwing temper tantrums, etc)**
- **Deterioration in school performance**
- **Sensory or motor abnormalities**
- **Somatic signs and symptoms, including sleep disturbances, bedwetting or urinary frequency.**

➤ **Treatment: Same as PANDAS**

Author (No date) Information about PANDAS.
Bethesda, MD: National Institute of Mental Health.
From website: <http://www.nimh.nih.gov/labs-at-nimh/research-areas/clinics-and-labs/pdnb/web.shtml>.

Depression/Anxiety and Inflammation/Infection

New research has shown that some depressions that do not respond to treatment may be caused by infections and inflammations. Messenger molecules called cytokines warn the body of infection and to swarm killer cells to attack the invader. This causes us to feel tired when we feel sick. Environmental stress can cause the immune system to constantly be in alert status which can put us at risk of depression and/or anxiety. Omega 3 fatty acids and ibuprofen may help such people when they become depressed and/or anxious. Some may need antidepressant medication in addition.

Kasten, E. (May/June, 2015). Can Infection Give You The Blues? Scientific American, Mind, 26(3), 46-49.

Anxiety and Inflammation

Men with current anxiety disorders have elevated low grade systemic inflammation. This may indicate a new type of anxiety disorder especially in those with late-onset anxiety disorders. It may also indicate possible new treatments for anxiety such as anti-inflammatory medication and exercise to help with immune issues.

Vogelzangs, N. et al. (April 23, 2013). Anxiety disorders and inflammation in a large adult cohort.
Translational Psychiatry. DOI: 10.1038/tp.2013.27.

Anxiety and Gut Bacteria

“Several studies have shown that mircorbiota influence behavior and that immune challenges influence anxiety-and depression-like behaviors are associated with alterations in microbiota” (p. 311).

Foster, A.J. et al. (2013). Gut-Brain Axis: How The microbiome Influences Anxiety and Depression. Trends in Neuroscience, 36(5), 305-312.

The Two Wise Men

Once I heard Daniel Amen, M.D. say, “if you have been treating a patient with a mental health disorder using evidenced based treatments and they do not respond for six months assume they have a neurological disorder until proven otherwise.”

Once Sam Goldstein, Ph.D. said to me,” Who said you have to give a diagnosis when everyone wants it. Wait 6 months, monitor the patient and see what comes out.”

Biological Changes That Can Reduce Anxiety

Biological Changes That Can Help

➤ Sleep:

- Children and teens with anxiety have a lot of insomnia-Teens as a whole get 6 hours of sleep, but need 9; 7 hours media exposure a day; No media 1 hour prior to bed-interrupts melatonin production

➤ Diet and Nutrition

➤ Get Exercise Daily

Foxman, P. (August 18, 2014). Anxiety Disorders in Children and Adolescents. Seminar recorded in Baltimore, MD. PESI, Inc.: Eau Claire, WI.



Sleep, Anxiety, and Children

- Children 6 to 13 years old need between 9 and 11 hours sleep a night.
- Glowing screens and caffeine can cause bedtime resistance, difficulty going to sleep, nightmares, and fewer sleep hours.
- Less sleep can cause significant mood swings.
- Tips for better sleep in this age range:
 - No Caffeine
 - No glowing screens in bedroom
 - Teach sleep hygiene
 - Regular and consistent sleep schedule
 - Keep room at bedtime cool, dark and quiet

(Author) (No Date). Children and Sleep. National Sleep Foundation: Arlington, VA. From website: <https://sleepfoundation.org/sleep-topics/children-and-sleep>.

Dealing with Nightmares in Children

- Listen to & reassure child
- Do fun things in the dark
- Teach coping skills/how to be brave
- Nightlight
- “Secure” the room
- Relaxation training
- No scary TV/Movies
- Discuss child’s fears and coping during the day
- Set limits...Don’t reinforce the wrong behavior
- Have them sleep in their own bed
- Check on them predictably
- Token economy.

Mindell, J. (June 2015). Children and Bedtime Fears and Nightmares. National Sleep Foundation: Arlington, VA. From website: <https://sleepfoundation.org/ask-the-expert/children-and-bedtime-fears-and-nightmares>.

Sleep, Anxiety, and Teens

- **Many are not able to go to sleep until 11:00 PM**
 - **Need 8 to 10 hours of sleep**
 - **Only 15% get 8 ½ hour of sleep**
 - **They have an irregular sleep cycle**
- **Poor sleep can cause:**
 - **Academic and memory problems**
 - **Acne**
 - **Aggressive behavior**
 - **Weight gain**
 - **Driving problems**

Sleep, Anxiety, and Teens

➤ Solutions:

- Prioritize sleep and keep a sleep diary
- Short naps not long naps
- No caffeine
- If sleepy don't drive
- Establish a consistent sleep routine
- Prior to sleep take a hot shower and/or read a real book

- Write your schedule and worries for the next day in a notebook prior to bed
- No “all-nighters”
- Teens have an ever changing sleep pattern it is a normal part of development

(Author) (No date). Teens and Sleep. National Sleep Foundation: Arlington, VA. From website: <https://sleepfoundation.org/sleep-topics/teens-and-sleep>.

Sleep, Declarative, and Procedural memory

➤ **Good sleep creates better declarative memory in adolescents**

Potkin, K. et al. (August 7, 2012). Sleep Improves Memory: The Effect of Sleep on Long Term Memory in Early Adolescence. PLOS One. DOI: 10.1371/journal.pone.0042191.

➤ **Good sleep creates better procedural memory.**

Schonauer, M. (January 2014). Strengthening Procedural Memories by Reactivation in Sleep. Journal of Cognitive Neuroscience, 26(1), 143-153. DOI: 10.1162/jocn_a_0047.

Sleep Deprivation and Diet

Too little sleep can lead to glucose metabolism changes, a bigger appetite, and a decrease calories burned. Too little sleep is a risk factor in obesity and diabetes.

Knutson, K.L. et al. (June, 2007). The Metabolic Consequences of Sleep Deprivation. Sleep Medicine Review. 11(3), 163-176. DOI: [10.1016/j.smrv.2007.01.002](https://doi.org/10.1016/j.smrv.2007.01.002).

Changes in Diet that Can Reduce Anxiety

- **Have some protein for breakfast**
- **Eat complex carbohydrates and whole grains**
- **Drink lots of water-dehydration can worsen anxiety**
- **Avoid caffeine**
- **Avoid food sensitivities**
- **Eat balanced meals**
- **Lots of fruits and vegetables**
- **As well as omega-3 fatty acids**

Hall-Flavin, D.K. (March 6, 2014). Is it true that certain foods worsen anxiety and others have a calming effect? Rochester, MN: Mayo Clinic. From website: <http://www.mayoclinic.org/diseases-conditions/generalized-anxiety-disorder/expert-answers/coping-with-anxiety/faq-20057987>.

Exercise & Anxiety



Exercise Is A First Line Treatment for Depression In Great Britton

“This report has highlighted multiple reasons for the use of exercise therapy as a first-line treatment for mild or moderate depression in primary care...There is a clear research and evidence base for exercise therapy, and clinical guidelines recognize that it can be an effective treatment response. It is popular with people who have experienced depression, it is cost-effective, and the delivery structures are increasingly present and well-managed” (p. 46).

Author (2005). Up and Running: Exercise therapy and the treatment of mild or moderate depression in primary care. Mental Health Foundation: London, Great Britton. Website:
http://lx.iriss.org.uk/sites/default/files/resources/up_and_running_full%20report.pdf.

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

Exercise as a Treatment for Anxiety/Fear

“As for the trait, the majority of studies show that aerobic exercise significantly alleviates symptoms of any anxiety disorder. But exercise also helps the average person reduce the feelings of anxiousness” (p. 92).

➤ Exercise raises the Flight-or-Flight threshold and starts the cell recovery process.

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

Exercise as a Treatment for Anxiety/Fear

Often for those with clinically significant depression and anxiety more is needed like cognitive behavioral therapy and psychotropic medication (Ratey, 2008). However, a regular regimen of aerobic exercise can lift mood, improve cardiovascular health and fitness among other things (Ratey, 2008).

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

Dogs, Children, and Anxiety

**Centers for Disease Control and Prevention researchers found
Children with a dog in their home have a significantly lower
probability of having anxiety.**

Gadomski, A.M., et al. (November 25, 2015). Pet Dogs and Children's Health: Opportunities for Chronic Disease Prevention? Prevention Chronic Disease. DOI: 10.5888/pcd12.150204.

The Relaxation Response



The Relaxation Response: Herbert Benson

- **1. Sit quietly in a comfortable chair.**
- **2. Close your eyes.**
- **3. Starting at your feet relax your muscles up to your face. Your thoughts will stop when you relax your tongue.**
- **4. Monitor your breathing. Use a different word for inhales and exhales. Breath normally.**
- **5. Practice 20 minutes a day. Occasionally open your eyes to check the time (Have a clock that is easily seen.).**
- **6. This is not a competition. Maintain a passive attitude.**

The Relaxation Response: Herbert Benson

- **7. This is a skill and like with any skill practice makes perfect. Practice once or twice a day, but not within two hours of eating. The process of digestion interferes with the relaxation response.**

Benson H. (2000). The Relaxation response: Updated and Expanded Edition (25th Anniversary Edition). New York: Avon.

Good Resource

Handout:

Author (No Date). HOW TO DO PROGRESSIVE MUSCLE RELAXATION.

Burnaby, BC, Canada: AnxietyBC. From website:

<http://www.anxietybc.com/sites/default/files/MuscleRelaxation.pdf>

Relaxation Tools

- Take a break
- Sit by self
- Talk to someone
- Stretch
- Deep breaths
- Exercise
- Sports
- “Creative Destruction”

Taking out the trash

- Music
- Drawing
- Solitude Massage
- Reading
- Repetitive Action
- Sleep

Scapra, A., Reyes, N, and Attwood, T. (2013).
Cognitive-Behavioral Therapy for Stress and Anger
Management in Young Children with ASD. In A
Scarpa, S.W. White, and T. Attwood (Eds.), CBT for
Children and Adolescents with High-Functioning
Autism Spectrum Disorders. New York, NY:
Guilford.

Anxiety Disorders

Anxiety Disorders

- **Separation Anxiety Disorder**

- **Prevalence: 4% children; 1.6% Teens**

- **Females > Males**

- **Suicide risk: Low**

- **Selective Mutism**

- **Lower than 1%**

- **Specific Phobia**

- **Prevalence: 7 to 9%**

- **Females > Males**

- **Suicide Risk: Higher than General public, but most have comorbid personality disorders**

- **Social Anxiety Disorder/Social Phobia**

- **Prevalence: 7%**

- **Females > Males**

- **Suicide risk: Low**

Anxiety Disorders

➤ Panic Disorder

- Prevalence: Children prior to age 14 < .04%/ 2 to 3% Teens
- 2 Females to 1 Male
- Suicide risk: higher with childhood history of abuse and other risk factors

➤ Agoraphobia

- Prevalence: 1.7% Teens
- 2 females to 1 Male

➤ Generalized Anxiety Disorder

- Prevalence: 1% Teens
- 2 Females to 1 Male

➤ Medical and Medication/Street Drug Caused Anxiety Disorders

Author (2013). Diagnostic and Statistical Manual of Mental Disorders, 5th Edition. American Psychiatric Association: Washington, DC.

Trauma- and Stressor- Related Disorders

➤ Reactive Attachment Disorder

- Prevalence: In neglected populations 10%

➤ Inhibited Social Engagement Disorder

- Prevalence: In neglected populations 20%

Author (2013). Diagnostic and Statistical Manual of Mental Disorders, 5th Edition.
American Psychiatric Association:
Washington, DC.

➤ Posttraumatic Stress Disorder

- Prevalence: Lifetime risk: 8.7%; higher rates in Latinos, African Americans, and Native Americans
- Suicide risk: Higher if exposed to child abuse.

➤ Acute Stress Disorder

Obsessive-Compulsive Disorder and Related Disorders

➤ **Obsessive-Compulsive Disorder**

- **Prevalence: 1.2%**

- **Boys > Girls**

➤ **Body Dysmorphic Disorder**

- Prevalence: 2.5%**

- **Females = Males; Males more problems with muscles & genitals; Females weight**

- **Suicide rate: High**

Author (2013). Diagnostic and Statistical Manual of Mental Disorders, 5th Edition. American Psychiatric Association: Washington, DC.

➤ **Hair-Pulling Disorder/Trichotillomania**

- **Prevalence: Teens and Adults 1 to 2%**

- **Girls = Boys; Teens 10 Females to 1 Males**

➤ **Skin Picking Disorder/Excoriation**

- **Prevalence: 1.4%**

- **4 Females to 1 Male**

➤ **Chemically Induced OCD**

Counseling Methods For Anxiety

Counseling Methods for Anxiety

Ones backed by replicated well designed studies:

- **Cognitive Behavioral Therapy**
- **Behavioral Therapy**
- **Exposure Therapy**
- **Systematic Desensitization**

- **Author (No date). Cognitive and Behavioral Therapies for Generalized Anxiety Disorder. Washington, DC: Society of Clinical Psychology. Form Website: <http://www.div12.org/psychological-treatments/treatments/cognitive-and-behavioral-therapies-for-generalized-anxiety-disorder/>.**
- **Author (No date). Exposure Therapies for Specific Phobias. Washington, DC: Society of Clinical Psychology. Form Website: <http://www.div12.org/psychological-treatments/treatments/exposure-therapies-for-specific-phobias/>.**
- **Manzoni et al. (February, 2008). Relaxation training for anxiety: a ten-years systematic review with meta-analysis. BMC Psychiatry. DOI: 10.1186/1471-244X-8-41.**

Controversial Counseling Methods for Anxiety

➤ Eye Movement Desensitization and Reprocessing (EMDR)

- Author (No date). Eye Movement Desensitization and Reprocessing for Post-Traumatic Stress Disorder. . Washington, DC: Society of Clinical Psychology. Form Website: <http://www.div12.org/psychological-treatments/treatments/eye-movement-desensitization-and-reprocessing-for-post-traumatic-stress-disorder/>.

➤ Thought Field Therapy

- Church, D. et al. (October, 2012). The Effect of Emotional Freedom Techniques on Stress Biochemistry: A Randomized Controlled Trial. Journal of Nervous & Mental Disease, 200(10), 891-896.

Controversial Counseling Methods for Anxiety

➤ Neurolinguistic Programing-Reframing:

- <http://www.transformations.net.nz/trancescript/nlp-and-the-treatment-of-anxiety.html>

➤ Ericksonian Hypnosis:

- Cracium, B at al. (2012). The efficiency of Ericksonian hypnosis in diminishing stress and procrastination in patients with generalized anxiety disorder. European Psychiatry. DOI: [http://dx.doi.org/10.1016/S0924-9338\(12\)75303-8](http://dx.doi.org/10.1016/S0924-9338(12)75303-8)

An aerial photograph of a river winding through a deep, layered canyon. The canyon walls show distinct horizontal geological strata. The river is a muddy brown color and curves through the valley. The overall scene is arid and rugged.

Medications Approved to Treat Childhood Anxiety

Medications Approved by the FDA to Treat Anxiety in Children and Adolescents

Supplemental Serotonin Reuptake Inhibitors (SSRIs):

- **fluoxetine (Prozac™) – Depression and Anxiety**
- **sertraline (Zoloft™) – Obsessive-Compulsive Disorder**
- **escitalopram (Lexapro™) – Over the age of 12**
- **fluvoxamine (Luvox™) - Depression**

Tricyclics:

- **clomipramine (Anafranil™) – Obsessive-Compulsive Disorder**

Author (January 26, 2005). Medication Guide About Using Antidepressants in Children and Teenagers. From website: <http://www.fda.gov/downloads/drugs/drugsafety/informationbydrugclass/UCM161646.pdf>.

Author (May 21, 2013). Antidepressants for Children and Teens. Rochester, MN: Mayo Clinic. From website: <http://www.mayoclinic.org/diseases-conditions/teen-depression/in-depth/antidepressants/art-20047502?pg=2>.

Watch for Medication Side Effects in the Children You Work With!

If you notice any of the side effects of medication listed on the following slides tell the parents/guardians and contact the prescribing physician. During the first session when discussing your informed consent and treatment contract with the student/parents/guardians tell them that you will be watching for potential medication side effects and ask for signed releases so you can contact the prescribing physician if you see them. Request the physician sign a release so he/she can contact you.

If you see a side effect send a short e-mail and fax stating you saw the child exhibiting the side effect.

Model Side Effect E-Mail/Fax

Dear Dr. _____,

On (put date) I saw your patient (put patient's name and date of birth) he/she was exhibiting a possible medication side effect. Reportedly you prescribed (put name of medication) for him/her. The specific possible side effect was (put side effect). If you have questions/comments please contact me at (put contact information).

Thank you in advance for your help with this matter.

Respectfully,

(Your name and credentials)

Suicide, Antidepressants, Children, and Teens

- **4% of children and teens have suicidal thoughts while taking antidepressants (a review of 24 studies, however there was no suicide; 2 children taking placebo also had suicidal thoughts)**
- **Risk factors**
 - **Family history of suicide**
 - **Bipolar Disorder**
 - **Family history of bipolar disorder**

Author (January 26, 2005). Medication Guide About Using Antidepressants in Children and Teenagers. From website:

<http://www.fda.gov/downloads/drugs/drugsafety/informationbydrugclass/UCM161646.pdf>.

Behaviors That May Indicate Suicidal Thinking in a Child, or Adolescent

- **“Thoughts about suicide or dying**
- **Attempts to commit suicide**
- **New or worse depression**
- **New or worse anxiety**
- **Feeling very agitated or restless**
- **Panic attacks**
- **Difficulty sleeping (insomnia)**
- **New or worse irritability**
- **Acting aggressive, being angry, or violent**
- **Acting on dangerous impulses**
- **An extreme increase in activity and talking**
- **Other unusual changes in behavior or mood”**

Author (January 26, 2005). Medication Guide About Using Antidepressants in Children and Teenagers.
From website:
<http://www.fda.gov/downloads/drugs/drugsafety/informationbydrugclass/UCM161646.pdf>.

Common Side Effects of SSRIs

- Nausea
- Nervousness, agitation or restlessness
- Dizziness
- Drowsiness

If these side effects become prolonged or annoying call the prescribing physician.

- Insomnia
- Weight gain or loss
- Headache
- Dry mouth
- Vomiting
- Diarrhea

Author (January 26, 2005). Medication Guide About Using Antidepressants in Children and Teenagers. From website:

<http://www.fda.gov/downloads/drugs/drugsafety/informationbydrugclass/UCM161646.pdf>.

Less Common and Dangerous SSRI Side Effects

- **Abnormal bleeding-usually happens when used in conjunction with another medication**
- **SSRI Syndrome (Rare) –**
 - **Anxiety**
 - **Agitation**
 - **Sweating**
 - **Confusion**

- **Tremors**
- **Restlessness**
- **lack of coordination**
- **rapid heart rate**

❖ **Get Immediate Medical Attention!**

(Author) (July 9, 2013). Selective serotonin reuptake inhibitors (SSRIs) Rochester, MN: Mayo Clinic. From website: <http://www.mayoclinic.org/diseases-conditions/depression/in-depth/ssris/art-20044825>.

Common Tricyclic Antidepressant Side Effects

- **Dry mouth**
- **Blurred vision**
- **Constipation**
- **Urinary retention**
- **Drowsiness**
- **Increased appetite leading to weight gain**
- **Drop in blood pressure when moving from sitting to standing, which can cause lightheadedness**
- **Increased sweating**

Author (January 26, 2005). Medication Guide About Using Antidepressants in Children and Teenagers.

From website:

<http://www.fda.gov/downloads/drugs/drugsafety/informationbydrugclass/UCM161646.pdf>.

Less Common Tricyclic Side Effects

- **Disorientation or confusion, particularly in older people when the dosage is too high**
- **Tremor**
- **Increased or irregular heart rate**
- **More-frequent seizures in people who have seizures**

Author (July 19, 2013). Tricyclic antidepressants and tetracyclic antidepressants. Rochester, MN: Mayo Clinic. From website: <http://www.mayoclinic.org/diseases-conditions/depression/in-depth/antidepressants/art-20046983?pg=1>.

Where to Look for Medication Side Effects

- <http://www.nimh.nih.gov/health/topics/mental-health-medications/index.shtml>
- <http://www.drugs.com>

Where to Go for General Information About Psychotropic Medications

➤ <http://www.nimh.nih.gov/health/topics/mental-health-medications/index.shtml>

Large NIMH Treatment Studies of Child Anxiety

Child and Adolescent Multimodal Study (CAMS)

- **NIMH study**
- **488 subjects; 74% were age 12 and below.**
- **Age range: 7 to 17**
- **Disorders addressed: Separation Anxiety Disorder, Generalized Anxiety Disorder, & Social Phobia (Specific Phobia, most common, but not addressed)**
- **DSM-IV, TR[®] diagnoses of separation anxiety disorder, generalized anxiety disorder, or social anxiety disorder**
- **Randomly assigned to one of four groups**

Child and Adolescent Multimodal Study (CAMS)

Randomized Study Groups

- **Group 1: 12 weeks of Cognitive Behavioral Therapy (CBT)**
- **Group 2: Medication- Sertraline (SRT) aka. Zoloft a SSRI**
- **Group 3: Cognitive Behavioral Therapy + Sertraline**
- **Group 4: Placebo Pill**
- **Participants who received Sertraline were monitored by clinicians and administered questionnaires for suicidal ideation.**
- ❖ **All groups reassessed at 24 and 36 weeks**

Child and Adolescent Multimodal Study (CAMS)

➤ Results:

- All treatments were significantly better than placebo pill
- Co-therapy (CBT + Medication did best)
- Good news! Three potential treatments for child and adolescent anxiety – medication alone, CBT alone, or co-therapy
- More good news: Suicidal ideation is far less likely to be seen in children and adolescents administered SSRIs than in those with depression.

Child and Adolescent Multimodal Study (CAMS): Follow-Up

Study Results

- **80% of responders at 24 and 36 weeks**
- **Group 3, CBT + Medication had significantly better results than CBT, or Medication alone**
- **There was no difference between the CBT alone group, and the medication alone group**
- **All the treatment groups did better than placebo**
- **At 48 weeks the children/adolescents who were in the placebo group received the combination therapy (CBT + Medication)**

Child and Adolescent Multimodal Study (CAMS)

- **Acute responders were more likely to be in remission 6 years after the study**
- **48% of the responders had relapsed after 6 years**
- **The relapsers may have needed longer combined therapy**

Child and Adolescent Multimodal Study (CAMS)

References

- Piacentini, J., et al. (March, 2014). 24- and 36-Week Outcomes for the Child/Adolescent Anxiety Multimodal Study (CAMS). Child and Adolescent Psychiatry. 53(3), 297-310.
- Ginsberg, G.S., et al. (March, 2014). Naturalistic follow-up of youths treated for pediatric anxiety disorders. JAMA Psychiatry, 71(3), 310-318.
- Rynn, M.A., et al. (March, 2015). Child/Adolescent anxiety multimodal study: evaluating safety. Journal of the American Academy of Psychiatry, 54(3), 180-190.

Pediatric OCD (Obsessive Compulsive Disorder) Treatment Study (POTS)

- **Participants were 7 to 17 years old**
- **97 of 112 completed the 12 week study**
- **Randomly assigned to one of 4 groups**
 - **Medication only (Sertraline - Zoloft)**
 - **Cognitive Behavioral Therapy (CBT) only**
 - **Combination Therapy (CBT + Sertraline)**
 - **Placebo (“Sugar Pill”)**
- **Those who were in groups who were administered Sertraline were monitored by therapist for suicidal ideation.**

Pediatric OCD (Obsessive Compulsive Disorder) Treatment Study (POTS): Results

- **The researchers concluded professionals who treat children and adolescents with Obsessive-Compulsive Disorder should begin treatment by using either Cognitive Behavioral Therapy (CBT), or Combined Therapy (CPT + Sertraline)**
- **Subjects in these two groups had a significantly higher chance of symptom abatement with the combined therapy doing slightly better than CBT alone.**
- **There was no evidence of suicidality among those subjects who were on medication.**

March, J.S. et al. (October 27, 2004). Cognitive-Behavior Therapy, Sertraline, and Their Combination for Children and Adolescents With Obsessive-Compulsive Disorder: The Pediatric OCD Treatment Study (POTS) Randomized Controlled Trial. Journal of The American Medical Association, 292(16), 1969-1976.

An aerial photograph of a pond with a grassy island in the center. Several brown cows are visible: some are on the island, and others are wading in the water. The text 'Predictive Treatment Testing' is overlaid in yellow.

Predictive Treatment Testing

Using fMRI to Predict Treatment Outcome of Cognitive Behavioral Therapy

- **Researchers from the National Institute of Mental Health & MIT recently discovered they could use fMRI to predict the treatment outcomes of patients with Social Anxiety Disorder by fMRI.**
 - **Prior to taking a 12 week treatment Cognitive Behavioral Therapy (CBT) 39 patients with Social Anxiety Disorder (SAD) were given fMRI evaluations while they were shown pictures of angry and neutral faces. Those with SAD have excessive fear responses to angry faces when compared to non-impaired peers. Those with the most intense fear response pre-treatment were also gained the most symptom relief with CBT. They also showed significant changes in how they processed angry faces their two occipitotemporal brain regions when given a post treatment fMRI.**

Doehrmann, O. et al. (January 2013). Predicting Treatment Response in Social Anxiety Disorder From Functional Magnetic Resonance Imaging. JAMA Psychiatry, 70(1), 87-97. DOI: 10.1001/2013.jamapsychiatry.5.

Using Genetic Testing to Predict Medication Treatment Outcome

- The researchers said that pretreatment fMRI may be used in the future to predict if patients may respond to CBT. They went on to mention that genetic studies may also be able to determine which medication if any a patient may respond to.
- HarmonyX: <http://www.harmonyxdiagnostics.com/patient/>
- GeneSight: <https://genesight.com>

Doehrmann, O. et al. (January, 2013). Predicting treatment response in social anxiety disorder from functional magnetic resonance imaging. JAMA Psychiatry, 70(1), 87-97.

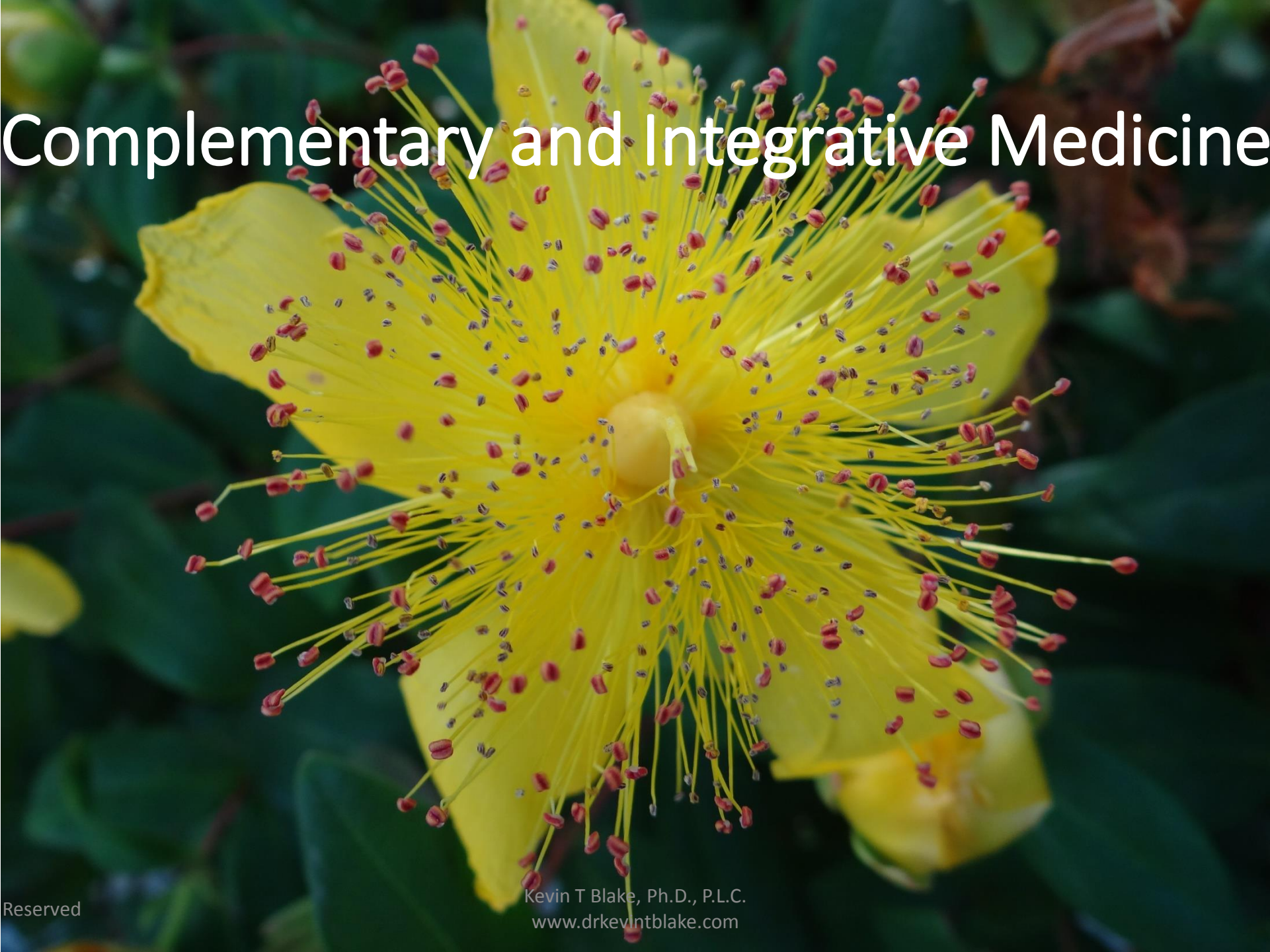
Pharmacogenomic Testing

“The purpose of pharmacogenomic testing is to find out if a medication is right for you. A small blood or saliva sample can help determine:

- Whether a medication may be an effective treatment for you**
- What the best dose of a medication is for you**
- Whether you could have serious side effects from a medication**
- The laboratory looks for changes or variants in one or more genes that can affect your response to certain medications.”**

Author (2015). Drug-Gene Testing. Rochester, MN: Mayo Clinic. From website:
<http://mayoresearch.mayo.edu/center-for-individualized-medicine/drug-gene-testing.asp>.

Complementary and Integrative Medicine



Russell Barkley & CAM Treatments

“We should all eat dung, because a thousand flies can’t be wrong!”

--Russell Barkley, PhD

Barkley, R.A. (1998). ADHD in Children, Adolescents, and Adults: Diagnosis Assessment and Treatment. New England Educational Institute, Cape Cod Symposia, August, Pittsfield, MA.



CAM Therapies

“Today’s complementary and alternative medicine is tomorrow’s mainstream, but first it must meet with rigorous scientific evaluation.”

Alan Leshner, PhD, National Advisory Council for Complementary and Alternative Medicine and CEO of the American Association for the Advancement of Science (p. 44)

Dittmann, M. (June, 2004). Alternative Health Care Gains Steam. Monitor On Psychology, 35 (6), pp. 44.

Who Uses CAM Therapies?

- **In 2007, 38.3% of adults and 11.8% of children used CAM therapies**
- **Adults age 50 to 59 were the highest users of CAM therapies with 44.1%**
- **Native Americans/Native Alaskans are the highest users by ethnic group to use CAM therapies at 50.3%**
- **4.5% of adults treated depression/anxiety with CAM therapies in 2002**

2.5% of children in 2007 received CAM therapies to treat ADHD

Author (December 2008). The Use of Complimentary and Alternative Medicine in the United States. Washington, DC: National Center for Complimentary and Alternative Medicine. From website: <http://nccam.nih.gov/news/camstats/2007/camuse.pdf>.

How Many People Use Alternative Therapies?

- **56% of those with anxiety use alternative treatments**
- **53% with Depression**
- **16% of hospital offer CAM therapies**
- **Highest rates used by those with serious and debilitating conditions**

Dittmann, M. (June, 2004). Alternative Health Care Gains Steam. Monitor On Psychology, 35 (6), pp. 42-44.

Why People Use CAM Therapies

- **Addiction fears**
- **Religious convictions**
- **Fears that putting their child on medication would preclude them from occupations when they grow up (i.e., military, airline pilot, etc.)**
- **Fears about medications in general because of recent problems with medications that treat other disorders**

Why People Use CAM Therapies

- **CAM practitioners use a holistic approach and spend more time with the patient**
- **CAM methods can be viewed as preventive**
- **CAM methodologies tend to be more customized for the patient**
- **CAM can be far less costly**

There is More to life than Symptom Reduction

- Can you meet your goals?
- Can you fulfill your roles?
- Do you have a good quality of life?
- Are you happy?
- Are you anxious and/or depressed?
- Etc.



Ramsay, R. (2010). Nonmedication treatments for adult ADHD. Washington, DC: American Psychological Association Press, p. 3.

Presented by Cross Country Education Copyright ©2011. All Rights Reserved. Kevin T. Blake, Ph.D., P.L.C. 18

Evidence Based Practice



“Evidence-based practice is the integration of best research evidence with clinical expertise and patient values.”

Sackett, D.L., Straus, S.E., Richardson, W.S., Rosenberg, W., and Haynes, R.B. (2000). Evidence Based Medicine: How to Practice and Teach EMB (2nd Edition). London, Great Britton: Churchill Livingstone.

Things to Watch for When Reading A Study

When to question if a treatment is legitimate:

- **When no research in peer-reviewed journal is available;**
- **When they say, “traditional medicine, etc.” refuses to accept what they are saying;**
- **If most professionals would not use the method**
- **when the person pushing the treatment says, “...prove me wrong...” (p.4).**

Silver, L. (Summer, 2001). Controversial Therapies, Theme Editor’s Summary. Perspectives, 27 (3), 1 and 4.

What Does a Good Research Study Have?

- **Random assignment into groups**
- **A control group where everyone in the group gets no treatment and/or a
 - **placebo, or “sham” treatment****
- **The research subjects and researcher should be “blind” to which treatment subjects are receiving**
- **A large group of subjects: 1 is no good, 1000 is much better**
- **Have the results been replicated?**
- **Who paid for the study?**

References

- Ingersoll, B., and Goldstein, S. (1993). Attention-Deficit Disorder and Learning Disabilities: Realities Myths and Controversial Treatments. New York, NY: Doubleday.
- Silver, L. (Summer, 2001). Controversial Therapies, Theme Editor's Summary. Perspectives, 27 (3), pp.1 and 4.
- Arnold, L.E. (2002). Contemporary Diagnosis and Management of Attention-Deficit/Hyperactivity Disorder. Newtown, PA: Handbooks in Health Care.
- Rappaport, L.A., & Kemper, K.J. (2003). Complementary and Alternative Therapies in Childhood Attention and Hyperactivity Problems. Developmental and Behavioral Pediatrics, 24, pp. 4-8.

Guidelines for Evaluating Treatment Research

**“Guidelines should be based on broad careful consideration of the relevant empirical literature...Recommendations on specific interventions should take into consideration the level of methodological rigor and clinical sophistication of the research supporting the intervention...The evaluation of treatment efficacy places greatest emphasis on the evidence derived from sophisticated empirical methodologies, including quasi experiments and randomized controlled experiments or their logical equivalents.”
(1053-1054)**

Author (December, 2002). Criteria for Evaluating Treatment Guidelines. American Psychologist, 57(12), 1052-1059.

National Center for Complimentary and Integrative Health (NCCIH)

- **National Center for Complementary and Integrative Health:**

- www.nccih.nih.gov

- NCCIH Clearinghouse: 888-644-6226

- **Some findings:**

- **St. John's Wort (Hypericum Perforatum) is no better than placebo with Major Depression. Now being studied with "Minor" Depression-There is some research that St. John's Wort can help with mild to moderate depression.**

- ***More research is needed!***

- Dittmann, M. (June, 2004). Alternative Health Care Gains Steam. Monitor On Psychology, 35 (6), pp. 42-44.

- Author (March 2004). Get the Facts: St. John's Wort and The Treatment of Depression. National Center for Complementary and Alternative Medicine, National Institutes of Health, NCCAM Publication #: D005: www.nccam.nih.gov/health/stjohnswort/.

Helpful Resources

- **Author (May, 2004). Dangerous Supplements: Still at Large. Consumer Reports, 69 (5), pp. 12-17.**
- **Muskin, P.R. (2000). Alternative Medicine and Psychiatry. Washington, DC: American Psychiatric Association Press.**
- **Field, T. (2008). Complementary and Alternative Therapies Research. Washington, DC: American Psychological Association Press.**
- **Ramsay, R. (2010). Nonmedication treatments for adult ADHD. Washington, DC: American Psychological Association Press.**

Helpful Government CAM Websites

- **FDA Center for Food Safety and Applied Nutrition: Dietary Supplements:**

<http://www.fda.gov/food/dietarysupplements/default.htm>

- **NIH Office of Dietary Supplements (ODS):**

<http://ods.od.nih.gov/>

- **FDA Food and Drug Scams Website:**

www.fda.gov/healthfraud

- **FDA Consumer Updates:**

www.fda.gov/ForConsumers/ConsumerUpdates/default.htm

Other Helpful CAM Websites

- **Cochrane Collaboration:**
www.cochrane.org
- **Quackwatch:**
www.quackwatch.com
- **Children (and Adults) with Attention Deficit Disorder:**
www.chadd.org
- **My ADHD:** www.myADHD.com
- **National Adult Attention Disorder Association (ADDA):** www.add.org
- **International Dyslexia Association website:** www.interdys.org.
- **Learning Disabilities Association of America:** www.ldanatl.org
- **National Center for Learning Disabilities:** www.ld.org
- **LD OnLine:** www.ldonline.org
- **Anxiety and Depression Association of America:**
www.adaa.org
- **American Psychological Association – Division 12 (Society Of Clinical Psychology) Research-Supported Psychological Treatments:**
<https://www.div12.org/psychological-treatments/>

CAM Treatments for Anxiety

Kava

- **The FDA has determined that Kava can cause severe liver damage.**
- **It has not been found to have with anxiety, or other disorders.**
- **All NCCIH research into Kava has been halted due to the FDA warning.**

Author (April 12, 2012). Kava. Washington, DC: National Center for Complimentary and Integrative Health.
From website: <https://nccih.nih.gov/health/kava>.

Lavender

- **There is little scientific evidence it works with anxiety, or other disorders.**
- **May help with alopecia areata (hair loss).**
- **May cause breast growth in boys.**

Author (April, 2012). Lavender. Washington, DC: National Center for Complimentary and Integrative Health.
From website: <https://nccih.nih.gov/health/lavender/ataglance.htm>.

Valerian

- **May be helpful for insomnia**
- **No evidence it helps with anxiety or depression.**

Author (April, 2012). Valerian. Washington, DC: National Center for Complimentary and Integrative Health.
From website: <https://nccih.nih.gov/health/valerian>.

Classroom Anxiety Methods

2015 10 23

Please Note:

- **The squeaky wheel gets the most oil...**
 - **Teachers are better as a whole recognizing the acting out externalizing students (AD/HD, Conduct Disordered, etc.).**
 - **They tend not to be as good at recognizing the withdrawn internalizing students (Depressed, Anxious, etc.).**

Herzig-Anderson, K. et al. (July 21, 2012). School-Based Anxiety Treatments for Children and Adolescents. Child and Adolescent Psychiatric Clinics, 21(3), 655-688. DOI: [10.1016/j.chc.2012.05.006](https://doi.org/10.1016/j.chc.2012.05.006).

Signs of Student Anxiety in The Classroom

- Worried about care givers
- Self-conscious, shy, will not participate in class
- Will not speak in some settings
- Constantly expressing worries, perfectionistic, overly concerned about grades
- Filled with unwanted distressing thoughts. Compulsive rituals such as hand washing, etc.
- Specific fears: Such as storms, rain, snakes, etc.
- Inattention caused by anxiety
- Many sick days and clingy
- Disruptive behavior – anxiety can cause aggression
- Do poorly in –Math, etc.
- When asked to answer questions the shrink away and cannot respond
- Frequent nurse trips
- Avoid people
- Forgetting homework

Ehmke, R. (April 13, 2015). Anxiety in The Classroom. New York, NY: Child Mind Institute.

From website:

<http://www.childmind.org/en/posts/articles/2015-4-13-anxiety-classroom>.

What to do With the Anxious Student

- These are serious concerns to the student
- Consult with School Counselor
- Be in regular contact with parents
- Reduce work expectations
- Watch for subject (math/test) anxiety
- Do not single them out in class:
 - i.e., read aloud, etc.
- Know Flight-or-Flight/Tend-and-Befriend is in play
- Cued time-out
- Remind them of coping strategies
- Help with transitions and be consistent.

Author (No date). Tips for Teachers of Anxious Students. Burnaby, BC, Canada: AnxietyBC
<http://www.ocdsb.ca/com/Mental%20Health%20Docs/Tips%20for%20Teachers-%20Anxious%20Students.pdf>.

School Based Anxiety Treatments

- **Cool Kids Program: School Version**
 - **BALTIMORE CHILD ANXIETY TREATMENT STUDY IN THE SCHOOLS**
 - **COGNITIVE-BEHAVIORAL INTERVENTION FOR TRAUMA IN SCHOOLS**
 - **SKILLS FOR ACADEMIC AND SOCIAL SUCCESS**
 - **These are group based Cognitive Behavior Therapy (CBT) in schools.**
 - **“Studies of school-based treatment programs for anxiety disorders in youth suggest promise for effectively delivering these evidence-based programs in schools”.**
- Herzig-Anderson, K. et al. (July 21, 2012). School-Based Anxiety Treatments for Children and Adolescents. Child and Adolescent Psychiatric Clinics, 21(3), 655-688. DOI: [10.1016/j.chc.2012.05.006](https://doi.org/10.1016/j.chc.2012.05.006).

Post Traumatic Stress Disorder

A photograph of a waterfall cascading over rocks into a pool of water, surrounded by lush green ferns and moss. The water is white and frothy as it falls, creating a misty spray at the base. The surrounding vegetation is dense and green, with ferns and moss visible on the rocks and banks. The overall scene is serene and natural.

PTSD Symptoms in Children

- **Being exceptionally clingy with caregiver**
- **Reenacting event over and over during playtime**
- **Bedwetting after being toilet trained**
- **Forgetting how to, or not being able to talk**
- **Re-experiencing the event**
- **Avoidance**
- **Hyperarousal**

Author (No date). Post Traumatic Stress Disorder (PTSD). Washington, DC: National Institute of Mental Health. From website: <http://www.nimh.nih.gov/health/publications/post-traumatic-stress-disorder-ptsd/index.shtml>.

Classroom Treatment for PTSD

“A standardized 10-session cognitive-behavioral group intervention can significantly decrease symptoms of PTSD and depression in students who are exposed to violence and can be effectively delivered on school campuses by trained school-based mental health clinicians”(p. 603).

Stein, B.D. et al. (March 6, 2003). A Mental Health Intervention for Schoolchildren Exposed to Violence: A Randomized Controlled Trial. JAMA, 290(5), 603-611. DOI: 10.1001/jama.290.5.603.

Treating PTSD

- **Stress Inoculation Training**
 - Teach stress reduction techniques, etc.
- **Cognitive Restructuring**
 - CBT, deal with guilt and shame, etc.
- **Exposure Therapy**
 - Guided imagery, journaling, drawing, visit place, etc.
- **EMDR**
- **Playtherapy**
- **Medications**

Author (No date). Post Traumatic Stress Disorder (PTSD). Washington, DC: National Institute of Mental Health. From website:
<http://www.nimh.nih.gov/health/publications/post-traumatic-stress-disorder-ptsd/index.shtml>.

What About PTSD?



“If mild stress becomes chronic, the unrelenting cascade of cortisol triggers genetic actions that begin to sever synaptic connections and cause dendrites to atrophy and cells to die; eventually, the hippocampus can end up physically shriveled, like a raisin.” (p. 74)

Ratey, J.J. (2008). Spark: The Revolutionary New Science of Exercise and The Brain. New York, NY: Little, Brown, p. 74.

What About PTSD?



- Hippocampus loses neuronal connections
- Medication and talk therapy can grow new neurons

Prince, J. (October 28, 2006). Closing Keynote Address - Bridging the Gap: Putting a Face on AD/HD. Paper presented at the 18th Annual CHADD International Conference, Chicago, IL.

Durman, R.S. (2002). European Journal of Psychiatry, 17 (Supplement 3), 306-310.

Saploski, R.M. (2004). Why Zebras Don't Get Ulcers, Third Edition. New York, NY: Holt, p.221

What About PTSD?



“At every level, from the microcellular to the psychological, exercise not only wards off the ill effects of chronic stress; it can also reverse them. Studies have shown that if researchers exercise rats that have been chronically stressed, that activity makes the hippocampus grow back to its preshriveled state.” (p. 79)

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

Reactive Attachment Disorder & Disinhibited Social Engagement Disorder



2015 08 03

Reactive Attachment Disorder & Disinhibited Social Engagement Disorder

Causes:

- Abuse/neglect
- Little, or no touching
- Lack of safety

Can happen when:

- Child is in orphanage
- Parents are isolated
- Parents are young/have no parenting skills

Kaneshiro, N.K. (May 14, 2014). Reactive attachment disorder of infancy or early childhood. Washington DC: U.S. National Library of Medicine, MedLine Plus. From website: <https://www.nlm.nih.gov/medlineplus/ency/article/001547.htm>.

Reactive Attachment Disorder & Disinhibited Social Engagement Disorder

- **Treatment:**
- **Make sure the child has a safe stable environment**
- **Provide consistent loving caregivers**
- **Provide a positive, interactive, stimulating environment**
- **Make sure housing, medical, and housing need fully cared for**

- **Provide counseling (individual and group) to caregivers/family**
- **Teach caregivers about disorder**

Kaneshiro, N.K. (May 14, 2014). Reactive attachment disorder of infancy or early childhood. Washington DC: U.S. National Library of Medicine, MedLine Plus. From website: <https://www.nlm.nih.gov/medlineplus/ency/article/001547.htm>.

Social Anxiety



Ways Social Interactions Influence Physical Health

- **Social Support: Stress Buffering-Reduces the stressful event by promoting less threatening interpretation of the event.**
- **Social Integration: Main Effect-Promotes positive psychological states, social motivation and pressure to care for oneself.**
- **Negative Interactions: Relationships as a Source of Stress-Elicits psychological stress and increases risk for disease.**

Cohen, S. (November, 2004). Social Relationships and Health. American Psychologist, 59 (8), pp. 676-674.

Social Anxiety Disorder (SAD) & Unemployment

- **Patients with Major Depressive Disorder, or Anxiety Disorders have higher unemployment and work impairment than the norm.**
- **Patients with SAD are 2 ½ times more likely than those with Major Depressive Disorder, or other forms of Anxiety Disorders to be unemployed.**

Moitra, E., Beard, C., Weisberg, R.B., and Keller, M.B. (September, 2010). Occupational and Social Anxiety Disorder in a Sample of Primary Care Patients. Journal of Affective Disorders. doi: 10.1016/j.ad.2010.09.024.

Social Anxiety Disorder (SAD) & Unemployment

“These findings highlight the particular need to assess the presence of under education and underperformance at work and/or unemployment in individuals with SAD, as they are at most risk for these impairments. Additionally, early detection and intervention with individuals with, or at risk for SAD may curb the impact of social anxiety or occupational attainment.”

Moitra, E., Beard, C., Weisberg, R.B., and Keller, M.B. (September, 2010). Occupational and Social Anxiety Disorder in a Sample of Primary Care Patients. Journal of Affective Disorders. doi: 10.1016/j.ad.2010.09.024.

Social Anxiety and Shyness



Attwood (2002) gave an example of an Australian soldier who fought behind enemy lines as a lone sniper in Vietnam who said his social anxiety is much more pronounced than his PTSD from the war ever was.

Atwood, T. (July, 2002). Social Skills for Children with Asperger's and High Functioning Autism. Workshop presented on July 19, 2002 in Scottsdale, AZ: Future Horizons, Inc. 721 West Abram Street, Arlington, TX 76013.

Social Anxiety



“Social anxiety can prevent you from accessing the social information you know to be true and the social skills you have intact...Unfortunately, social anxiety appears to be strongly correlated with having weaker social thinking and related social skills.” (p. 206)

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

Social Anxiety & Shyness



- 10 to 15% of newborns have an inherited enhanced startle response.
- A 20 year follow-up study of such children with fMRI imaging indicated they are still shy neurologically, especially to strangers.

Zimbardo, P.G. (2000). The Personal and Social Dynamics of Shyness: Adults and Children. Paper presented at the 50th Annual Arizona Psychological Association Conference, October 21, 2000, Tucson, AZ.

Schwartz, C.E., Wright, C.I., Shin, L.M., Kagan, J., Rauch, S.L. (June, 2003). Inhibited and Uninhibited Infants “Grown Up”: Adult Amygdalar Response to Novelty. Science, 300 (5627), pp. 1952-1953.

Social Anxiety and Shyness



The amygdala is activated in the genetically shy when they are shown pictures of unfamiliar people. This would tend to indicate they feel fear and are overly vigilant when they see strangers. This does not occur in the non-shy.

Schwartz, C.E., Wright, C.I., Shin, L.M., Kagan, J., Rauch, S.L. (June, 2003). Inhibited and Uninhibited Infants “Grown Up”: Adult Amygdalar Response to Novelty. Science, 300 (5627), pp. 1952-1953.

Shyness Defined

**“Shyness may be defined experimentally as discomfort or inhibition in interpersonal situations that interferes with pursuing one’s interpersonal or professional goals.”
(p. 497)**

Henderson, L. and Zimbardo, P. (1998). Shyness. Encyclopedia of Mental Health, 3, p. 497.



Social Phobia



- **Two Subtypes:**
 1. **Specific Type-** public speaking, eating in public, etc.
 2. **Generalized Type-**very broad
 - **These people shy away from treatment: 36% of those who meet DSM criteria actually get treatment**

Dittmann, M. (July/August, 2005). Stemming Social Phobia. Monitor On Psychology, 36 (7), pp. 92-94.

Heimberg, R.G., Liebowitz, M.R., Hope, D.A., Scheier, F.R., Holt, C.S., Welkowitz, L.A., Juster, H.R., Campeas, R. Bruch, M.A., Cloitre, M, Fallon, B., Klein, D.F. (1998). Cognitive Behavior Group vs Phenelzine Therapy for Social Phobia. Archives of General Psychiatry, 55, p. 1133-1141.

Shyness in a Nutshell

- **“S”ELF-BLAME AND SHAME**
- **“A”VOIDANCE**
- **“D”ISTRESS**
- **“F”EAR OF NEGATIVE EVALUATION**
- **“I” MUST BUT I CAN’T**
- **“X”-POSURE: FEAR OF BOTH FAILURE AND SUCCESS**
- **“S”ELF SABOTAGE**



Zimbardo, P.G. (2000). The Personal and Social Dynamics of Shyness: Adults and Children. Paper presented at the 50th Annual Arizona Psychological Association Conference, October 21, 2000, Tucson, AZ.

Shyness Treatment



I asked Zimbardo what he thought those who had neurobiological disorders who were genetically shy needed most and he said, “Training in the skills to make legitimate excuses.”

Zimbardo, P.G. (2000). The Personal and Social Dynamics of Shyness: Adults and Children. Paper presented at the 50th Annual Arizona Psychological Association Conference, October 21, 2000, Tucson, AZ.

Shyness Treatment



- **Cognitive Behavioral Therapy and Antidepressant Medication works 80% of the time with 5 year follow-up. Thought to be best method of treatment (Richard Heimberg, Ph.D.).**

Dittmann, M. (July/August, 2005). Stemming Social Phobia. Monitor On Psychology, 36 (7), pp. 92-94.

Heimberg, R.G., Liebowitz, M.R., Hope, D.A., Scheier, F.R., Holt, C.S., Welkowitz, L.A., Juster, H.R., Campeas, R. Bruch, M.A., Cloitre, M, Fallon, B., Klein, D.F. (1998). Cognitive Behavior Group vs Phenelzine Therapy for Social Phobia. Archives of General Psychiatry, 55, p. 1133-1141.

Treatment of Social Anxiety/Shyness



- **Zimbardo (2000) described a 26 week treatment program at his shyness clinic that includes the following: Cognitive Behavior Modification/Cognitive Restructuring, Self-Esteem Restructuring, Support Groups, Practice, Medications, Video Social Skills Training, Encouragement, etc.**
- **www.shyness.com and www.shynessinstitute.com**

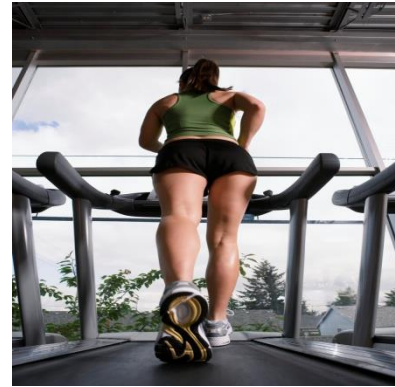
Zimbardo, P.G. (2000). The Personal and Social Dynamics of Shyness: Adults and Children. Paper presented at the 50th Annual Arizona Psychological Association Conference, October 21, 2000, Tucson, AZ.

Treatment of Social Anxiety/Shyness



- Henderson, L. (2011). Improving Social Confidence and Reducing Shyness Using Compassion Focused Therapy. Oakland, CA: New Harbinger.
- Henderson, L. (2009). Social Fitness Training Manual: A Cognitive-Behavioral Approach to Treating Shyness and Social Anxiety Disorder. Berkley, CA: The Shyness Institute.

Treatment of Social Anxiety/Shyness



Aerobic Exercise:

“As for the trait, the majority of studies show that aerobic exercise significantly alleviates symptoms of any anxiety disorder.” (p. 92)

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

Good Resources on Exercise and Counseling



- 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!*

People and Organizations Who Can Help With Social Anxiety/Shyness

- American Psychiatric Association:
www.apa@psych.org
- American Psychological Association: www.apa.org
- American Association of Marriage and Family Therapists:
www.aamft.org
- National Board of Certified Counselors:
www.nbcc@nbcc.org
- National Association of
Social Workers: www.naswdc.org
- Anxiety Disorder and Depression
Association of America: www.adaa.org



Obsessive Compulsive Disorder

2013 10 18

OCD Symptoms in The Classroom

- **Excessive fear of germs and disease**
- **Being overly scrupulous: fear of offending God, fear might kill someone**
- **May step on a crack and break mother's back, etc.**
- **Counting objects constantly**
- **Constantly tired**
- **Excessively slow on assignments and tests**
- **Perfectionism**
 - **May avoid tests**
 - **May avoid homework**

OCD Symptoms in The Classroom

- **Obsessive erasing**
- **Constant retracing**
- **Over-attending to obsession: “Is Dad still alive?”**
- **Frequent bathroom breaks**
- **Can’t change tasks**
- **Constant need for reassurance**

Bubrick, J. (November 28, 2011). A Teacher’s Guide to OCD in the Classroom: How to recognize the disorder in a struggling child. New York, NY: Child Mind Institute. From website:
<http://www.childmind.org/en/posts/articles/2011-11-28-teachers-guide-ocd-classroom>.

Classroom Treatments for OCD

- **Writing with laptops**
- **Extended time for written assignments and tests (for a short period of time-Rappaport)**
- **Use the buddy system-Buddy plods them along**
- **Private testing rooms**
- **Reading**
 - **Don't have read aloud**
 - **Learning Ally recordings**
- **Shorter homework assignments, or chunking**

Classroom Treatments for OCD

- **Let them go to the teachers lounge, etc. when stressed**
- **Know what triggers their OCD and work around it**
- **Advance notice of routine changes**

Bubrick, J. (September 16, 2014). A Teacher's Guide to Helping Kids With OCD: What you can do to help a child who's struggling. New York, NY: Child Mind Institute. From website:
<http://www.childmind.org/en/posts/articles/2011-11-28-teachers-guide-helping-kids-ocd>.

Academic Anxiety



Test Anxiety

➤ Causes:

- Past difficulty with tests
- Poor study habits
- Fear of failure

➤ Symptoms:

- Negative self-talk – comparing self to others, etc.
- Fear, anger, helplessness
- Physical manifestations of fear and anxiety

➤ Tips for student:

- Learn and practice relaxation technique
- Learn and use good study skills
- Control negative self-talk
- Don't talk to other students
- Sleep, eat, exercise
- Get counseling

Author (No date). Test Anxiety. Silver Spring, MD: Anxiety and Depression Association of America.
From website: <http://www.adaa.org/living-with-anxiety/children/test-anxiety>.

Test Anxiety

Researchers from the University of Chicago found when students journal about their test related anxiety immediately prior to taking a high stakes exam their anxiety abates significantly and their performance significantly improves.

Ramiez, G. et al. (January 14, 2011). Writing about testing worries boosts exam performance in the classroom. Science, 331(6014), 211-213. DOI: doi: 10.1126/science.1199427.

Math Anxiety



Math Anxiety

➤ Math Anxiety:

- Compromises whole number arithmetic problem solving on timed tests, but doesn't effect math achievement scores.
- It compromises working memory which is essential for math problem solving.
- It causes cognitive and emotional compromise.

Ashcraft, M.H. (October, 2002). Math Anxiety: Personal, Educational, and Cognitive Consequences. Psychological Science, 11(5), 181-185. DOI: 10.1111/1467-8721.00196.

Ashcraft, et al. (April 2007). Working memory, math performance, and math anxiety. Applying cognitive psychology to education, 14(2), 243-248.

Executive Function Memory Problems

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

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

Working Memory & Anxiety

- **“Acute stress can almost halve a person’s mental capacity.”**

Klingberg, T. (2013). *The Learning Brain: Memory and Brain Development in Children*. New York, NY: Oxford University Press.

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

Minahan, J. (November 12, 2014). Theory Into Practice: Effective Intervention for Students with Anxiety. Paper Presented as part of The Impact of Stress and Anxiety on Cognition and Behavior in Students with Dyslexia: What to Know and What to Do Symposium (Symposium W3) of the 65th Annual International Dyslexia Association Conference, San Diego, CA.

Possible Working Memory Computer Training Programs

Working Memory Training:

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

Klingberg, T. (February, 2006). Training Working Memory. AD/HD Report, 14(1), pp. 6-8.

Barkley, R. (February, 2006). Editorial Commentary Issues in Working Memory Training in ADHD. ADHD Report, 14(1), pp. 9-11.

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

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

Smith, G.E., et al. (2009). A Cognitive Training Program Based on Principles of Brain Plasticity: Results from the Improvement in Memory with Plasticity-based Adaptive Cognitive Training (IMPACT) Study. Journal of the American Geriatrics Society, 57, 594-603; from website:

https://wiki.umn.edu/pub/LNPI/ExpertPanelPublications/G_Smith_-_A_cognitive_training_program_based_on_principles_of_brain_plasticity_results_from_the_Improvement_in_Memory_with_Plasticity-based_Adaptive_Cognitive_Training_study..pdf.

Literature Review of Working Memory Training:

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

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

Richard Abby on Working Memory

➤ **WM is the best predictor of academic success:**

➤ **Reading Comprehension, Math Word Problems, Computation, Verbal Mediation, Complex Reasoning and Inhibition**

➤ **Rehearsal is best for temporary storage**

➤ **When item in WM is lost it cannot be recovered.**

➤ **80% with working memory problems have significant difficulty with reading, or math, or both**

Abby, R. (November 12, 2014). What is Working Memory and What is the Role of Working Memory in Attention and Learning. Paper presented as part of the Understanding and Remediating Working Memory Deficits in Students With Dyslexia Symposium (W6 Symposium) At the 65 the Annual International Conference of the International Dyslexia Association, San Diego, CA.

Richard Abby on Working Memory

➤ Things that disrupt Working Memory:

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

➤ What helps Working Memory:

- Silent environment
- White noise
- Repeat over and over by rote
- Associating it with something in Long-term memory
- Rhyming, Mnemonics, chunking.

Abby, R. (November 12, 2014). What is Working Memory and What is the Role of Working Memory in Attention and Learning. Paper presented as part of the Understanding and Remediating Working Memory Deficits in Students With Dyslexia Symposium (W6 Symposium) At the 65 the Annual International Conference of the International Dyslexia Association, San Diego, CA.

Techniques that Help Memory

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

Anderson, A. (January/February, 2011). Why Testing Boosts Memory. Scientific American Mind, 21(6), 13.

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

Grilli, M.D., and Glisk, E.L. (August 5, 2012). Imagining a Better Memory: Self-Imagination in Memory - Impaired Patients. Clinical Psychological Science, 20(10), 1-7. From website:
<http://cpx.sagepub.com/content/early/2012/10/02/2167702612456464.full.pdf+html>.

Working Memory Interventions

➤ Teach

- N-Back
- Chunking
- Rehearsal
- How to ask for help

➤ Reduce Cognitive Load

- Match amount of information to WM limit
- Repetition, Repetition...
- No multitasking
- Provide memory prompts

➤ Reduce Cognitive Load

- Self-paced learning
- Allow extended time
- Provide note taker/recorder
- Stay on topic
- Use only Key examples
- Allow step by step directions on desk

Dehn, M.J. (2014). Essentials of Processing Assessment, Second Edition. Hoboken, NJ: Wiley.

Treatments For Memory Disorders

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

Nosek, K. (1997). Dyslexia in Adults: Taking Charge of Your Life. Dallas, TX: Taylor.

Smith, L. and Godfrey, H.D.P. (1995). Family Support Programs Rehabilitation: A Cognitive - Behavioral Approach to Traumatic Brain Injury. New York, NY: Plenum.

Barkley, R.A. (2013). Attention - Deficit Hyperactivity Disorder, Fourth Edition. New York, NY: Guilford.

Fawcett, A.J. (October 29, 2010). Dyslexia, Dysgraphia and Procedural Learning Deficit. Paper Presented at the 61 st Annual International Dyslexia Association Conference, Phoenix, AZ (October 27- 30, 2010), Session F5.

Goldstein, S. and Goldstein, M. (1997). Drugs Affecting Learning, Attention, and Memory. In S. Goldstein (Ed.), Managing Attention and Learning in Late Adolescence & Adulthood: A Guide for Practitioners. New York, NY: John Wiley & Sons, pp. 327-373.

➤ www.doctormemory.com

➤ Doctor memory

➤ Lucas, J. and Lorayne, H. (1974). The Memory Book. New York, NY: Ballantine.

Technology for Memory Difficulties

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

Professionals Who Can Help with Memory

- AD/HD Coaches: www.addbrain.com
- Professional Organizers: www.napo.net
- Psychiatrists: www.apa@psych.org
- Psychologists: www.apa.org
- Masters Level Counselors: www.nbcc.org
- Social Workers: www.naswdc.org
- Behavioral Neurologists: www.anpaonline.org
- Speech-Language Pathologists:
www.professional.asha.org
- Association for Persons in Supported Employment (APSE): www.apse.org

Working Memory & Anxiety

Problem Times for Anxious Students

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

Minahan, J. (November 12, 2014). Theory Into Practice: Effective Intervention for Students with Anxiety. Paper Presented as part of The Impact of Stress and Anxiety on Cognition and Behavior in Students with Dyslexia: What to Know and What to Do Symposium (Symposium W3) of the 65 the Annual International Dyslexia Association Conference, San Diego, CA.

Self-Monitoring

Teach

Emotional
Thermometer
(Body Sensation)

Practice
Relaxation

Collect Calming
Activities

Math Anxiety

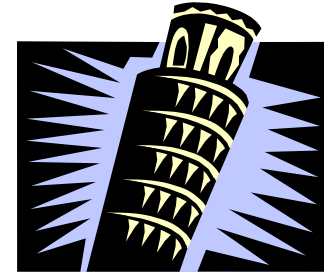
- **It's OK to have Math Anxiety, But not Reading Anxiety**
- **50% of First and Second Graders report significant Math Anxiety**
- **How to combat Math Anxiety:**
 - **Make sure student master math skills before moving on**
 - **Change assessment techniques:**
 - **Get rid of timed math tests**
 - **First test for concept understanding then accuracy**
- **Have students write about their Math Anxiety**
- **Be careful what you say to the student – Don't let them think they are weak in math, etc.**

Beilock, S.I. et al. (Summer, 2014). Math Anxiety: Can Teachers Help Student To Reduce It? American Educator. DOI: <https://hpl.uchicago.edu/sites/hpl.uchicago.edu/files/uploads/American%20Educator,%202014.pdf>.

Foreign Language Learning Anxiety



Linguistic Coding Difference

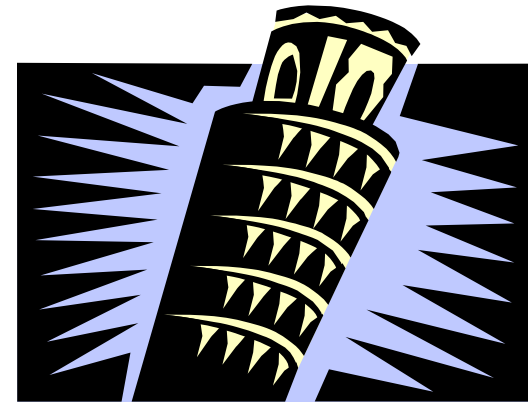


Sparks spoke of two types of students with difficulty with foreign language:

- **Those with no phonological problems, but problems with listening comprehension, and oral expression.**
- **Those with phonological processing problems and listening comprehension, oral expression vocabulary, and general linguistic awareness problems.**

Sparks, R.L. (1995). Examining the Linguistic Coding Differences Hypothesis to explain Individual Differences in Foreign Language Learning. Annals of Dyslexia, 45, pp. 187-214.

Linguistic Coding Difference



In addition to phonological problems poor foreign language learners tend to have weaknesses in spelling, word identification, and grammar. Memory problems may also cause problems with foreign language learning.

Sparks, R.L., Ganschow, L., and Javorsky, J. (1992). Diagnosing and Accommodating the Foreign Language Learning Difficulties of College Students with Learning Disabilities. Learning Disabilities Research & Practice, 7, pp. 150-160.

Linguistic Coding Difference

Foreign Language anxiety is the result of Linguistic Coding Difference not the cause!

Sparks, R.L., Ganschow, L., and Javorsky, J. (1992). Diagnosing and Accommodating the Foreign Language Learning Difficulties of College Students with Learning Disabilities. Learning Disabilities Research & Practice, 7, pp. 150-160.



Linguistic Coding Difference and The Question of Substitution



- Just because someone is LD does not indicate they need a foreign language course substitution.
- Those who had no difficulty with mother tongue should not be considered for substitution
- “...many students classified as LD had passed high school FL courses with average or above-average grades” (p. 346).
- Disability Services staff should help students map out a successful strategy for the student to take foreign language courses.

Linguistic Coding Difference/ADHD



- Just because a student has AD/HD does not mean they have LCD.
- AD/HD students usually pass foreign language courses with A, B, or C grades
- Accommodations for AD/HD without LCD: sometimes extended time and non-distracting environment.
- Some do have AD/HD and LCD.

Javorsky, J., and Sparks, R. (November 16, 2002). Diagnostic and Foreign Language Achievement Profiles of College Students with AD/HD: An Examination of Test Files from 1996-2001. Paper Presented at the 53rd Annual International Dyslexia Conference, Atlanta, GE.

LCD/Substitutions



- Most postsecondary institutions offer course substitutions for Foreign Language courses.
- This is a contentious issue (Academic Integrity vs. Substitution, etc.).
- As accommodations for LD students become better developed and available for Foreign Language courses fewer substitutions will be granted.
- OCR recommended “well-tailored accommodations” (p. 322) that require coordination between faculty and LD services.

Brinkerhoff, L, McGuire, J.M., Shaw, S.F. (2002). Postsecondary Education and Transition for Students with Learning Disabilities. Austin, TX: Pro-Ed.

Linguistic Coding Difference



Possible Accommodations

- **Synthetic Multi-Sensory Phonics instruction in the foreign language**
- **Take a written rather than a spoken language**
- **Intense tutoring**
- **Reduced overall load while taking this course**
- **Ideographic languages (i.e., Chinese, etc.)**
- **American Sign Language**
- **Immersion**

Shaw, R.A. (July/August, 1999). The Case for Course Substitutions as a Reasonable Accommodation for Students with Foreign Language Learning Difficulties. Journal of Learning Disabilities. 32 (4), 320-349.

Linguistic Coding Difference

Excellent Reference:

Schneider, E., and Crombie, M. (2003). Dyslexia and Foreign Language Learning. London, Great Britton: David Fulton.



Neurodevelopmental Disorders & Anxiety

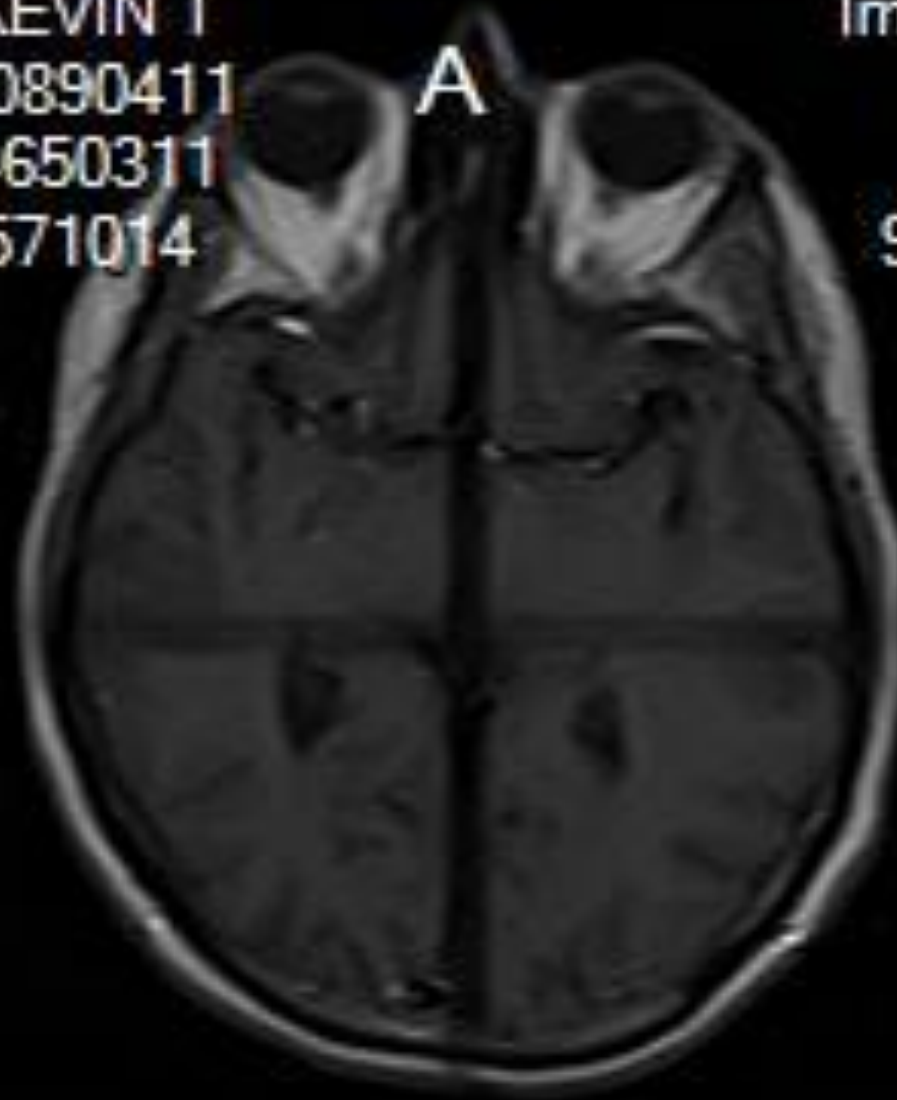


Specific Learning Disorder

2015 10 21

BLAKE, KEVIN T
MRN: 000890411
Acc #: 04650311
DOB: 19571014
Sex: M

Image: 1 of 3
Series: 1
12/8/2015
9:58:48 AM



R

Dyslexia
Kevin T. Blake, Ph.D., P.L.C.
www.drkevintblake.com

Zoom: 1.00:1
W/L: 9661/4830

256x256

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

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

Fawcett, A.J. (2001). Dyslexia: Theory and Good Practice. Philadelphia, PA: Whurr.

Wilcke, A. (November 14, 2014). Genetics of Dyslexia and the Development of a Multimodal Test Early Dyslexia. Paper presented at the 65th Annual International Dyslexia Conference San Diego, CA.

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

Differences in the Dyslexic Brain

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

- An irregularity in the cellular architecture of the posterior planum temporale region of Wernike's area in the left temporal lobe
- They have ectopias and dysplasias in far greater numbers
- 2/3rds of normals have asymmetry of planum temporale (Lt > Rt)₃
- Dyslexics' planum temporale are symmetrical
- Increased posterior symmetry₄
- Dyslexics with severe language delay have reversed parietal-occipital asymmetry – RT planum > LT
- Dyslexics tend to have a larger right hemisphere than left in adulthood
- "...several studies on low-level visual processing have found that people with dyslexia show visual abnormalities that implicate a deficit in the transient (magnocellular) subdivision of the visual pathway" (p. 81)
- "...differences in cell size and cell-size distribution in posterior and anterior cerebellar cortex, and inferior olive with no differences in the output areas (the dentate nucleus)" (p. 98-99)
- Dyslexic female brains differ from Dyslexic male brains

Your Tax Dollars at Work

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

Initiated 1965

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

Your Tax Dollars At Work

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

Your Tax Dollars At Work

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

Lyon, G.R. (1999). In Celebration of Science in the Study of Reading Development, Reading Disorders and Reading Instruction. Paper presented at the International Dyslexia Association 50th Annual Anniversary Conference, November 4, 1999, Chicago, IL.

Your Tax Dollars At Work

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

Lyon, G.R. (Thursday, February 27, 2003). Application of Scientific Research Methods to the Study of Naming Deficits: Systematic Interventions to Improve Fluency in Word Reading Skills and Comprehension. Paper Presented at the 40th Annual Learning Disabilities Association Conference, Chicago, IL, Session T-39.

Your Tax Dollars At Work

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

Lyon, G.R. (March 19, 2004). A Summary of Current NICHD Research Findings in Math and Reading Development in English Speaking Children and Plans For Future Research. Seminar Presented at the 41st Annual Learning Disabilities Association of America International Conference, Atlanta, Georgia, March 17 to March 20, 2004.

Your Tax Dollars At Work

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

**Author (2013). Diagnostic and Statistical Manual of Mental Disorders, 5th Edition.
American Psychiatric Association: Washington, DC.**

Reading Disorder-Dyslexia

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

Stanovich, K.E. (1994). Romance and Reality. The Reading Teacher, 47, pp. 280-291.

SLD-Dyslexia

The Symptoms of Dyslexia are:

1. Weak Phonemic Awareness

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

3. Poor Orthographic Processing

4. Exceptionally Poor Automatization

5. Poor Coordination

❖ Some Dyslexics had all the symptoms.

❖ Some only had one.

❖ Four had none of the aforementioned deficits.

Fawcett, A.J. (2001). Dyslexia: Theory and Good Practice. Philadelphia, PA: Whurr.

Blake, K.. (2003) Personal Observation.

Reid, A.A. (November 11, 2006). Cognitive Profiles of Individuals with Developmental Dyslexia: Insights From a Large Sample Study. Preliminary Findings . Paper presented at the 57th Annual International Dyslexia Association Conference, Indianapolis, IN.

Definition Of Dyslexia

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

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

International Dyslexia Association (April 20, 2005). IDA/NIH Adopts A New Definition of Dyslexia. From website: www.interdys.org/serlet/compose?section_id=8&page_id=69, Page 1 Of 2

THE PAOMNNEHAL PWEOR OF THE HMUAN MNID

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

Davis, M. (2003). www.mrc-cbu.cam.ac.uk/~mattd/Cmabrigde/

Rawlinson, G. (1999). Reibadaily. New Scientist. 162 (2188), p. 55. From website:
www.mrc-cbu.cam.ac.uk/~mattd/Cmabrigde/newscientist_letter.html

The “Dyslexia **bd** **pq** Phenomenon”

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

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

Dehaene, S. (2009). The New Science of How We Read. New York, NY: Penguin.

“LEXDEXIA”

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

- The brain automatically learns what something looks like in mirror image (this is an instinct).
- Only about 7% of adult dyslexics have this concern.
- Dyslexics are slower at unlearning than non-dyslexics.
- ❖ **Dyslexia is not seeing the word “WAS” as “SAW”.**

Anderson, C.W., Jr. (January 23, 2006). Personal Communication.

Dehaene, S. (2009). The New Science of How We Read. New York, NY: Penguin.

Badian, N. A. (2005). Does a Visual-Orthographic Deficit Contribute to Reading Disability? Annals of Dyslexia, 55(1), 28-52.

How To Help Those With Dyslexia To Reading

National Reading Panel

Panel of government funded experts released a report to United States Congress (April 13, 2000)

- **Reviewed over 100,000 reading research articles published since 1966**
- **10 to 15 percent of dyslexics will drop out of high school.**

How to Help Those With Dyslexia To Read

National Reading Panel

- First teach phonemic awareness (rhyming, clapping out word sounds, etc.)
- Second teach phonics (sound to symbol)
- Third teach Whole Language
- In this order with dyslexics

National Reading Panel (4/13/2000). www.nichd.gov/publications/pubs/readbro.htm.

Multisensory Teaching Techniques

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

International Dyslexia Association (2005).
Framework for Informed Reading and Language
Instruction: Matrix of Multisensory Structured
Language Programs. Baltimore, MD: International
Dyslexia Association.

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

Dyscalculia

Math Neurology

- **During mental calculation the right and left angular gyrus (hIPS-Horizonal Part of the intraparietal sulcus) fire simultaneously with the right side slightly stronger.**
- **Also the prefrontal cortex fires strongly.**

Dehaene, S. (2011). The Number Sense: How the Mind Creates Mathematics (Revised & Expanded Edition). New York, NY: Oxford University Press.

Genetics

“ ...heritability in arithmetic would amount to about 50%--implying that about half the variance in arithmetical performance is due to genetic differences among individuals” (p. 142).

Dehaene, S. (2011). The Number Sense: How the Mind Creates Mathematics (Revised & Expanded Edition). New York, NY: Oxford University Press.

Number Sense

Dehaene defined *Number Sense* as, “...the peculiar idea that we owe our mathematical intuitions to an inherited capacity that we share with other animals, namely, the rapid perception of approximate numbers of objects” (p. 237).

Dehaene, S. (2011). The Number Sense: How the Mind Creates Mathematics (revised & Expanded Edition). New York, NY: Oxford University Press.

Number Sense

“Dr. Geary added that, in contrast to the low achievers, students with a math learning disability not only have a poor concept of numbers, but also have difficulty memorizing math facts”.

NIH/National Institute of Child Health and Human Development (2011, October 24). Math disability linked to problem relating quantities to numerals. ScienceDaily. Retrieved November 1, 2011, from [http://www.sciencedaily.com /releases/2011/10/111024165553.htm](http://www.sciencedaily.com/releases/2011/10/111024165553.htm)

Your Tax Dollars at Work

THE RESEARCH PROGRAM IN MATHEMATICS AND SCIENCE COGNITION AND LEARNING- DEVELOPMENT AND DISORDERS



Mathematics and Science Cognition and Learning: Development and Disorders (MSCL) Program

- Originally known as:
- THE RESEARCH PROGRAM IN MATHEMATICS AND SCIENCE
COGNITION AND LEARNING-DEVELOPMENT DISORDERS
- **Your Tax Dollars at Work!**
- http://www.nichd.nih.gov/about/org/crmc/cdb/prog_mscl/index.cfm

Your Tax Dollars At Work

- Study the biology and genetics of math learning
- Longitudinal study of number estimation
- Study Subtypes of Specific Learning Disorder with Impairment in Mathematics
- Study normative development of math abilities
- Study Classroom interventions for those with AD/HD, Reading Disorder, Turner Syndrome, Fragile X, Williams Syndrome and Specific Learning Disorder with Impairment in Mathematics

Lyon, G.R. (March 25, 2004). United States Department of Health and Human Services. Testimony on Headstart before the Subcommittee on Labor, HHS, & Education and Related Agencies. Committee on Appropriations, U.S. House of Representatives: www.hhs.gov/asl/testify/t040325.html .

THE RESEARCH PROGRAM IN MATHEMATICS AND SCIENCE COGNITION AND LEARNING- DEVELOPMENT AND DISORDERS

Research into etiology, classification, diagnosis, prevention,
treatment, genetics, longitudinal aspects and comorbidity of Specific
Learning Disorder with Impairment in Mathematics
www.nichd.nih.gov/CRMC/cdb/math.htm#interest

Specific Learning Disorder with Impairment in Mathematics : Prevalence

- **3 to 5% have Specific Learning Disorder with Impairment in Mathematics**
- **There is an equal number of males and females who have it.**
- **¼ of those with Dyslexia and ¼ with AD/HD have Specific Learning Disorder with Impairment in Mathematics.**
- **Those with Reading Disorder-Dyslexia and Specific Learning Disorder with Impairment in Mathematics are the most impaired.**

Shalev, R.S. (October, 2004). Developmental Dyscalculia. Journal of Child Neurology, 19 (10), pp. 765-771.

Specific Learning Disorder with Impairment in Mathematics & Nonverbal Learning Disabilities (Social Communication Disorder)

- Most people who do not have Reading Disorder-Dyslexia but have Mathematics Disorder have symptoms similar to NVLD.
- NVLD is not the same as Mathematics Disorder.
- Those with Reading Disorder-Dyslexia represent the majority of those who have problems with arithmetic, but they usually do not meet criterion for Mathematics Disorder.
- Approximately 65% of those 9 to 15 years old with NVLD will have Mathematics Disorder.

Rourke, B.P. (2006). Question # 8: “Is “specific arithmetic disability” (SAD) the same as NLD? Do all persons with NLD exhibit SAD? From Website: www.nld-bprourke.ca/BPR8.html .

Number Sense

“Much of math ability is learned, but it’s quite possible that an inborn factor influences both the understanding of quantities as well as makes learning math easier for some people. This study doesn’t imply or prove that math abilities aren’t learned,” Mazzocco said.

Author (June 17, 2011). Difficulty Estimating Quantity Linked to Math Learning Disability. National Institute of Health News. From website: <http://www.nichd.nih.gov/news/releases/061711-math-disabilities-test.cfm>

Specific Learning Disorder with Impairment in Mathematics Problems With “Number Sense”

Michèle Mazzocco, Ph.D., whose research was funded by the NIH’s NICHD found that children with Specific Learning Disorder with Impairment in Mathematics /dyscalculia had the worst number estimation scores. About 10% of children have persistent problems with math. Poor number sense appear to be the core difficulty of those with dyscalculia, but not those who are low math achievers as a whole.

Author (June 17, 2011). Difficulty Estimating Quantity Linked to Math Learning Disability. National Institute of Health News. From website: <http://www.nichd.nih.gov/news/releases/061711-math-disabilities-test.cfm>.

Comorbidity/Emotional Overlay



2015 06 07

Emotional Overlay And Learning Disorders

- **Seigel (1974) concluded that the most common problems for LD adults are social/emotional.**
- **Roffman (2000) wrote “It is difficult to grow up with LD and experience repeated failure and relentless taunting from peers without secondary psychological issues often referred to as *emotional overlay*. Emotional overlay does not always develop into diagnosable mental health problems..., but the symptoms can be quite debilitating nonetheless” (p. 44).**

Seigel, E. (1974). The Exceptional Child Grows Up. New York, NY: W.H. Freeman.

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

LD Life Insight

Therapeutic goal: Change “being LD” to “having LD”.

Rodis, P. (2001). Forging Identities, Tackling Problems, and Arguing with Culture: Psychotherapy with Persons Who Have Learning Disabilities. In P. Rodis, A. Garrod, and M.L., Boscardin (Eds.), Learning Disabilities & Life Stories. Boston, MA: Allyn and Bacon, pp. 205-230.

Comorbidities of SLD

“About 30% of learning disabled children have behavioral and emotional problems, which range from attention deficit hyperactivity disorder (most common) to depression, anxiety, suicide etc., to substance abuse (least common)” (p.21).

Sahoo, M.K. et al. (January/March, 2015). Psychological Co-morbidity in Children with Specific Learning Disorders. Journal of Family Medicine and Primary Care, 4(1), 21-25. DOI:

[10.4103/2249-4863.152243](https://doi.org/10.4103/2249-4863.152243).

Comorbidity And Learning Disorders

- **Porter and Rourke studied a large group of LD children from ages 6 to 15 and found:**
 - **Approximately 44% had no emotional problems.**
 - **Approximately 26% were depressed, anxious, shy, or suffered low self-esteem.**
 - **Approximately 17% had Conduct Disorder**
- **Hence 56% of LD individuals have comorbidities**

Porter, J.E., and Rourke, B.P. (1985). Socioemotional Functioning of Learning Disabled Children: A Subtype Analysis of Personality Patterns. In B.P. Rourke (Ed.), Neuropsychology of Learning Disabilities: Essentials of Subtype Analysis. New York, NY: Bruner/Mazel, pp. 218-235.

Comorbidity And Learning Disorders

- **LD children with behavioral and emotional problems are more likely to have the same problems in adulthood.**
- **The more comorbidities a LD person has the more negative outcomes he/she will have.**

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

Comorbidities Of Dyslexia

- **AD/HD 40%**
- **Conduct Disorder 20%**
- **Depression 20%**
- **Generalized Anxiety 25%**
- **At Least One Comorbidity 60%**

Willcutt, E.K. and Gaffney-Brown, R. (Summer, 2004). Etiology of Dyslexia, ADHD, and Related Difficulties: Using Genetic Methods to Understand Comorbidity. Perspectives, 30 (3), pp. 12-15.

Dyslexia And Suicide

- **Poor reading teens have more suicidal ideation and higher drop-out rates than good readers.**
- **There are higher rates of mood disorders in those with Reading Disorder than those without.**
- **Prevention and intervention with RD youths is needed and should focus on psychoemotional problems related to school-life.**

Goldston, D., et.al. (2002). Reading Disabilities, Drop-out, and Suicidal Behavior. Poster Presentation at the 53rd Annual International Dyslexia Association Conference, Atlanta, GE., November 13-16.

LD And Anxiety

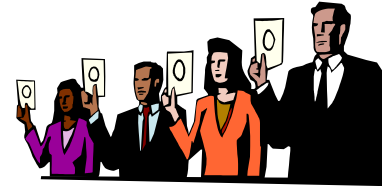
- **LD college students have more problems with anxiety than do their non-disabled peers.**
- **Generalized Anxiety Disorder is frequently found in LD adults.**
- **Dyslexics tend to have significant problems with anxiety.**

Hoy, C. Gregg, N., et. al. (1997). Depression and Anxiety in Two Groups of Adults with Learning Disabilities. Learning Disability Quarterly, 20, pp. 280-291.

Hooper, S.R., and Olley, J.G. (1996). Psychological Comorbidity in Adults with Learning Disabilities. In N. Gregg, C. Hoy, and A.F. Gay (Eds.), Adults with Learning Disabilities: Theoretical and Practical Perspectives. New York, NY: Guilford, pp. 162-183.

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

LD And Social Anxiety



- **LD adults may not have the amount of social experience that their non-disabled peers have.**
- **“I have no stories to tell.”**

Jordan, D.R. (1984). Personal Communication.

Jordan, D.R. (2002). Overcoming Dyslexia in Children, Adolescents, and Adults. Austin, TX: Pro-Ed.

Anxiety and SLD and/or AD/HD



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.J. (2000). Meeting The Challenge of Learning Disabilities In Adulthood. Baltimore, MD: Brookes.

Exhaustion and Specific Learning Disorder

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



Roffman, A.J. (2000). Meeting The Challenge of Learning Disabilities In Adulthood. Baltimore, MD: Brookes.



LD Life Insight

“The process of continually compensating can be deeply tiring. Betty notes that she often is exhausted as a direct result of the enormous effort that she expends on building on her strengths and working around her weaknesses. She notes, ‘You’re always compensating and you’re tired a lot’” (p. 261).

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

Observation of an Autistic Genius:

- Temple Grandin said for those with autism spectrum disorders social adaptation must occur on a conscious level.
- I believe the same is true for many with Dyslexia, AD/HD, NVLD, etc.

Grandin, T. (1995). Thinking in Pictures and Other Reports from my Life with Autism. New York, NY: Vintage.



Developmental Dyscalculia Vs. Math Anxiety

- **Children with dyscalculia have a deficit when compared to typically developing children in visual spatial working memory.**
- **Children with math anxiety have a deficit in verbal working memory.**

Mammarella, I.C. et al. (August 27, 2015). Math anxiety and developmental dyscalculia: A study on working memory processes. Journal of Clinical and Experimental Neuropsychology, 37(8). DOI: 10.1080/13803395.2015.1066759.

Children, Anxiety, and Dysgraphia

Iranian researchers stated students with specific are at risk of anxiety due to repeated failures and academic difficulties. They found the combination of teaching dysgraphic children, a Wolpian-type relaxation technique to use when engaged in academic activities as well as teaching them using a multisensory (VAKT-visual, auditory, kinesthetic, tactile) methodology to teach hand writing significantly improved hand writing legibility and reduced accompanying academic anxiety in second through fourth graders with the disorder. Groups who only received relation training, or VAKT training did not improve as much.

Tafti, M.A. et al. (2014). The effects of Multisensory Method Combined with Relaxation Techniques on Writing Skills and Homework Anxiety in Students with Dysgraphia. International Journal of Psychology and behavioral Sciences, 4(4), 121-127.

AD/HD



2015 09 26

Neuroimaging of AD/HD Findings

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

➤ **Thalamus**

➤ **Amygdala**

➤ **Cerebellum**

Kasperek et al. (October, 2013). Neurobiology of ADHD From Childhood to Adulthood: Findings of Imaging Methods. Journal of Attention Disorders. DOI: 10.1177/1087054713505322.

Impulsivity and The Medial Prefrontal Cortex

- **Impulsivity appears to be centered in the medial prefrontal cortex, dorsolateral prefrontal cortex, and the ventral striatum. These areas represent the daily-life system connected to reward related decision making.**
- **This area is probably dysfunctional in those with AD/HD, Parkinson's disease and pathological gambling.**

Cho, S.S., et al. (July, 2013). Morphometric Correlation of Impulsivity in the Prefrontal Cortex. Brain Topography, 26(3), 479-487. DOI: 10.1007/s10548-012-0270-x.

Treatment of AD/HD

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

Ramsay, R. (2010). Nonmedication Treatments for Adult ADHD. Washington, DC: American Psychological Association Press, 3.

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

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

Your Tax Dollars at Work

The Multimodal Treatment Study of Children with Attention Deficit Hyperactivity Disorder

--Jensen, et al. (2001)

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

1999

The MTA Study

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

The MTA Study

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

The MTA Study

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

The MTA Study

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

MTA Study

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

NIMH Research Treatment for Attention Deficit Hyperactivity Disorder (ADHD): The Multimodal Treatment Study – Questions and Answers. From website:
www.nimh.nih.gov/chilfhp/mt.aqu.cfm.

MTA Study

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

Semrud-Clickman, M. (2007). Social Competence in Children. New York, NY: Springer, 55.

AD/HD Response Rate to Stimulant Titration

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

Mahoney, W. (2002). The Use of Stimulant Medication in the Treatment of Attention Deficit Hyperactivity Disorder. Pediatrics & Child Health, 7 (1), pp. 693-696;
From website:
www.ncbi.nlm.nih.gov/pmc/articles/PMC2796531.

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

Goldstein, S. (December, 2004). Do Children with ADHD Benefit from Psychosocial Intervention, ADHD Report, 12 (6), 1-3.

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

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

Swanson, J., Hinshaw, S., Hechtman, L., and Barkley, R. (November 9, 2011). Research Symposium I: Montreal Study; Milwaukee Study; Berkley Girls with ADHD Study (BGALS). Symposium presented at the 24th Annual CHADD International Conference, November 8-10, 2012, Burlingame, CA.

ADULT AD/HD & TREATMENT

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

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

Ramsay, R. (2010). Nonmedication Treatments for Adult ADHD. Washington, DC: American Psychological Association Press, 3.

Sluggish Cognitive Tempo/ Concentration Deficit Disorder

2015 04 05

Barkley's 2013 SCT Symptoms

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

Barkley's 2013 SCT Symptoms Continued

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

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

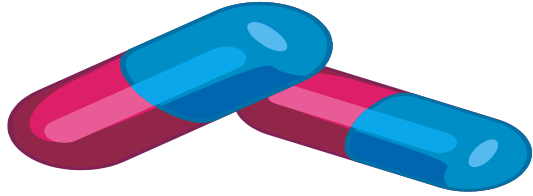


Processing Speed: SCT Vs ADHD

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

Barkley, 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.

Medication and Inattentive AD/HD



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

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

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

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

Accommodating SCT in School

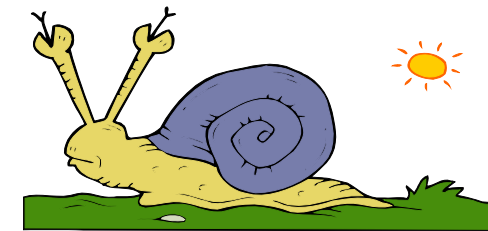
- Behavioral interventions that focus on noncompetitive external rewards for meeting specific goals.
- Extended time to address slow processing speed.
- Social skills training in groups without conduct disordered kids. SCT kids benefit from social training.
- About 60 % have comorbid LD. Treat comorbidities.

Barkley, R.A. (2006). Attention-Deficit Hyperactivity Disorder. New York, NY: Guilford, p. 552.

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.

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

Conference, Atlanta, GA, November 16.



Anxiety & AD/HD

All Rights Reserved



Kevin T. Blake, Ph.D., P.L.C.
www.drkevinthlake.com

2015 04 18

257

Comorbidities and AD/HD

Pliszka indicated the following regarding Comorbidities 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. (July, 2000). Patterns of psychiatric comorbidity with attention-deficit/hyperactivity disorder. Child and Adolescent psychiatric Clinics of North America, 9(3), 525-540.

Pliszka, S.R. (2000). Paying Attention to ADHD: Treatment Challenges with Comorbid Conditions. Philadelphia, PA: Medical Educational Systems.

AD/HD and Anxiety

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

Jarrett, M.A. (August, 2013). Comorbidity of ADHD and Anxiety: From Basic to Applied Research. The ADHD Report, 21(5). 1-6.

Anxiety, Depression, Age & AD/HD

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

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

Michielsen, M. 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/2326772/The_comorbidity_of_anxiety_and_depressive_symptoms_in_older_adults_with_attention_deficit/hyperactivity_disorder:_A_longitudinal_study_.

Anxiety Disorders and AD/HD

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

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

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

Social Phobia, PTSD, & AD/HD

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

Murphy, 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, 35 -57.

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, Third Edition. New York, NY: Guilford.

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, 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.)

“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. (February 22, 2013). ADHD in Children: Diagnosis and Treatment. Poway, CA: ContinuingEdCourse.net. From website:
<http://www.continuingedcourses.net/active/courses/course04.php>.

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.

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.

Treat Comorbid Anxiety

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

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

Autism Spectrum Disorder & Anxiety

What does NEUROBIOLOGICAL mean?

- “The latest thinking in this area is that ASD is a developmental neurobiological disorder, meaning that a variety of developmental changes occur in the brains of people with this disorder.” (p. 5)*
- “At present few workers in the field of ASD believe that psychological or social influences play a major role in the development of this disorder” (p. 40)#

*Durand, M.V. (2014). *Autism Spectrum Disorder: A Clinical Guide for General Practitioners*. Washington, DC: American Psychological Press.

#Schultz, R.T. et al. (2000). Neurofunctional Models of Autistic Disorder and Asperger Syndrome: Clues from Neuroimaging. In A. Klin, F.R. Volkmar, and S.S. Sparrow (Eds.), *Asperger Syndrome*. New York, NY: Guilford, 172-209.

- “The field has come a long way since parents were considered to be the cause of autism spectrum disorders.” (p. 64)*

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

Kaiser, M.D., et al. (November 15, 2010). Neural Signatures of Autism. *Proceedings of the National Academy of Sciences of the United States of America (PNAS)*. 7(107), 21,223-21228.doi: 10.1073/pnas.1010412107. Epub 2010 Nov 15.

Genetics and ASD

Scientists have found there are about 200 genes related to autism. About 70 are related to the autistic brain and the rest can be related to,... “psychiatric disorders and peripheral comorbidities that include cancer, cardiovascular disease, renal disorders, respiratory disorders and metabolic disorders, demonstrating a broader impact of brain-associated genes in other developing organ systems”*. Some of these may be related to random errors of metabolism and/or mutations in mitochondrial DNA as well as unusual gut microbiomes that can negatively effect the brain.

***Stevenson, J.A. et al. (October 20, 2015). The genetic intersection of neurodevelopmental disorders and shared medical comorbidities-relationships that translate from bench to bedside. Paper presented at the Society for Neuroscience Annual Meeting, October 12-17, 2015, Chicago, IL, Program number:490.11/E12.**

Makin, S. (November/December, 2015). What Really Causes Autism. Scientific American Mind, 26(6), 56-63.

Neuroanatomy of ASD

- Increased grey matter anterior temporal & dorsolateral prefrontal lobe
- Decreased grey matter occipital and medial parietal areas
- Significant reduction in size of cerebellum (fewer Purkinje cells)

Ecker, C. et al. (February, 2012). Brain anatomy and its relationship to behavior in adults with autism spectrum disorder: a multicenter magnetic resonance imaging study. Archives of General Psychiatry, 69(2), 195-209.

Durand, M.V. (2014). Autism Spectrum Disorder: A Clinical Guide for General Practitioners. Washington, DC: American Psychological Press.

- Large grey matter differences in the following:
 - cingulate, motor area, basal ganglia, amygdala, inferior parietal lobe, prefrontal lobe
- Reductions in white matter volume
- These differences are linked to autistic symptoms and persist throughout life.

ASD's Central Difficulty

“Regardless of the diagnosed person’s global intelligence, savant-like talents, verbal ability, or mechanical giftedness, social difficulties are the primary source of impairment for most people with ASD and central to the diagnostic criteria of ASD” (p. 124).*

White, S.W., Scahill, S., and Ollendick, T.H. (2013). Multimodal Treatment for Anxiety and Social Skills Difficulties in Adolescents on the Autism Spectrum. . In A Scarpa, S.W. White, and T. Attwood (Eds.), CBT for Children and Adolescents with High-Functioning Autism Spectrum Disorders. New York, NY: Guilford.

Nonverbal Learning Disorder (NVLD)



Nonverbal Learning Disorders (NVLD)

- **Five to ten percent of the LD population has NVLD.**
- **Sixty percent of those with NVLD have comorbid AD/HD**
- **“Social Competence Disorder”**

Semrud-Clikeman, M. (October 26, 2006). AD/HD and Co-morbidity: Aspergers, Autism Spectrum and Nonverbal Learning Disabilities. Paper presented at the Pre-Conference Institutes of the 18th Annual CHADD International Conference, Chicago, IL.

Social (Pragmatic) Communication

“...individuals who have significant problems using verbal and nonverbal communication for social purposes, leading to impairments in their ability to effectively communicate, participate socially, maintain social relationships, or otherwise perform academically or occupationally.”

Author (May, 2013). Social (Pragmatic) Communication Disorder, Fact Sheet. Washington, DC: American Psychiatric Association. From website:

<http://www.dsm5.org/Documents/Social%20Communication%20Disorder%20Fact%20Sheet.pdf>.

The Splenia is Smaller in those with Nonverbal Learning Disorder than those with ASD

- Those with NVLD have smaller Splenia (part of the corpus callosum) than those high functioning ASD, AD/HD and typically developing children.
- The difference in the splenia was connected to significantly lower PIQ, but not VIQ scores in those with NVLD.
- This was not seen in those with ASD, AD/HD or typically developing children.

Goldenring, J. et al. (November 12, 2012). Smaller splenium in children with nonverbal learning disability compared to controls, high - functioning autism and ADHD. Child Neuropsychology: A Journal on Normal and Abnormal Development in Childhood and Adolescence. DOI: 10.1080/09297049.2013.854763.

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.

Generalized Anxiety Disorder and ASD

“We know that young children with Asperger’s syndrome are prone to develop mood disorders...and some children seem to be almost always anxious which might indicate Generalized Anxiety Disorder (GAD)...they may be in a constant state of alertness, leading to a risk of mental and physical exhaustion.” (p. 17)

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

Autism, Sameness, and Uncertainty

British and U.S. researchers found that sensory under and over responsiveness in children with autism is associated with insistence on sameness behavior, and their level of anxiety is related to intolerance of uncertainty.

Wigham, S., et al. (April, 2015). The Interplay Between Sensory Processing Abnormalities, Intolerance of Uncertainty, Anxiety and Restricted and Repetitive Behaviours in Autism Spectrum Disorder. Journal of Autism and Developmental Disorders, 45(4), 943-952.

Multisensory Processing in ASD

- **Scientists found that ASD children did not integrate multisensory (auditory-somatosensory) stimuli as well as non-disabled children.**
- **Will next investigate Sensory Integration Training for efficacy given these results.**
- **Molholm stated ASD children have difficulty simultaneously processing faces and voices.**

Russo, N., Foxe, J.J., Brandwein, A.B., Gomes, T., Altschuler, H., Molholm, S. (October, 2010). Multisensory Processing with Autism: High-Density Electrical Mapping Auditory-Somatosensory Integration. Autism Research, 3 (5), 253-267.

Hamilton, J. (June 2, 2011). Looking for Early Signs Of Autism In Brain Waves. Washington, DC: National Public Radio: <http://www.npr.org/2011/06/02/136882002/looking-for-early-signs-of-autism-in-brain-waves>

Rajarshi (Tito) Mukhopadhyay



“I can do only one thing at a time. I can use my eyes or use my ears. Hearing my voice screaming would stop my eyes from looking...After hearing the words of her song (his mother’s, sic.), I would wonder why I could no longer hear my voice screaming. And, to my relief, I would realize that my voice had stopped screaming.”

Mukhopadhyay, T.R. (2011). How Can I Talk If My Lips Don’t Move? Inside My Autistic Mind. New York, NY: Arcade.

Rajarshi (Tito) Mukhopadhyay



“I could focus all my concentration on only one sense and that is hearing. I am not sure whether or not I had to put any kind of effort into hearing because I was too young and uninformed in science to analyze the sensory battle that was taking place in my nervous system.”

Mukhopadhyay, T.R. (2011). How Can I Talk If My Lips Don't Move? Inside My Autistic Mind. New York, NY: Arcade.

Rajarshi (Tito) Mukhopadhyay



“The shattered senses can stop all thought processes making it impossible to continue doing an activity that involves reasoning or using the voluntary muscles of the body.”

“I usually flap my hands to distract my senses to a kinesthetic feel, so that my senses may be recharged.”

Mukhopadhyay, T.R. (2011). How Can I Talk If My Lips Don't Move? Inside My Autistic Mind. New York, NY: Arcade.

Rajarshi (Tito) Mukhopadhyay



**“In order to get a permanent impression of someone’s face, I needed some time. How much time? It depends on how much interaction with the voice generating from the face has with me.”
He identifies people by their voice.**

Mukhopadhyay, T.R. (2011). How Can I Talk If My Lips Don’t Move? Inside My Autistic Mind. New York, NY: Arcade.

Social Anxiety Disorder and ASD

- **People with ASD are at great risk of having Social Anxiety Disorder (SAD).**
- **Those with SAD and ASD need cognitive behavioral therapy (CBT) and often medication. They will also need social skills training and self-esteem restructuring.**

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

Tactile Defensiveness



Silver wrote of LD and/or AD/HD individuals who have problems with tactile defensiveness. From early childhood many of these people do not like to be touched. They did not cuddle as a child, may complain about labels in clothing and only respond to deep touch. In some light touch may cause feeling of fear or anger.

Silver, L. (1992). The Misunderstood Child: Guide for Parents of Children with Learning Disabilities, 2nd Edition. Blue Ridge Summit, PA: Tab books.

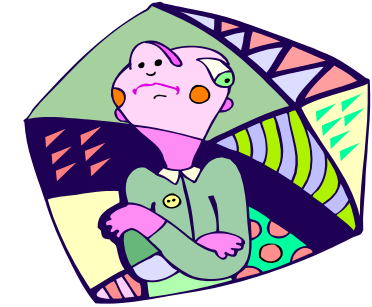
Tactile Defensiveness



“Children who suffer from touch deprivation need more body contact. Methods of sensory motor therapy used by Occupational therapists for tactile defensiveness include touching and rubbing the skin surfaces, using lotions, and brushing skin surfaces” (p. 325).

Lerner, J. (1997). Learning Disabilities: Theories, Diagnosis and Teaching Strategies, 7th Edition. Boston, MA: Houghton Mofflin.

Adult Tactile Defensiveness



- **Willey Also Suggested:**
 - **Get every garment made of materials that feel good.**
 - **Cut hair short if you cannot stand to wash your hair.**
 - **If you need to chew do so on paraffin wax, rubber tubing, gum or plastic straws.**
 - **Use squeeze balls for motor restlessness.**
 - **Bathing with brushes and scrubbing lightly or firmly**

Willey, H.L. (1999). Pretending to be Normal: Living with Asperger Syndrome. Philadelphia, PA: Jessica Kingsley.

Tactile Defensiveness

- **Helpful Profession:**
 - **American Occupational Therapy Association:**
www.aota.org



Tactile Defensiveness



Good Resource:

Myles, B.M., Tapscott-Cook, k., Miller, N.E., Rinner, L., and Robbins, L. (2000). Asperger Syndrome and Sensory Issues: Practical Solutions for Making Sense of the World. Shawnee Mission, KS: Autism Asperger Publishing.



Caregivers and Dogs

A study conducted by British researchers found that having a dog in the home significantly reduced the level of anxiety experienced by caretakers of children with autism.

Wright, F.H., et al. (April 2, 2015). Acquiring a Pet Dog Significantly Reduces Stress of Primary Carers for Children with Autism Spectrum Disorder: A Prospective Case Control Study. Journal of Autism and Developmental Disorders. DOI: 10.1007/s10803-015-2418-5.

Alexithymia



What is Alexithymia?



1. **Tends not to have fantasies, no feelings and have sharply limited emotional vocabularies.**
2. **They have colorless dreams.**
3. **They cannot tell bodily sensations from emotions and are baffled by them.**
4. **They have great difficulty making decisions because they lack “gut feelings.”**

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

Alexithymia

“Functional imaging studies implicate medial and prefrontal cortex and posterior superior sulcus (STS)... The STS is concerned with representing the actions of others through the detection of biological motion; medial prefrontal regions are concerned with explicit representation of the states of the self. These observations suggest that the ability to mentalize has evolved from a system for representing actions.”

Frith, C.D. and Frith, U. (1999). Intersecting Minds-A Biological Basis. Science, 286, 1692-1695.

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.

Macaque Monkey



Macaques “Mirror Neurons”

Researchers discovered “mirror neurons” at the University of Parma in Italy in 1992.

Rizzolatti, G., Fogassi, L. and Gallese, V. (November, 2006). Mirrors in The Mind.

Scientific American, 296 (5), pp. 54-61.

Mirror Neurons



- Italian study of macaque monkeys in 1992
 - Known for years cells of premotor cortex fire just before movement.
 - Discovered that same cells fired in the same pattern when another primate was seen making the same movement!
 - Humans have these MIRROR NEURONS too.
 - They allow us to intuit others intentions and to feel their pain.

Lametti, D. (June 9, 2009). Mirroring Behavior. Scientific American, from website:
www.scientificamerican.com/article.cfm?id=mirroring-behavior.

Mirror Neurons



“Much as circuits of neurons are believed to store specific memories within the brain, sets of mirror neurons appear to encode specific sets of actions. This property may allow an individual not only to perform basic motor procedures without thinking about them but also to comprehend those acts when they are observed, without any need for explicit reasoning about them.” (p. 56)

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

Mirror Neurons



“With knowledge of these neurons, you have the basis for understanding a host of enigmatic aspects of the human mind: ‘mind reading’ empathy, imitation learning and even the evolution of language. Anytime you watch someone else doing something (or even starting to do something), the corresponding mirror neuron might fire in your brain, thereby allowing you to ‘read’ and understand another’s intentions and thus develop a sophisticated *theory of other minds*.” (p.2)

Ramachandran, V.S. (3/8/05). Mirror Neurons and Imitation Learning as the Driving Force Behind “The Great Leap Forward” in Human Evolution.

www.edge.org/3rd_culture/ramachandran/ramachandran_p2.html

Mirror Neurons May Help Us Generate Appropriate Social Responses

“These results suggest that a set of mirror neurons encodes the observed motor acts not only for action understanding, but to analyze such acts in terms of features that are relevant to generating appropriate behaviors.”

Caggiano, V., Fogassi, L., Rizzolatti, G., Their, P., Casile, A. (April 2009). Mirror Neurons Differently Encode the Peripersonal and Extrapersonal Space of Monkeys. Science. 324 (5925), pp. 403-406; From website: www.sciencemag.org/cgi/content/abstract/324/5925/403.



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 Withersham Lane, Lancaster, PA 17603; 800-801-5415; www.jkseminars.com.

Mirror Neurons and Autism

“Broken mirror neurons” MAY explain isolation and lack of empathy.

Those with autism spectrum disorder lack activity in many areas associated with mirror neurons.

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



Mirror Neurons



I spoke to Uta Frith about using the combination of her group's research on emotional working memory and the mirror neuron research as an explanation of the behaviors of autism spectrum disorder. She said the combination of theories could not differentiate autistic behavior and antisocial behavior.

Frith, U. (November 1, 2007). Personal Communication. International Dyslexia Association 58th Annual Conference, Dallas, TX.

Mirror Neurons



However, Blair wrote after reviewing the literature, “It is suggested from this literature that empathy is not a unitary system but rather a loose collection of partially dissociable systems. In particular, three divisions can be made: cognitive empathy (or Theory of Mind), motor empathy and emotional empathy. The two main psychiatric disorders associated...

Mirror Neurons



“...with empathic dysfunction are considered: autism and psychopathy. It is argued that individuals with autism show difficulties with cognitive and motor empathy but less clear difficulties with respect to emotional empathy. In contrast, individuals with psychopathy show clear difficulties with a specific form of emotional empathy but no indications of impairment with cognitive and motor empathy.” (p. 1 of 2)

Blair, R.J.R. (December, 2005). Responding to the Emotions of Others: Dissociating Forms of Empathy Through the Study of Typical and Psychiatric Populations. Consciousness and Cognition, 14 (4), pp. 698-718. From Website: www.sciencedirect.com/science?_ob=ArticleURL&_B6WD0-4H39727-2&_user.

Mirror Neurons



“Our results show that this ‘mirror system’ integrates observed actions of others with an individual’s personal motor repertoire and suggests the human brain understands actions by motor stimulation.” (p. 1243)

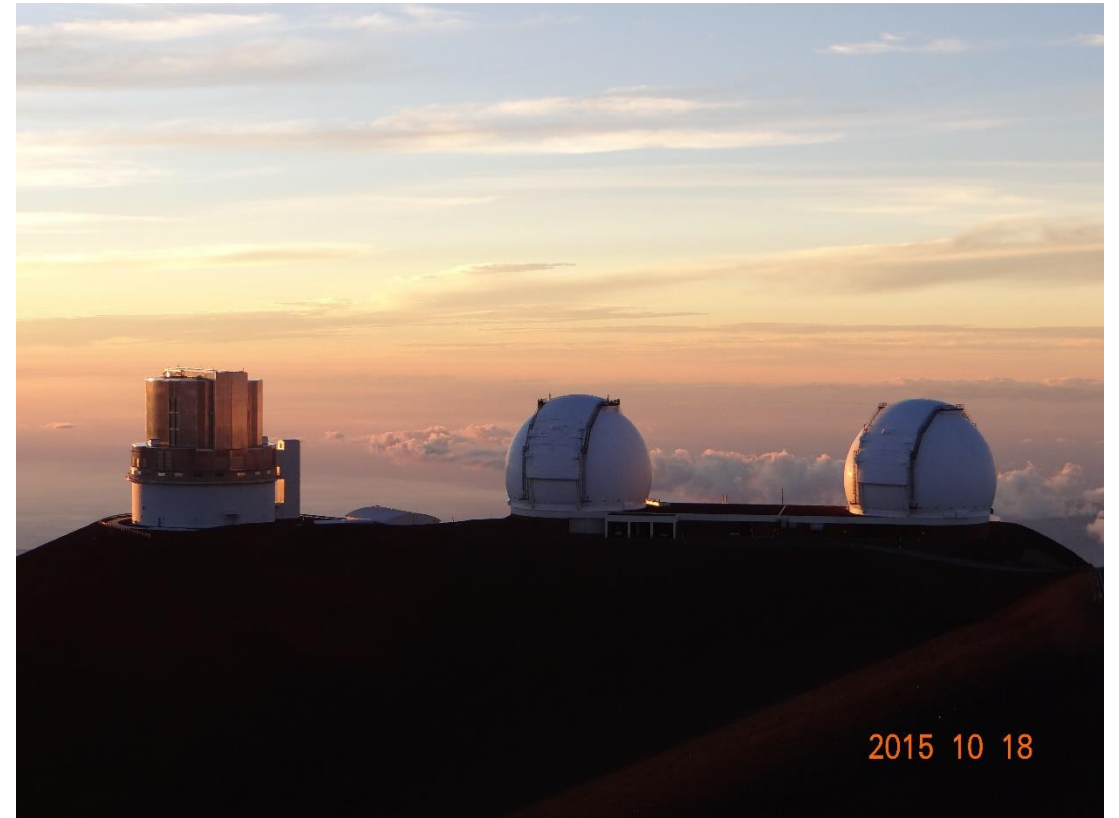
Glaser, D. (January 2005). Mirror Neurons: Research Update. NOVAscienceNOW. Public Broadcasting System (PBS). www.pbs.org/wgbh/nova/sciencenow/3204/01-resup.html, p. 1

Calvi-Merino, B., Glaser, D.E., Greeze, J., Passingham, R.E., and Haggard, P. (2005). Action Observation and Acquired Motor Skills: An fMRI Study with Expert Dancers. Cerebral Cortex, 15 (8), p. 1243-1249.

Alexithymia and AD/HD

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

Edel, M.A., et al. (September 24, 2010).
Alexithymia, emotion processing and social anxiety in adults with ADHD. European Journal of Medical Research, 24(15), 403-409, From website:
<http://www.ncbi.nlm.nih.gov/pubmed/20952350>.



ASD and Alexithymia

“...some individuals with ASD may experience characteristics of *alexithymia*, a diminished vocabulary to describe the different levels of emotional experience, especially the more subtle emotions” (p. 35).*

***Attwood, T, and Scarpa, A. (2013). Modifications of Cognitive-Behavioral Therapy for Children and Adolescents with High-Functioning ASD and their Common Difficulties. In A Scarpa, S.W. White, and T. Attwood (Eds.), CBT for Children and Adolescents with High-Functioning Autism Spectrum Disorders. New York, NY: Guilford.**

Attwood, T. (2007). The Complete Guide to Asperger's Syndrome. Philadelphia, PA: Jessica Kingsley, p. 130

“Symptoms” of Alexithymia

- **Difficulty identifying different types of feelings**
- **Difficulty distinguishing between emotional feelings and bodily feelings**
- **Limited understanding of what caused the feelings**
- **Difficulty verbalizing feelings**
- **Limited emotional content in the imagination**
- **Functional style of thinking**
- **Lack of enjoyment and pleasure-seeking**
- **Stiff, wooden posture**

Author (January 23, 2003). The Alexithymia FAQ. From web site:

www.anglefire.com/al4/alexithymia/

Professionals Who Can Help Treat ASD

- **Psychologists-American Psychological Association:** www.apa.org
- **Psychiatrists-American Psychiatric Association:** www.apa@psych.org
- **Social Workers-National Association of Social Workers:** www.naswdc.org
- **American Association of Marriage and Family Therapists:** www.aamft.org
- **Counselors-National Board of Certified Counselors:** www.nbcc@nbcc.org

Professionals Who Can Help Treat ASD

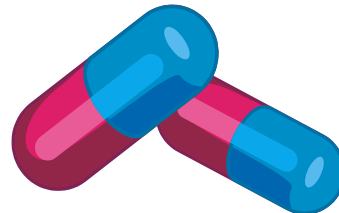
- **Behavioral Neurology/Neuropsychiatry-**
American Neuropsychiatric Association:
www.anpaonline.org
- **Speech Language Pathologist-American**
Speech-Language Hearing Association:
www.professional.asha.org

Treating ASD

Possible Treatment for Emotional Working Memory Problems

- **Stimulant Medication?**
 - Lessens Hyperactivity and Impulsivity in AD/HD, Combined Type Individuals
 - Hundreds of Double Blind Studies to Support

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



Possible Alternative Medicine Treatment for Working Memory Problems



❖ Working Memory Training:

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

Klingberg, T. (February, 2006). Training Working Memory. AD/HD Report, 14 (1), pp. 6-8.

Barkley, R. (February, 2006). Editorial Commentary Issues in Working Memory Training in ADHD. ADHD Report, 14 (1), pp. 9-11.

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

Klingberg, T. and Anderson, M. (October 28, 2006). Computerized Training of Working Memory in Children with AD/HD. Paper presented at the 18th Annual CHADD International Conference, Chicago, IL.

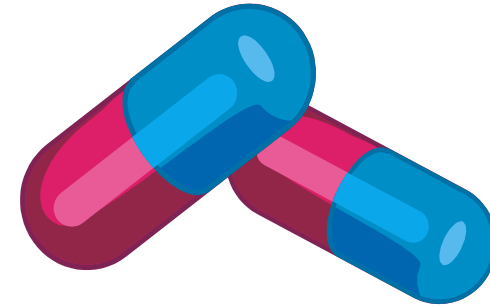
Some Treatments For Mirror Neuron Difficulties

➤ Risperidone and MDMA (ecstasy):

➤ Biofeedback:

To help control anxiety

➤ Oxytocin Nasal Spray



Author (1997). Use of “Atypical” Neuroleptics in the Treatment of PDDs. MedScape Psychiatry & Mental Health Journal, 2 (4): www.medscape.com/viewarticle/430897_5

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

Guastella, A.J., Einfeld, S.L., Gray, K.M., Rinehart, N.J., Tonge, B.J., Lambert, T.J., and Hickie, I.B. (April 1, 2010). Internasal Oxytocin Improved Emotion Recognition for Youth with Autism Spectrum Disorders. Biological Psychology, 67 (7), 692-694; www.ncbi.nlm.nih.gov/pubmed/19897177.

MDMA & Oxytocin Nasal Spray ARE EXPERIMENTAL TREATMENTS!!!!

Emotional Salience Landscape Difficulties-Mirror Neurons



- Temple Grandin's "squeeze machine"
- Hirstein's "squeeze vest"
Elmhurst College
- Under Armor-- Compression
underwear: www.underarmour.com

Grandin, T (1992). Calming Effects of Deep Touch Pressure in Patients with Autism, College Students, and Animals. Journal of Child and Adolescent Psychopharmacology, 1 (2). From website: www.grandin.com/inc/squeeze.html

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

Author (1997). Use of "Atypical" Neuroleptics in the Treatment of PDDs. MedScape Psychiatry & Mental Health e Journal, 2 (4): www.medscape.com/viewarticle/430897_5

THE ABOVE ARE EXPERIMENTAL TREATMENTS!!!!!!

Theory of Mind & Mirror Neuron “Software”

- “Able individuals with autism spectrum disorders can with time and practice achieve awareness of mental states by compensatory learning.” (p. 977)

Frith, U. (2001). Mind Blindness and the Brain in Autism. Neuron, 32, 969-979.

- **Possible Treatment Technique -**

Carol Gray – Social Stories &

Laurel Falvo- Social Response

Pyramid:

www.thegraycenter.org/



ASD Alexithymia Treatment

“Affective education within CBT aims to improve the vocabulary of the child or adolescent with ASD to describe emotions, thereby diminishing the effects of alexithymia. One approach is to quantify the degree of expression, such that if the precise word is elusive, the child or adolescent can calibrate and express his or her degree of emotion using a thermometer or numerical rating, thus indicating intensity of emotional experience” (p. 35).

Attwood, T, and Scarpa, A. (2013). Modifications of Cognitive-Behavioral Therapy for Children and Adolescents with High-Functioning ASD and their Common Difficulties. In A Scarpa, S.W. White, and T. Attwood (Eds.), CBT for Children and Adolescents with High-Functioning Autism Spectrum Disorders. New York, NY: Guilford.

CBT & ASD

“Thus, CBT, when adapted for the special needs of youth with ASD, is potentially effective at decreasing anxiety in this population, but more replication is necessary to establish the efficacy of these programs” (p. 91).

Green, S.A., and Wood, J.J. (2013). Cognitive-Behavioral Therapy for Anxiety Disorders in Youth with ASD. In A Scarpa, S.W. White, and T. Attwood (Eds.), CBT for Children and Adolescents with High-Functioning Autism Spectrum Disorders. New York, NY: Guilford.

CBT & ASD with Comorbid AD/HD in Children

If AD/HD is comorbid with ASD one must alter their cognitive behavioral therapy program for the child, especially in a group. The group may have a token economy, members may be encouraged to use medication for AD/HD as well as significantly more structure to control hyperactivity and impulsivity may be used.

Attwood, T, and Scarpa, A. (2013). Modifications of Cognitive-Behavioral Therapy for Children and Adolescents with High-Functioning ASD and their Common Difficulties. In A Scarpa, S.W. White, and T. Attwood (Eds.), CBT for Children and Adolescents with High-Functioning Autism Spectrum Disorders. New York, NY: Guilford.

Other Things to Consider When Working with ASD Children and Adolescents

- ❖ **One-Track Mind: Set shifting**
- ❖ **Fear of Making a Mistake**
- ❖ **Consistency and Certainty**
- ❖ **Special Interests & Talents**
- ❖ **Converting Thoughts to Speech: Texting instead of face to face**
- ❖ **Problems with Pragmatics, Syntax and Prosody**

Other Things to Consider When Working with ASD Children and Adolescents

- ❖ Teaching Theory of Mind (ToM)
- ❖ Dealing with Sensory Sensitivity
- ❖ Between-Session Projects
 - ❖ Workbooks
- ❖ Selection of Group Participants
- ❖ Time with Parents After Every Session

Attwood, T, and Scarpa, A. (2013). Modifications of Cognitive-Behavioral Therapy for Children and Adolescents with High-Functioning ASD and their Common Difficulties. In A Scarpa, S.W. White, and T. Attwood (Eds.), CBT for Children and Adolescents with High-Functioning Autism Spectrum Disorders. New York, NY: Guilford.

Two Good Books On Anxiety and ASD

Grandin, T et al. (2015). The Loving Push. Arlington, TX: Future Horizons.

Baker, J. (2015). Overcoming Anxiety in Children and Teens. Arlington, TX: Future Horizons.



Dogs & Social Interaction



Therapy Dogs and ASD

“When the therapy dog was present, the children (with ASD, sic.) were significantly more focused, more playful, and more aware of interactions than either of the other conditions (stuffed dog, or ball present)” (p. 185).

Johnson, R.A. (2011). Animal-Assisted Interventions In Health Care Contexts. In P. McCardle, McCune, S., J.A. Griffin and Maholmes, (Eds.), How Animal Affect Us: Examining The Influence of Human-Anial Interaction on Child Development and Human Health. Washington, DC: American Psychological Association.

Temple Grandin, Ph.D. Says...

“Unlike other autism interventions that can be more easily started and stopped embarking on the journey to find a service dog for a child is a long-term commitment on the part of the entire family. A service dog is much more than a well trained pet”.

❖ Companion dog; Therapy dog; Safety dog

Grandin, T. (2011). The Way I See It: A personal Look at Autism & Aspergers, Second Edition. Arlington, TX Future Horizons.

Dog and Children with AD/HD

Dr. Sabrina Schuck, a University of California Irvine scientist is studying wheather interacting and being in the presence of dogs can have a therapeutic effect on children with AD/HD. She states she has come across significant anecdotal evidence they can.

Bold, K. (2012). Different Breed of Therapist. Irvine, CA: University of California Irvine. From website: http://www.uci.edu/features/2012/02/feature_dogtherapy_120213.php.

Therapy Dogs and AD/HD

“Objective: The objective of this study was to provide preliminary findings from an ongoing randomized clinical trial using a canine-assisted intervention (CAI) for 24 children with ADHD. Method: Project Positive Assertive Cooperative Kids (P.A.C.K.) was designed to study a 12-week cognitive-behavioral intervention delivered with or without CAI. Children were randomly assigned to group therapy with or without CAI. Parents of children in both groups simultaneously participated in weekly parent group therapy sessions...”

Therapy Dogs and AD/HD

“... Results: Across both treatment groups, parents reported improvements in children’s social skills, prosocial behaviors, and problematic behaviors. In both groups, the severity of ADHD symptoms declined during the course of treatment; however, children who received the CAI model exhibited greater reductions in the severity of ADHD symptoms than did children who received cognitive-behavioral therapy without CAI. Conclusion: Results suggest that CAI offers a novel therapeutic strategy that may enhance cognitive-behavioral interventions for children with ADHD.

Schuck, S.E.B., et al. (September 23, 2013). Canine-Assisted Therapy for Children With ADHD: Preliminary Findings From The Positive Assertive Cooperative Kids Study. Journal of Attention Disorders, doi: 10.1177/1087054713502080 .

Emotional Seeing Eye Dogs



- **4Paws For Ability**
253 Dayton Avenue
Xenia, OH 45385
- **Training Center:**
937-374-0385
- **Website:**
www.4pawsforability.org

Dogs may have a rudimentary mirror neuron system!

Blakeslee, S. (January 10, 2006). Cells That Read Minds. New York Times; From website:
www.nytimes.com/2006/01/10/science/10mirr.html?pagewanted=1&r=1.

Service and Therapy Dog Organizations

- International Association of Service Dog Partners: www.iaadp.org
- Autism Service Dogs of America:
www.autismservicedogsofamerica.com
- Wilderwood Service Dogs for Autism: www.wilerwood.org
- Northstar Foundation/Service Dogs for Autism:
www.northstardogs.com/autism.shtml
- Pet Partners (formerly Delta Society): www.petpartners.org

Thank you!

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

5210 East Pima, Suite 200

Tucson, AZ 85712

Voice: 520-327-7002

Fax: 520-795-3575

E-mail:

kblake@theriver.com

Website:

www.drkevintblake.com

