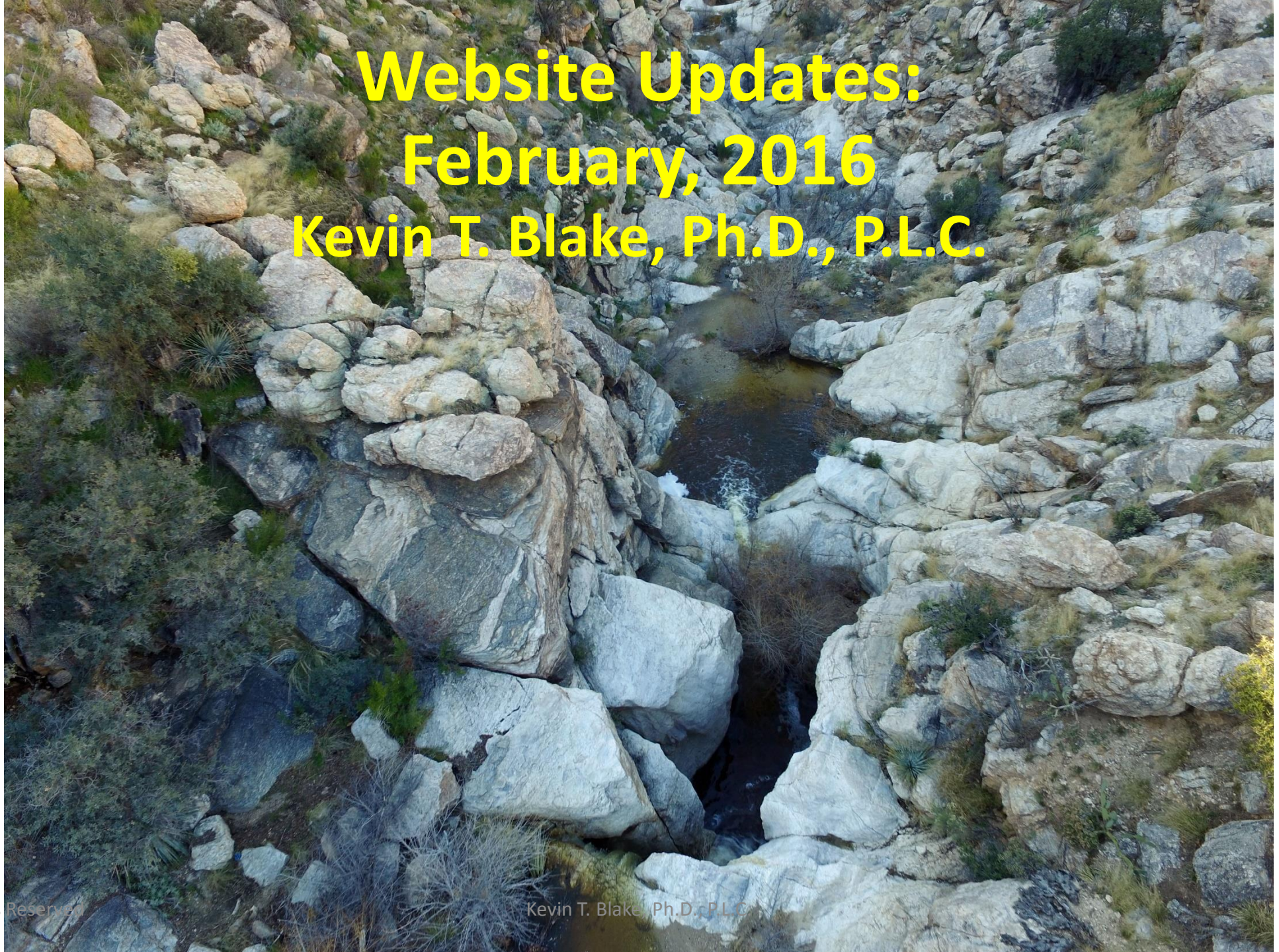

Website Updates: February, 2016

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

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Barkley On How AD/HD Medications Work

- **Stimulants: Work on dopamine**
  - **Stimulants work on executive functions of the frontal lobe and help with improving executive functions and attention**
  - **Suppress the limbic system**
  - **1 in 5 complain of emotional blunting**
  - **AD/HD is not a problem of limbic system**
  - **The more stimulants one takes the higher emotional blunting**
- **Atomoxitine (Strattera): Is a norepinephrine reuptake inhibitor**
  - **It activates the frontal lobe and anterior cingulate executive function system**
  - **It does not effect the limbic system**

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Barkley On How AD/HD Medications Work

- It allows the executive function system better control the emotions of the limbic system – no emotional blunting
- **Why Stimulants and Attomoxitine (Strattera) are used together:**
  - The stimulants are really good at helping executive function and attention and Strattera is good at helping with emotional dysregulation
  - Using both medications together can allow lower dosing
- **Guafacine XR (Intuniv): Works in the frontal lobe (anti-hyperintensive)**
  - It is an alpha 2 regulator that works on the cellular level
  - Fine tunes nerve signals – makes nerve signals stronger

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Barkley On How AD/HD Medications Work

- **Why Guafacine XR (Intuniv) and Stimulants are used together:**
  - **The guafacine XR strengthens the signals in the frontal lobe and the stimulant helps with executive function and attention**
- **70% of the Medications Used to Treat AD/HD Work on The Same Brain Areas**
- **30% of the Actions of Medications Do Not Overlap**
- **Most of the Non-Overlap in is the Emotional Area**

Russell Barkley, YouTube:
https://www.youtube.com/watch?v=LnS0PfNyj4U

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AD/HD Medications Are Neuroprotective

- **Harvard scientists reviewed 29 MRI/fMRI based studies of the brains of those with AD/HD to determine the impact on the brain of stimulants.**
- **They found that those with AD/HD who were treated with stimulants had structural and functional changes in their brains that those with AD/HD who were not treated with stimulants did not have.**
- **The scientists concluded these brain medication changes matched the positive behavioral changes observed in those with AD/HD who respond to stimulants.**

Spencer, T.J. et al. (September 2013). Effect of psychostimulants on brain structure and function in ADHD: a qualitative literature review of magnetic resonance imaging-based neuroimaging studies. Journal of Clinical Psychiatry, 74(9), 902-917. DOI: 10.4088/JCP.12r08287.

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AD/HD Teens Overestimate Their Driving Skill

American scientists had adolescents with AD/HD "drive" car simulators and then rate their performance. They consistently positively overrated their driving skills and their skills overall. This was seen to also indicate they were much more likely to engage in risky driving behavior when compared to their non-impaired peers.

Fabiano, G.A. et al. (December 4, 2015). Positive Bias in Teenage Drivers With ADHD Within a Simulated Driving Task. Journal of Attention Disorders. DOI: 10.1177/1087054715616186.

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Dizziness and Balance Problems in Children and Adolescents

A recent NIH study found that 5.3 to 5.9% of children and adolescents in the US have significant problems with balance and/or dizziness. It appears the percentage goes up somewhat with age to 5.9%. Low birth weight was associated with balance and dizziness problems. Almost ½ the children with migraines had dizziness and/or vertigo. Dizziness and vertigo was also found to be associated with middle ear problems (otitis media, etc.). Those with hearing loss, both boys and girls, were found to have very significant balance and vestibular impairment. Students with vision difficulties were found to have dizziness and balance problems, not to the same severity as those with hearing loss, even when wearing corrective lenses.

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Dizziness and Balance Problems in Children and Adolescents

The researchers concluded, "…In this study, the highest prevalence of specific dizziness and balance problems was for poor coordination, light-headedness, poor balance, and vertigo. Dizziness and balance problems may be the nonspecific sequelae of numerous impairments, including deficits in vision, proprioception, and musculoskeletal, autonomic, and vestibular function." The children in this study will be followed longitudinally until 2020 to learn how their symptoms may change over time.

Li, C-M, et al. (In Press). Epidemiology of Dizziness and Balance Problems in Children in the United States: A Population-Based Study. Journal of Pediatrics. DOI: http://dx.doi.org/10.1016/j.jpeds.2015.12.002.

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New AD/HD Medication

A new medication for AD/HD children age 6 and over who have trouble swallowing pills has been approved by the FDA. Adzenys is an amphetamine, the bioequivalent of Adderall XR, which dissolves in the mouth.

Loyd, L. (January 30, 2016). Blue Bell Firm Wins Approval for Unique ADHD Treatment. Philly.com. From website: http://articles.philly.com/2016-01-30/business/70181319_1_vyvanse-adhd-adderall-xr.

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Study Finds That Suicide Rates in AD/HD Children are Significantly Lower If They Take Medication

Canadian researchers concluded after examining Canadian population data that the suicide rates for children with AD/HD who are on medication to treat their AD/HD are significantly lower than those with AD/HD who are not medicated. The researchers stated they believed treating children with AD/HD with medication lowers their suicide risk.

Lesage, A., et al. (December, 2015). Canadian ADHD black-box warnings. The Lancet Psychiatry, 2(12), 1057.

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fMRI, AD/HD, & Diagnosis

A recent study out of Stanford found children with AD/HD have abnormal cross-brain connections between areas of the frontal lobe that can be consistently found. This they discovery may lead to a method of using fMRI to diagnose AD/HD.

Cai, W, et al. (In Press). Aberrant Cross-Brain Network Interaction in Children With Attention-Deficit/Hyperactivity Disorder and Its Relation to Attention Deficits: A Multisite and Cross-Site Replication Study. Biological Psychiatry. DOI: 10.1016/j.biopsych.2015.10.017.

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Extremely Premature Babies and Autism

Swedish researchers gave babies born at less than 27 weeks of gestation MRIs of their brains. These babies were found to have significantly less well developed, "temporal, occipital, insular, and limbic regions and in the brain areas involved in social/behavior and salience integration." When these children were followed to 6.5 years of age many of them developed autism (27.4%). This research may lead to they ability to give such children very early interventions to help alleviate their autistic symptoms.

Padilla, N., et al. (December 21, 2015). Poor Brain Growth in Extremely Preterm Neonates Long Before the Onset of Autism Spectrum Disorder Symptoms. Cerebral Cortex. DOI: 10.1093/cercor/bhv300.

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Bicycle Riding in AD/HD Children

Researchers from the University of Iowa found that children with AD/HD has smaller gap sizes after bike riding in high density traffic than children without AD/HD. AD/HD children also showed significantly worse movement timing in intersections. This was associated with the symptoms of inattention and disinhabition. All date collection was done with a bicycle simulator.

Nikolas, M.A., et al. (February, 2016). Risky bicycling behavior among youth with and without attention-deficit hyperactivity disorder. Journal of Child Psychology and Psychiatry, 57(2), 141-148.

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Peer Rejection & AD/HD

Norwegian scientists found that AD/HD symptoms at age four predicted a child's amount of peer rejection at age 6. They also found that the amount of peer rejection at ages 6 and 8 significantly increased the impairment of AD/HD symptoms in AD/HD children.

Stenseng, F., et al. (December 16, 2015). Peer Rejection and Attention Deficit Hyperactivity Disorder Symptoms: Reciprocal Relations Through Ages 4, 6, and 8. Child Development. DOI: 10.1111/cdev.12471.

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Attention-Distractibility Trait

British researchers discovered a possible attention-distractibility trait which in those who have more of it makes them highly vulnerable to distraction, particularly with more cognitive load.

Foster, S., et al. (December, 14, 2015). Establishing the Attention-Distractibility Trait. Psychological Science. DOI: 10.1177/0956797615617761.

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fMRI Neuromarker for AD/HD

Yale researchers have found a unique whole brain neuromarker related to sustained attention and resting-state for AD/HD in children and adolescents that can be found by fMRI. This may eventually be used to help diagnose AD/HD.

Rosenberg, M.D., et al. (November 23, 2015). A neuromarker of sustained attention from whole-brain functional connectivity. Nature Neuroscience. DOI: 10.1038/nn.4179.

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Anti-Depressants Causing Autism?

Canadian researchers followed pregnancies from 1998 through 2009 in Québec, Canada and found that mothers who took selective serotonin reuptake inhibitors for depression during the second and third trimesters of pregnancy were significantly more likely to give birth to a child with autism. This did not appear to be connected to the mother's depression.

Boukhris, T., et al (December 14, 2015). Antidepressant Use During Pregnancy and the Risk of Autism Spectrum Disorder in Children. JAMA Pediatrics. DOI: 10.1001/jamapediatrics.2015.3356.

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AD/HD Medication May Cause Sleep Problems

American researchers found that the medications used to treat AD/HD in children can cause,...” longer sleep latency, worse sleep efficiency, and shorter sleep duration”(p. 1144). They recommended physicians monitor such children’s sleep and make appropriate changes to their medications to relieve these problems.

Kidwell, K.M., et al. (December 2015). Stimulant Medications and Sleep for Youth With ADHD: A Meta-analysis. Pediatrics, 136(6), 1144-1153.

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Expectant Epileptic Fathers and AD/HD

A Norwegian study found that expectant fathers with epilepsy are at higher risk of having AD/HD, depression, anxiety, lower socio-economic success, and low self-esteem than non—epileptic fathers.

Reiter, S.F., et al. (December 4, 2015). Psychiatric Comorbidity, Social Aspects and Quality of Life in a Population-Based Cohort of Expecting Fathers with Epilepsy. PLoS One. DOI: 10.1371/journal.pone.0144159.

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Differences in the Brains of AD/HD Males and Females

American researchers recently found that boys with AD/HD have less white matter in brain areas related to controlling basic actions than girls with the disorder. They also found that girls with AD/HD have differences in areas responsible for high-level top-down control than boys.

Jacobson, L.A., et al. (November 2015). Sex-Based Dissociation of White Matter Microstructure in Children With Attention-Deficit/Hyperactivity Disorder. Child & Adolescent Psychiatry, 54(11), 938-946.

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Exercise and Autism

Canadian scientists found for a literature review that dancing, swimming, yoga, running, and horseback riding can all significantly reduce stereotype behaviors and improve attention, cognition and emotional functioning inn children with Autism.

Bermer, E. at al. (January 28, 2016). A systematic review of the behavioural outcomes following exercise interventions for children and youth with autism spectrum disorder. Autism. DOI: 10.1177/1362361315616002.

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Visual-Spatial Working Memory and ASD

Taiwanese researchers found that teens with autism have a significant weakness in visual-spatial working memory and their default mode networks that may account for some of their repetitive behaviors and social communication problems.

Chien, H-Y., et al (February 1, 2016). Deficient visuospatial working memory functions and neural correlates of the default-mode network in adolescents with autism spectrum disorder. Autism Research. DOI: 10.1002/aur.1607.

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ASD and Being able to respond to Biological Action

Although researchers found that children with autism are like non-disabled children in recognizing others they found such children are disabled in know how respond to the biological motions of others.

van Boxel, J.J.A., et al. (January 25, 2016). Intact recognition, but attenuated adaptation, for biological motion in youth with autism spectrum disorder. Autism Research. DOI: 10.1002/aur.1595.

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The Development of Auditory Processing in Autistic Children.

Japanese researchers found children with autism are significantly delayed in the development of their auditory processing system when compared to non-disabled children. This they believe causes the language difficulties typical in autistic children.

Yoshimura, Y., et al. (January 25, 2015). Atypical development of the central auditory system in young children with Autism spectrum disorder. Autism Research. DOI: 10.1002/aur.1604.

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Oxytocin and Autism

German researchers reviewed the literature related to a genetic connection of autism and oxytocin and found it exists.

Kranz, M.T., et al. (January 20, 2016). Meta-analysis and association of two common polymorphisms of the human oxytocin receptor gene in autism spectrum disorder. Autism Research. DOI: 10.1002/aur.1597.

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Auditory Processing in Autism

American scientists discovered through using evoked potential with adults with autism they had more sensitivity to auditory stimuli than non-autistic adults.

Karhosn, D.S., et al. (January 18, 2016). Atypical sensory reactivity influences auditory attentional control in adults with autism spectrum disorders. Autism Research. DOI: 10.1002/aur.1593.

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Autism & Tactile Processing

American researchers found that children with autism have an altered tactile processing system when compared to non-disabled children. This could be a biomarker for autism.

Tavassoli, T., et al. (November 16, 2015). Altered tactile processing in children with autism spectrum disorder. Autism Research. DOI: 10.1002/aur.1563.

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