
PESI April 2015 Website Update
Kevin T. Blake, Ph.D., P.L.C.
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Error in Recent COGMED Research Caught

As reported last month Torkel Kingberg's group in Sweden conducted a study that demonstrated that the COGMED computer program significantly improved working memory in children and adolescents with AD/HD. Sebastiaan Dovis and his collegues from the Netherlands immediately found that Klingberg's group coded the data backwards when analyzing the data, reran it correctly and found the COGMED program had no effect on children and adolescents with AD/HD. These discrepancies were thought to be due to publication bias and poor coding.

Dovis, S., et al. (April 4, 2015). Does Cogmed Working Memory Training Really Improve Inattention in Daily Life? A Reanalysis. PLOS One. From website: http://www.plosone.org/annotation/listThread.action?root=85992.

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.

Shorter Lifespan in AD/HD Adults

- **Recently in Denmark researchers discovered AD/HD is associated with significantly higher mortality rates, especially in adults, and even more so in AD/HD adults with comorbid ODD, CD, and/or substance abuse disorder most deaths were unnatural, particularly accidents.**

Dalsgaard, S., et al. (February 25, 2015). Mortality in children, adolescents, and adults with attention deficit hyperactivity disorder: a nationwide cohort study. Lancet. DOI: http://dx.doi.org/10.1016/S0140-6736(14)61684-6

Barkley Offers His Opinion of Harmonyx

Harmonyx:

FDA approved genetic test to help determine which medication will work with AD/HD patients. Costs $100.00. Barkley (2015) is skeptical, but other technologies will be on the market soon and this will be common place.

http://www.nebahealth.com/

http://www.harmonyxdiagnostics.com/

Barkley, R.A. (April 16, 2015). Advances in Understanding & managing ADHD in Children & Teens. Seminar presented in Lancaster, PA, J&K Seminars, Inc., www.jkseminars.com.

Medications with AD/HD Adults

- **Currently, Stimulants and Atomoxetine (Strattera) have been approved for adults with AD/HD by the FDA.**
- **"The aggregate literature indicates that pharmacotherapy provides effective treatment for adults with ADHD" (p. 851).**
- **Cognitive behavioral therapy (CBT) appears to be an effective when used adjunctively with medication as a treatment for adult AD/HD.**

Prince, J.B., et al. (2014). Pharmacotherapy of ADHD in Adults. In R.A. Barkley (Ed.), Attention-Deficit Hyperactivity Disorder, Fourth Edition. New York, NY: Guilford.

AD/HD Medication is “Neuroprotective”

- **“Such a result suggests that treating ADHD with medication may result in a greater normalization of brain development, known as a ‘neuroprotective effect’ (a better term is a ‘growth-enhancing effect’), than if medication had never been used” (p. 368).**

Barkley, R.A. (2014). Attention-Deficit Hyperactivity Disorder, Fourth Edition. New York, NY: Guilford.

Other Questionable CAM Therapies for AD/HD

- **Yoga**
- **Craniosacral Therapy (CST)**
- **Meditation**
- **Homeopathy**
- **Waited Vests**
- **Stability Balls**
- **Sensory Integration Therapy**
- **Caffeine**
- **Transcranial Magnetic Stimulation (TMS)**
- **Cranial Electrotherapy Stimulation (CES)**
- **Anthroposophical Therapy**
- **Acupuncture**

Bader, A, et al. (2014). Complementary and Alternative Medicine for ADHD. In R.A. Barkley (Ed.), Attention-Deficit Hyperactivity Disorder, Fourth Edition. New York, NY: Guilford.

Amyotrophic Lateral Sclerosis (ALS) and AD/HD

As early as 2008 German scientists speculated hypothesized a link between AD/HD and ALS. This was based on similarities in the dopamine system and prefrontal lobe dysfunction of both disorders.

Lule, D., et al. (January 3, 2008). Neurodevelopmental and neurodegenerative diseases – Is there a pathophysiological link? Attention-deficit/hyperactivity disorder and amyotrophic lateral sclerosis as examples. Medical Hypothesis. DOI: http://dx.doi.org/10.1016/j.mehy.2007.11.002

AD/HD & Rotten Teeth

“It is now well established that ADHD in children and teens is associated with substantially greater risk of dental caries specifically and DMFT (diseased, missing, or filled teeth, sic.) more generally, as well as an increased risk for oral trauma. There is also some evidence of poorer dental hygiene and possibly poorer diet associated with the disorder…” (p. 271).

Barkley, R.A. (2014). Attention-Deficit Hyperactivity Disorder, Fourth Edition. New York, NY: Guilford.

Adults with AD/HD

Most adults who have been diagnosed with AD/HD in adulthood need counseling in addition to medication due to a lifespan of difficulty and trauma caused by their untreated disorder. Having AD/HD in adulthood can be more impairing because the stakes of adulthood are far greater than in childhood. One third of adults with AD/HD drop out of high school and only 5% will graduate by the time they reach age 27.

Murphy, K.R. (2014). Psychological Counseling of Adults with ADHD. In R.A. Barkley (Ed.), Attention-Deficit Hyperactivity Disorder, Fourth Edition. New York, NY: Guilford, 741-773.

Genes Effect on The Development of AD/HD through Life

“ Interindividual differences in the overall decline in ADHD symptoms were explained by genetic and environmental influences that were largely distinct from those influencing the baseline level of symptoms. In addition, consistent with the literature, we found large genetic influences on ADHD symptoms with dominant and additive genetic influences for inattention symptoms and only additive genetic effects for hyperactive/impulsive symptoms.”

Pingault, J.-B., et al. (May 6, 2015). Genetic and Environmental Influences on the Developmental Course of Attention-Deficit/Hyperactivity Disorder Symptoms From Childhood to Adolescence. JAMA Psychiatry. DOI: 10.1001/jamapsychiatry.2015.0469.

Smoking and AD/HD

Researchers from the New York University School of Medicine found that long-term smoking is associated with AD/HD in adults. They speculated if smoking could be stopped in AD/HD adolescents it could lessen their AD/HD symptoms in adulthood.

Brook, J.S. (May 4, 2015). Longitudinal Smoking Patterns Do They Predict Symptoms of ADHD in Adults? Journal of Attention Disorders. DOI: 10.1177/1087054715584057.

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.

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.

Autism, Social Skills, and Dogs

American scientists found that children with autism who bond with their dogs have better social skills.

Carlisle, G.K. (May 2015). The Social Skills and Attachment to Dogs of Children with Autism Spectrum Disorder. Journal of Autism and Developmental Disorders, 45(5), 1137-1145.

Facial Structure of Autism Subgroups

Chinese and American researchers discovered that a subgroup of facial anomalies found in children with autism is associated with cognitive impairments and language regression.

Obafemi-Ajayi, T., et al. (May 2015). Facial Structure Analysis Separates Autism Spectrum Disorders into Meaningful Clinical Subgroups. Journal of Autism and Developmental Disorders, 45(5), 1302-1317.

I-Connect, Autism, and Stereotypical Behavior

A pilot study of a computer based self-monitoring system designed to help adolescents with autism control their stereotypical behavior showed promise in helping them lower the incidence of such behavior.

Crutchfield, S.A., et al. (May, 2015). Use of a Self-monitoring Application to Reduce Stereotypic Behavior in Adolescents with Autism: A Preliminary Investigation of I-Connect. Journal of Autism and Developmental Disorders, 45(5), 1146-1155.

Autism, and Reaction to Facial Expressions

Japanese scientist discovered high functioning people with autism had significantly lower facial responses to seeing facial expressions of anger and happiness than would be seen in neurotypicals. The bigger the difference the worse the subject's social dysfunction.

Yoshimura, S. et al. (May, 2015). Impaired Overt Facial Mimicry in Response to Dynamic Facial Expressions in High-Functioning Autism Spectrum Disorders. Journal of Autism and Developmental Disorders, 45(5), 1318-1328.

WatchMinder Watch and ASD

Florida Atlantic University scientists found that using the Watchminder watch with elementary children with autism significantly improved their on-task behavior in the classroom.

Finn, L., et al. (May, 2015). Using WatchMinder to Increase the On-Task Behavior of Students with Autism Spectrum Disorder. Journal of Autism and Developmental Disorders, 45(5), 1408-1418.

Chimps and ASD

United States researchers have developed an inventory to rate the social relatedness of chimpanzees in captivity. They have been able to use the instrument to determine which are socially adept and which are not. This they believe may be able to help understand those with autism better by learning more about our biological cousin's social interactions.

Faughn, C., et al. (May, 2015). Brief Report: Chimpanzee Social Responsiveness Scale (CSRS) Detects Individual Variation in Social Responsiveness for Captive Chimpanzees. Journal of Autism and Developmental Disabilities, 45(5), 1483-1488.

Anticipatory Language In Adult Dyslexia

Dutch scientists discovered that adults with dyslexia are delayed in anticipatory speech which is important in comprehending spoken language. This delay appears to be directly related to their reading scores.

Heutig, F., et al. (March 28, 2015). Delayed Anticipatory Spoken Language Processing in Adults with Dyslexia—Evidence from Eye-tracking. Dyslexia. DOI: 10.1002/dys.1497.

Phonological Memory, Internalized Speech, and SLD of Mathematics

A Norwegian researcher discovered that phonological memory is directly related to internalized speech, and math achievement in children. The older a child is the more they must rely on phonological memory and internalized speech to be successful in math. Additionally, it was found that children with SLD in math are significantly delayed in phonological memory and internalized speech when compared to their non-impaired peers.

Snorre, A.O. (April 2015). Private speech use in arithmetical calculation: relationship with phonological memory skills in children with and without mathematical difficulties. Annals of Dyslexia. DOI: 10.1007/s11881-015-0103-1.

White and Grey Matter Volumes in Dyslexic and Non-Impaired Students

Dutch scientist found that there was no significant grey matter volume differences between dyslexics and non-dyslexics, but dyslexics have less white matter. Additionally, they found female dyslexics have more right hemisphere differences than female non-dyslexics and the differences are more significant then those seen when comparing male dyslexics to male non-dyslexics. Rhyme confusion was found to be connected to reductions in the right and left grey matter volume of the caudate nucleus as well as having significantly more overall white matter volume. The increased amount of grey matter volume in the left posterior cerebellum and left occipital fusiform gyrus found in dyslexics appear to be related to spelling confusion in dyslexics…

White and Grey Matter Volumes in Dyslexic and Non-Impaired Students

…Five areas of grey matter volume differences were found in the frontal and temporal-parietal regions in the brains of dyslexics that were related to phonological processing.

Tamboer, P., et al. (April 24, 2015). Dyslexia and voxel-based morphometry: correlations between five behavioural measures of dyslexia and gray and white matter volumes. Annals of Dyslexia. DOI: 10.1007/s11881-015-0102-2.

Dyslexia and Short Term Memory for Order

Belgian and Italian researchers found that dyslexics have significant impairment in serial short-term memory when compared to non-dyslexics. This does not apply to short term memory of facts and figures, however.

Hachmann, W.M., eta la. (February 1, 2014). Short-term memory for order but not for item information is impaired in developmental dyslexia. Annals of Dyslexia, 64(2), 121-136.

Screening Method for Dyslexia in Adults

Scientists from the Netherlands developed a method of using self-report questionnaires and specific test idem responses to accurately screen for dyslexia in adults. They believe this methods should be tested with adult dyslexics who speak other languages to determine if this technique can be helpful.

Tomboer, P., et al. (December 21, 2013). Identifying dyslexia in adults: an iterative method using the predictive value of item scores and self-report questions. Annals of Dyslexia, 64(1), 34-56.

Dyslexia, Orthography, and Speech Recognition

Researchers from France and Belgium found that orthographic knowledge equally effected dyslexic adults and non-dyslexic adults when engaged in a metaphonemic task. This appeared to be connected to natural speech recognition. However the more experience one has with orthographic processing the better they can use it in speech recognition.

Pattamadilok, C., et al. (April, 2014). How does reading performance modulate the impact of orthographic knowledge on speech processing? A comparison of normal readers and dyslexic adults. Annals of Dyslexia, 64(1), 57-76.

Simultaneous Processing in Dyslexics

French and Spanish scientists discovered that dyslexic children have significantly more difficulty processing simultaneous auditory input than non-impaired children. This is regardless of the dyslexic child's phonological processing abilities. Dyslexic children may have similar difficulties in their simultaneous processing of visual input, too.

Lallier, M., et al. (July, 2013). Developmental dyslexia: exploring how much phonological and visual attention span disorders are linked to simultaneous auditory processing deficits. Annals of Dyslexia, 63(2), 97-113.

Career Courses with SLD Students

American researchers examined the affects of a career and technical education course for high school students with SLD. No significant overall affects of the course were found, but there was some positive effect for the students for the first two years after graduation.

Wagner, M.M., et al. (March 16, 2015). The Benefits of High School Career and Technical Education (CTE) for Youth With Learning Disabilities. Journal of Learning Disabilities. DOI: 10.1177/0022219415574774.

PA, RAN, & Reading

Finish scientists examined the double deficit dyslexia theory (deficits in phonological awareness- PA and rapid automatized naming-RAN) in dyslexic children with both deficits, children with one of the deficits and non-disabled children. They found the single deficit children were no different from the non-disabled children in reading measures, but the PA deficit group was worse in spelling than the RAN and non-disabled groups. PA and RAN were found in the dyslexic children and this negatively affected their reading, but not math or attention.

Heikkia, R., et al. (February 25, 2015). Double-Deficit Hypothesis in a Clinical Sample Extension Beyond Reading. Journal of Learning Disabilities. DOI: 10.1177/0022219415572895.

Asperger's and School Support

Swedish researchers discovered that students with Asperger's Disorder and AD/HD (ages 20 to 29) need academic and psychosocial support in school.

Bolic Baric, V., et al. (April 24, 2015). Support for learning goes beyond academic support: Voices of students with Asperger's disorder and attention deficit hyperactivity disorder. Autism. DOI: 10.1177/1362361315574582.

Comorbidity in ASD Adults

American researchers found that adults with autism,"…had significantly increased rates of all major psychiatric disorders including depression, anxiety, bipolar disorder, obsessive–compulsive disorder, schizophrenia, and suicide attempts. Nearly all medical conditions were significantly more common in adults with autism, including immune conditions, gastrointestinal and sleep disorders, seizure, obesity, dyslipidemia, hypertension, and diabetes. Rarer conditions, such as stroke and Parkinson's disease, were also significantly more common among adults with autism."

Croen, L.A., et al. (April 24, 2015). The health status of adults on the autism spectrum. Autism. DOI: 10.1177/1362361315577517.

Adult ASD and Health Care

American researchers found that ASD adults difficulties with communication, sensory sensitivities, non-verbal communication, organizational problems, lack of body awareness, and slow processing hinder the quality of health care they receive. Physicians were hindered by their lack of knowledge about autism, willingness to include caretakers in conversations, and not allowing the patient to use accommodations to communicate hindered their ability to treat adults with ASD.

McDonald, K.E., et al. (April 16, 2015). "Respect the way I need to communicate with you": Healthcare experiences of adults on the autism spectrum. Autism. DOI: 10.1177/1362361315576221.

ASD and Finding Faces in a Crowd

British researchers found that ASD adults can find specific faces in crowds when they are consciously looking for them to the same level of those who are not disabled.

Moore, D., et al. (March 13, 2015). Attentional allocation of autism spectrum disorder individuals: Searching for a Face-in-the-Crowd. Autism. DOI: 10.1177/1362361315573637.

Imitation Deficits in Those with ASD

German and Belgian scientists found that those with ASD have imitative control deficits, but not global deficits in imitation. They also found that reaction time can be slow in those with ASD.

Brandt, V., et al. (March 13, 2015). Mirror me: Imitative responses in adults with autism. Autism. DOI: 10.1177/1362361315571757.

ASD Vs. Reactive Attachment Disorder

Children with RAD and ASD may appear similar in social situations. RAD is the result of maltreatment, and ASD is a neurobiological disorder. Those with ASD are socially odd with everyone, that is typically not true with those with RAD. Those with ASD have significantly poorer quality of social interaction than those with RAD. Observation can be the best diagnostic tool to discriminate between the two disorders.

Davidson, C., et al. (May, 2015). Social relationship difficulties in autism and reactive attachment disorder: Improving diagnostic validity through structured assessment. Research in Developmental Disabilities, 40, 63-72.

Sensory Responsiveness, and Anxiety in ASD

British and American scientist discovered that sensory under and over responsiveness is related to repetitive motor and insistence on sameness behaviors in ASD children an adolescents. These behaviors are also moderated by anxiety and 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.

ODD, CD, AD/HD, & Motor Impairment

Researchers found that male 79% of adolescents with ODD and/or Conduct Disorder had significant motor impairment. Further, they found that the comorbid presence of AD/HD did not effect the level of motor impairment of the research subjects.

Van Damme, T., et al. (May, 2015). Motor abilities of adolescents with a disruptive behavior disorder: The role of comorbidity with ADHD. Research in Developmental Disabilities, 40, 1-10.

AD/HD, ASD, & Internet Addiction

Researchers from Taiwan found the prevalence of internet addiction of third to eighth graders without disabilities was 10%. Having high AD/HD symptom put one more at risk of internet addiction. There was an inverse relationship between internet addiction and ASD. Those with AD/HD primarily played games of the internet. Being male, having low family support, and school maladjustment also put one at risk of internet addiction.

Chen, Y.-L., et al. (April, 2015). ADHD and autistic traits, family function, parenting style, and social adjustment for Internet addiction among children and adolescents in Taiwan: A longitudinal study. Research in Developmental Disabilities, 39, 20-31.

Developmental Coordination Disorder & Leisure Time

Researchers from Israel and America found children's quality of life is related to leisure time activity level. The more impaired a child is by Developmental Coordination Disorder (DCD) the more sedentary leisure time activities they are involved in. Children with DCD were found to have impaired balance, aiming and catching.

Raz-Sibinger, S., et al. (March, 2015). between motor skills, participation in leisure activities and quality of life of children with Developmental Coordination Disorder: Temporal aspects. Research in Developmental Disabilities, 39, 171-180.

AD/HD and Reading Comprehension

Canadian scientists discovered that AD/HD children had significantly lower reading comprehension than non-impaired children. When poor comprehenders with AD/HD were compared to higher comprehenders with AD/HD the former group were found to have weak expressive vocabulary, and impaired executive function as well as problems with math reasoning, and written expression. Expressive vocabulary and word reading mediated this affect.

Martinussen, R., et al. (March, 2015). Reading comprehension in adolescents with ADHD: Exploring the poor comprehender profile and individual differences in vocabulary and executive functions. Research in Developmental Disabilities, 38, 329-337.

AD/HD, Visual-Spatial Working Memory, & Choice Impulsivity

Researchers from the University of Oklahoma found that Choice Impulsivity in AD/HD children is directly related to visual-spatial working memory.

Palros, C.H.G., et al. (March, 2015). Visuospatial working memory underlies choice-impulsivity in boys with attention-deficit/hyperactivity disorder. Research in Developmental Disabilities, 38, 134-144.

Kinesthetic Deficit in Children with Developmental Coordination Disorder (DCD)

Children with DCD between the ages of 7 and 11 were slower to detect passive arm motion than typically developing age matched controls.

Li, K.-Y., et al. (March, 2015). Kinesthetic deficit in children with developmental coordination disorder. Research in Developmental Disabilities, 38, 125-133.

ASD and Comorbid Disorder

Researchers found that ASD adolescents and adults hospitalized in acute care hospital units are often experiencing organic difficulties, especially epilepsy and painful medical conditions, neglect of care, bipolar disorder, major depressive disorder and schizophrenia. They found the typical reasons a person with ASD was hospitalized were for the above comorbidities not ASD symptoms. They suggested a multidisciplinary approach to assess and treat such patients.

Guinchat, V., et al. (March 2015). Acute behavioral crises in psychiatric inpatients with autism spectrum disorder (ASD): Recognition of concomitant medical or non-ASD psychiatric conditions predicts enhanced improvement. Research in Developmental Disabilities, 38, 242-255.

ASD and Sensory Sensitivities

Researchers found children with ASD had significantly more sensory sensitivity related to hearing and less related to touch when they were at home. At school they were found to have significantly difficulties with auditory and tactile sensitivity.

Fernandez-Andres, M.I., et al. (March, 2015). A comparative study of sensory processing in children with and without Autism Spectrum Disorder in the home and classroom environments. Research in Developmental Disabilities, 38, 202-212.

Physical Activity, AD/HD and Working Memory

German researchers found that prolonged physical activity in children with AD/HD can improve working memory function. They suggested physical activity as a co therapy with traditional AD/HD treatment.

Ziereis, S., et al. (March,2015). Effects of physical activity on executive function and motor performance in children with ADHD. Research in Developmental Disabilities, 38, 181-191.

Genes, Symptom Variance, & AD/HD

Researchers found that the AD/HD is a genetic variance on a continuum of symptoms all children have. AD/HD just have a genetic extreme of that variance.

Stergiakouli, E., et al. (April, 2015). Shared Genetic Influences Between Attention-Deficit/Hyperactivity Disorder (ADHD) Traits in Children and Clinical ADHD. Child and Adolescent Psychiatry, 54(4), 322-327.