



June-July, 2016
Website Updates
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Autism Spectrum Disorder Update



2016 05 21

Recognition Memory Vs. Model Memory Vs. Intention Memory in ASD and Non-ASD Children

British scientists examined the level of memory for things one has done, the memory for what one has witness others have done, and the memory of what one intends to do in a groups of matched non-ASD and ASD children. They found there was no difference between the groups regarding memory of what they intend to do between the two groups. However the ASD children were significantly weaker in the other measures.

Grainger, C. et al (June 22, 2016). Recognition memory and source memory in autism spectrum disorder: A study of the intention. superiority and enactment effects. Autism. DOI: 10.1177/1362361316653364.

Visual Disengagement & ASD

An American researcher found that ASD children with early life visual disengagement are slower and significantly less accurate to process words than their ASD peers who do not experience early life visual disengagement and this may negatively affect their language development.

Venker, C.E. (June 22, 2016). Spoken word recognition in children with autism spectrum disorder: The role of visual disengagement. Autism. DOI: 10.1177/1362361316653230.

Electrodermal Activity in Toddlers with ASD

Scientists from the USA found that toddlers with ASD had higher electrodermal activity when engaged in repetitive and restrictive behavior and when compared to their non-ASD age peers they had significantly higher electrical resistance when approached with a mechanical toy. This was not the case when approached with a passive toy.

Prince, B.E. et al. (June 10, 2016). The relationship between autism symptoms and arousal level in toddlers with autism spectrum disorder, as measured by electrodermal activity. Autism. DOI: 10.1177/1362361316648816.

ASD & Empathy

Australian scientists found that people with ASD have similar electrophysical responses to distressing videos as do those without ASD, but those with ASD had dampened emotional responses due to the way they interpreted their physiological response. This dampening appears to be tied to a general lessening of empathy.

Timmer, E. et al. (May 30, 2016). Not knowing what I feel: Emotional empathy in autism spectrum disorders. Autism. DOI: 10.1177/1362361316648520.

Adult Quality of Life For Those with ASD

Swedish scientists did a 20 year follow up of children now adults that had been diagnosed with Asperger's Disorder (AD) in childhood. They found those that did not meet criterion for AD in adulthood had a 91% fulltime employment rate, 100% independent living rate and 100% had two or more friends. Those who still met criterion for AD had a 41% fulltime employment rate, 51% independent living rate and 33% report having two or more friends. Both groups had better than average physical health, but lower than average mental health.

Helles, A. et al. (May 26, 2016). Asperger syndrome in males over two decades: Quality of life in relation to diagnostic stability and psychiatric comorbidity. Autism. DOI: 10.1177/1362361316650090.

Complimentary and Alternative Medicine and ASD

British and German scientists found that those with ASD use CAM treatments more than those with any other mental health issue. A mean of 54% used CAM treatments. Seventy-five percent of those with ASD used dietary and supplement therapies. The researchers warned allopathic physicians to be aware of this and to ask if their ASD patients are using CAM treatments.

Hoffer, J. et al. (May 25, 2016). Use of complementary and alternative medicine in children and adolescents with autism spectrum disorder: A systematic review. Autism. DOI: 10.1177/1362361316646559.

Autobiographical Memory & ASD

British scientist found, “...Compared to typically developing controls, young people with autism spectrum disorder had autobiographical memory difficulties that were characterised by a reduction in the retrieval of semantic personality traits, with more initial prompts required to facilitate episodic memory retrieval and fewer episodic memories containing emotional and sensory information. Knowledge of the self and others was also impaired, with reduced introspection and poorer mentalising abilities”.

Robinson, S. et al (May 19, 2016). Personality traits, autobiographical memory and knowledge of self and others: A comparative study in young people with autism spectrum disorder. Autism. DOI: 10.1177/1362361316645429.

Non-Suicidal Self-Injury and ASD

American researchers found adults with ASD report a history of non-suicidal self-injury and that females with ASD are more apt to engage in such behavior than males. This did not appear to be related to emotional dysregulation, or depression in adults with ASD. Finally, ASD adults had a higher risk of non-suicidal self-injury than non-ASD adults.

Maddox, B.B. et al. (May 12, 2016). Untended wounds: Non-suicidal self-injury in adults with autism spectrum disorder. Autism. DOI: 10.1177/1362361316644731.

Transition Program for Adults with ASD

A 9 month transition program for ASD high school students between the ages of 18 and 21 was found to have a 90% part-time employment three months after the program and 87% 12 months after the program.

Those ASD students who did not attend the program (control group) 6% part-time employment rate 3 months after graduation and a 12 % employment rate 12 months out.

Wehman, P. et al. (May 5, 2016). Effects of an employer-based intervention on employment outcomes for youth with significant support needs due to autism. Autism. DOI: 10.1177/1362361316635826.

Effects of Theater Based Intervention On Anxiety in ASD Youth

American researchers treated 30 ASD children ages 8 to 14 with a theater based intervention. They found the intervention improved social competence and reduced trait anxiety and as a result started having more social interactions with their peers.

Corbett, B.A. et al. (May 5, 2016). Changes in anxiety following a randomized control trial of a theatre-based intervention for youth with autism spectrum disorder. Autism. 10.1177/1362361316643623.

Ritualized behavior and ASD

American scientists found that children (ages 2 to 17) with ASD have social motivational deficits connected to anxiety. Such anxiety appears to increased reduced tolerance for change and ritualized behavior.

Factor, R.S. et al. (July, 2016). Brief Report: Insistence on Sameness, Anxiety, and Social Motivation in Children with Autism Spectrum Disorder. Journal of Autism and Developmental Disorders. 46(7), 2548-2554.

Sports, Coaches and ASD

An Australian researcher found that a multi-sports training program for children with ASD that stressed physical fitness and good social skills can create good social skills and positive interactions with peers coaches and teachers.

Russo, E.G.F. (July 2016). Brief Report: Coaching Adolescents with Autism Spectrum Disorder in a School-Based Multi-Sport Program. Journal of Autism and Developmental Disorders, 46(7), 2526-2531.

Phelan–McDermid Syndrome & ASD

Phelan–McDermid syndrome (PMS) is form of autism caused by a mutation on one gene(the SHANK3 gene). Researchers found that PMS children have more problems with weakness and low energy than those with more typical types of autism, but they have less sensory sensitivity than those with more common forms of ASD.

Mieses, A.M. et al. (July 2016). Brief Report: Sensory Reactivity in Children with Phelan–McDermid Syndrome. Journal of Autism and Developmental Disorders. 46(7), 2508-2513.

Fitness, Obesity & ASD

University of Pittsburg scientists found that the higher a person with autism's severity of symptoms was positively related to their odd of being obese and negatively related to their level of physical activity, club and sports participation. The researchers suggested targeted dietary and fitness activities for those with ASD.

McCoy, S.M. et al. (July, 2016). Comparison of Obesity, Physical Activity, and Sedentary Behaviors Between Adolescents With Autism Spectrum Disorders and Without. Journal of Autism and Developmental Disorders, 46(7), 2317-2326.

Touch and ASD

Children with autism have higher tactile thresholds than non-ASD children and the bigger the ratio the more autistic traits the ASD child has. The less inhibition to tactile stimuli them more ASD symptoms the autistic child has. This is connected to the GABA neurotransmitter system.

Tavassoli, T. et al. (June 2016). Altered tactile processing in children with autism spectrum disorder. Autism Research, 9(6), 616-620.

More Neurological Differences Found in Autism

Researchers recently found adult with autism have neurometabolic differences dorsal cingulate cortex and their posterior cingulate cortex when compared to non-ASD adults.

Libero, L.E. et al. (June, 2016). Biochemistry of the cingulate cortex in autism: An MR spectroscopy study. Autism Research, 9(6), 643-657.

Aging Adults with Autism

Researchers from the Netherlands assessed 236 matched individuals with and without ASD between the ages of 20 and 97 and found those with ASD had higher scores on visual memory, but significantly lower scores on verbal memory, theory of mind and concerns for guiding and establishing younger people than did the non-impaired group. These weaknesses persisted across the age span, except difficulties with theory of mind appeared to lessen in severity.

Lever, A.G. et al. (June, 2016). Age-related differences in cognition across the adult lifespan in autism spectrum disorder. Autism Research, 9(6), 666-676.

Autism Special Interest Scale

Researchers developed a rating scale to assess the special interests of those with ASD. Called the Special Interest Motivation Scale it is a item factor analyzed 20 item scale that demonstrates those with ASD are far more motivated by their special interests than non-impaired individuals and those with ASD gain positive motivation from their special interests.

Grove, R. et al. (June, 2016). The motivation for special interests in individuals with autism and controls: Development and validation of the special interest motivation scale. Autism Research, 9(6), 677-688.

Auditory Brainstem Responses in ASD Newborns

Israeli scientists found that newborns which later develop ASD have significantly prolonged auditory brainstem responses that are not related to their hearing acuity. This they believe may be an early marker of ASD.

Miron, O. et al. (June, 2016). Prolonged auditory brainstem responses in infants with autism. Autism Research, 9(6), 689-695.

ASD & Mirror Neurons

German researchers found that basic motor mimicry in those with ASD is not impaired, but this is not connected to empathy and emotional processing or cognition.

Schulte-Rütke, M. et al. (June, 28, 2016). Intact mirror mechanisms for automatic facial emotions in children and adolescents with autism spectrum disorder. Autism Research. DOI: 10.1002/aur.1654.

Autonomic Functions, Gastrointestinal & Anxiety in ASD

Scientists determined that autonomic functions and gastrointestinal problems are interrelated and this appears to be intertwined with the emotional anxiety so prevalent in ASD.

Ferguson, B.J. et al. (June 20, 2016). Psychophysiological Associations with Gastrointestinal Symptomatology in Autism Spectrum Disorder. Autism Research. DOI: 10.1002/aur.1646.

Rapid Processing of Social Stimuli in Those with ASD

Scientist from Belgium found, “...an age-dependent improvement in general categorization ability but more long-lasting difficulties in rapid social categorization in individuals with ASD. We suggest that the poorer general performance of adolescents with ASD results from a less efficient rapid processing of global semantic structure”.

Vanmarche, S, et al. (September/October, 2016). Gist perception in adolescents with and without ASD: Ultra-rapid categorization of meaningful real-life scenes. Research in Autism Spectrum Disorders, 29-30, 30-47.

Hyperbaric Oxygen Therapy for ASD

A literature review of hyperbaric oxygen therapy for children with ASD indicated it is not an efficacious treatment.

Goldfarb, G. et al (September/October, 2016). Hyperbaric oxygen therapy for the treatment of children and youth with Autism Spectrum Disorders: An evidence-based systematic review. Research in Autism Spectrum Disorders, 29-30, 1-7.

Driving & ASD

British researchers found those with ASD were significantly worse at determining the location of moving objects than the typically developing and this may explain why they tend to have problems driving.

Sheppard, E. et al. (September/October, 2016). Difficulties predicting time-to-arrival in individuals with autism spectrum disorders. Research in Autism Spectrum Disorders, 29-30, 17-23.

Peer Mediated Conversation Training & ASD

Research conducted in the US indicated a program of peer mediated social conversation over lunch in high school can significantly improve the conversational skills of those students with ASD.

Bambara, L.M. et al. (July, 2016). A peer-mediated intervention to improve the conversational skills of high school students with Autism Spectrum Disorder. Research in Autism Spectrum Disorders, 27, 29-43.

ASD, Eye Gaze and Social Topics

Researchers from the University of Vermont found that ASD children gazed toward a person's eyes when they were engaged in a conversation about what activities people can be engage in similar to what a typically developing child would. However, the ASD children would look at the other person's mouth when emotional topics were being discussed. The scientists interpreted this to indicate the ASD childrens' executive function system was overly taxed by attempting to process emotional stimuli. Hence, they look at the other conversant's mouth to reduce the stress.

Hutchins, T.L. et al. (June, 2016). Conversational topic moderates social attention in autism spectrum disorder: Talking about emotions is like driving in a snowstorm. Research in Autism Spectrum Disorders, 26, 99-110.

Social Coordination Difficulties in ASD Adults

Researchers from France found that ASD adults could not socially coordinate a acceptable outcome for themselves and another person. Their own personal bias tends to dominate. They cannot predict what the other person's preference is as a result. This problem was related to communication difficulties and severity of ASD symptoms.

Zalla, T. et al (June, 2016). Reduced social coordination in Autism Spectrum Disorders. Research in Autism Spectrum Disorders, 26, 71-79.

Self-Face Images, ASD and Neurological Functioning

Japanese researchers found when adults with ASD were exposed to self-face images they did not increased activity in the right anterior insula, like typically developing adults do. ASD adults also don not experience an emotional response in their right insula that non-impaired adults do, also. As a result they concluded the following:

“These results suggest that the reduced impact of observation on embarrassment induced by self-face images in individuals with ASD is related to impairment in the right anterior insula, which is involved in creating subjective feelings, and the anterior cingulate cortex, which acts as a hub for integrating information from others during self-face evaluation.”

Morita, T. et al. (June, 2016). Neural correlates of emotion processing during observed self-face recognition in individuals with autism spectrum disorders. Research in Autism Spectrum Disorders, 26, 16-32.

Pain & ASD

Researchers from the University of Kansas Medical Center found that children with ASD have the typical amount of pain reception, but their ability to express their pain may differ on how impaired they are by their autism.

Courtemanche, A.B. et al (June, 2016). Everyday expressions of pain in children with and without autism spectrum disorder. Research in Autism Spectrum Disorders, 26, 65-70.

Classical Conditioning & ASD

Research has indicated that individuals with ASD are impaired in classical conditioning learning across all sensory modalities. American researchers found that those with ASD are impaired in classical conditioning learning across modalities. The more aware the person with ASD was of the contingencies of conditioning the better they learned. This had no effect on a matched control group of typically developing individuals.

Powell, P.S. et al. (May, 2016). Difficulties with multi-sensory fear conditioning in individuals with autism spectrum disorder. Research in Autism Spectrum Disorders, 25, 137-146.

Paranoia & ASD

British researchers reviewed seven studies that investigated the level of paranoia experienced in those with ASD. They found that those with ASD had higher levels of paranoia than their non-impaired peers, but not as much as paranoid schizophrenics. The paranoia in those with ASD was connected to difficulties with theory of mind, jumping to conclusions, and negative emotions, however, they were not found to have a mindset of suspicion. The neurocognitive and social difficulties ASD individuals experience were seen as the cause of the paranoia.

Spain. DF. t al. (May, 2016). Conceptualising paranoia in ASD: A systematic review and development of a theoretical framework. Research in Autism Spectrum Disorders, 25, 97-111.

Tourette's Disorder & ASD

Greek scientists reviewed the literature examining the comorbidity between ASD and Tourette's Disorder and found it is 4 to 5%. They also found the comorbidity between Tic Disorders and ASD to be 9-12%

Kalyva, E. et al. (April, 2016). A review of co-occurrence of autism spectrum disorder and Tourette syndrome. Research in Autism Spectrum Disorder, 24, 39-51.

Employment & ASD

A recent survey of employment rates of people between the ages of 18 and 65 with ASD in the US indicated they significantly lower than the general population. Those with ASD and intellectual impairment were employed only 18.2% of the time.

Nord, D.K. et al. (April, 2016). Employment in the community for people with and without autism: A comparative analysis. Research in Autism Spectrum Disorder, 24, 11-16.

ASD & Fear

American researchers found through fMRI imagery the right amygdala decreased differential activation between threat and safe conditions during the learning phase of a fear as well as decrease activity in the right amygdala when attempting to extinguishing the fear in those with autism when compared to normal controls. This may account for the chronic anxiety found in those with autism.

Top, D.N. et al (July, 2016). Atypical Amygdala Response to Fear Conditioning in Autism Spectrum Disorder. Biological Psychiatry: Cognitive Neuroscience and Neuroimaging, 1(4), 308-316.

Attention-Deficit/Hyperactivity Disorder Update



AD/HD, Effort and Decisions

Israeli scientists found that AD/HD children what significant difficulty mustering the effort to achieve their desires when compared to their non-impaired peers. However, they do not have difficulty making decisions about what they want.

Winter, Y. et al. (June 20, 2016). Effort Allocation in Children With ADHD Abnormal Decision-Making or Poor Execution? [Journal of Attention Disorders](https://doi.org/10.1177/1087054716654569). DOI: 10.1177/1087054716654569.

Mind Wandering & AD/HD

British researchers found that excessive mind wandering is a component of adult AD/HD. The scientist defined mind wandering as, “...as periods in time when attention and the contents of thoughts shift away from external sources and/or ongoing tasks to unrelated internal thoughts or feelings”. They even developed the Mind Excessively Wandering Scale to measure this.

Mowlen, F.D. et al. (July 1, 2016). Validation of the Mind Excessively Wandering Scale and the Relationship of Mind Wandering to impairment in Adult ADHD. Journal of Attention Disorders. DOI: 0.1177/1087054716651927.

SCT in College Students

American researchers screened 458 college students for Sluggish Cognitive Tempo (SCT) and found 13% of them have the disorder. They found some have AD/HD comorbidly and some do not. SCT was found to be related to significant relations to anxiety and depression as well as executive function difficulties. SCT, they found was a separate and distinct disorder from AD/HD.

Wood, W.L.M. et al. (December 17, 2014). Executive Dysfunction and Functional Impairment Associated With Sluggish Cognitive Tempo in Emerging Adulthood. Journal of Attention Disorders. DOI: 10.1177/1087054714560822.

Aerobic Exercise and AD/HD

Canadian scientists at McGill University reviewed the literature on the use of aerobic exercise with AD/HD in children and adults. They found it was an efficacious adjunct to medication for AD/HD symptoms as well as social and neurocognitive function.

Klil-Drori, S. et al. (June 10, 2016). Potential Social and Neurocognitive Benefits of Aerobic Exercise as Adjunct Treatment for Patients With ADHD. Journal of Attention Disorders. DOI: 10.2016/1087054716652617.

Frustration Tolerance and AD/HD

Researchers in the US found that AD/HD 10 to 14 year olds have more significantly difficulty with frustration tolerance than their non-impaired peers, and this frustration tolerance is not related to possible oppositional defiant disorder.

Seymour, K.E. et al. (June 8, 2016). Frustration Tolerance in Youth With ADHD. Journal of Attention Disorders. DOI: 10.1177/1087054716653216.

SCT

Spanish researchers found higher levels of sluggish cognitive tempo (SCT) than expected in children of lower socioeconomic status, where their mother's smoked during pregnancy, and they were exposed to second hand smoke. Boys had more symptoms of SCT than girls. Having dyslexia and/or having inattention symptoms also put them more at risk of SCT.

Camprodon-Rosanas, E. et al. June 5, 2016). Sluggish Cognitive Tempo Sociodemographic, Behavioral, and Clinical Characteristics in a Population of Catalan School Children. Journal of Attention Disorders. DOI: 10.1177/1087054716652477.

Military Service & AD/HD

Israeli scientists evaluated over 14,000 AD/HD service members of the Israeli military and found they had significantly more doctors visits, mental health concerns, more sick days and were declared medically unfit for service than controls. They was also more likely to be over weight/obese, to be diagnosed with personality disorders and anxiety disorders than controls.

Fruchter, E. et al. (June 5, 2016). Functioning of Young Adults With ADHD in the Military. Journal of Attention Disorders. DOI: 10.1177/1087054716652478.

AD/HD and Domestic Violence

Adults with current symptoms of AD/HD as well as past history of the same are far more at risk of being the victim of physical abuse, or to perpetrate abuse in an intimate relationship than controls. The more severe the AD/HD symptoms them more at risk they are.

Wymbs, B.T. et al. (June 5, 2016). Rates of Intimate Partner Violence Perpetration and Victimization Among Adults With ADHD. Journal of Attention Disorders. DOI: 10.1177/1087054716653215.

Seasonal Variations of AD/HD Symptoms

Dutch researchers found seasonal variation in the symptoms of AD/HD adults. Hyperactivity appeared to be significantly higher in the spring and inattention was significantly higher in the fall.

Vogel, S.W.N. et al. (May 19, 2016). Seasonal Variations in the Severity of ADHD Symptoms in the Dutch General Population. Journal of Attention Disorders. DOI: 10.1177/1087054716649663.

AD/HD and Distraction

Spanish researchers discovered through fMRI imaging that people with AD/HD can be helped by task distractors, because they cause their orbital frontal and insular areas to more fully activate and can improve time estimation and task focus.

Pretus, C. et al. (May 16, 2016). Presence of Distractor Improves Time Estimation Performance in an Adult ADHD Sample. Journal of Attention Disorders. DOI: 10.1177/1087054716648776.

AD/HD and Drug Use

Canadian researchers found that adults with self-reported AD/HD reported significantly more binge drinking, tobacco usage, and street drug use than did non-AD/HD adults.

Connolly, R.D. et al. (May 14, 2016). Probabilities of ADD/ADHD and Related Substance Use Among Canadian Adults. Journal of Attention Disorders. DOI: [10.1177/108705471664747](https://doi.org/10.1177/108705471664747).

Lifestyle and AD/HD

AD/HD children were found to have significantly less healthy life styles than their typically developing peers.

Holton, K.F. et al. (April 28, 2016). The Association of Lifestyle Factors and ADHD in Children. Journal of Attention Disorders. DOI: 10.1177/1087054716646452.

Immunity and AD/HD

Italian researchers found that children with AD/HD that may negatively effect neural antibodies and other immune process in the brain.

Donfrancesco, R. et al. (April 19, 2016). Anti-Yo Antibodies in Children With ADHD First Results About Serum Cytokines. Journal of Attention Disorders. 10.1177/1087054716643387.

Early Attention & Social Skills

Duke researchers followed 386 kindergarteners from 1991 until recently and found that those weaker attentional skills and poorer social skills had difficulties that persisted throughout life. These children did not necessarily have AD/HD. By 5th grade they had significantly lower reading skills and grades than their non-impaired age peers and they had a 40% worse high school graduation rate.

Rabiner, D.L. et al. (July, 2016). Dodge Predicting Academic Achievement and Attainment: The Contribution of Early Academic Skills, Attention Difficulties, and Social Competence. School Psychology Review. DOI: 10.17105/SPR45-2.250-267.

Work Context and AD/HD

American researchers found that young adults with AD/HD feel their work performance and AD/HD symptomatology is directly by the context of their work environment. The more stimulating the work environment for the person the better. The researchers concluded, “These findings demonstrate the need to account for the role of context in our understanding of ADHD as a psychiatric disorder, especially as it manifests in young adulthood.”

Lasky, A.K. et al. (July 2016). ADHD in context: Young adults’ reports of the impact of occupational environment on the manifestation of ADHD. Social Science and Medicine, 161, 160-168.

Aerobic Exercise and AD/HD

Even 20 minutes a day of aerobic exercise can alleviate AD/HD symptoms in young men. It was found to reduce confusion, increase motivation and energy, and decrease depression, but it had no effect on attention and hyperactivity.

Fritz, K.M. et al. (June, 2016). Acute Exercise Improves Mood and Motivation in Young Men with ADHD Symptoms. Medicine and Science in Sports and Exercise, 48(6), 1153-1160.

AD/HD, Obesity & Addiction

Canadian researchers found that obese AD/HD people are at significant risk of choosing smaller immediate rewards than delaying their response for bigger ones. This pattern appeared to match the same behavior in those with addictions and may explain the risk those with AD/HD have for addiction.

McKillop, J. et al. (June 14, 2016). Consistent links between capacity to delay gratification, ADHD, obesity. Biological Psychiatry: Cognitive Neuroscience and Neuroimaging and Psychological Medicine. Retrieved July 7, 2016 from www.sciencedaily.com/releases/2016/06/160614214415.htm.

Social Networking and AD/HD

Researchers from California discovered that AD/HD adults are at higher risk of using social networking systems while driving due to their lower self-esteem and impulsivity. They also appear to be drawn toward the immediate reward they can receive from such stimuli as well as their impulsivity. In addition this tends to make poor drivers worse.

Turel, O. et al. (March 30, 2016). Social Networking Site Use While Driving: ADHD and the Mediating Roles of Stress, Self-Esteem and Craving. Frontiers in Psychology. DOI: [10.3389/fpsyg.2016.00455](https://doi.org/10.3389/fpsyg.2016.00455).

Marijuana & AD/HD

“When it comes to your son’s health and the treatment of ADHD to improve his life, marijuana cannot treat his symptoms effectively. It can actually make them worse and create greater physical and mental health risks for him, now and in the future. It is not a harmless substance.

However, there is currently no research supporting marijuana in any form, or any product derived from it, as a treatment for ADHD or specific ADHD symptoms”.

Volkow, N.D. (2016). Will ADHD Symptoms Improve with Marijuana?

National Resource Center on AD/HD. From website:

<http://www.chadd.org/Understanding-ADHD/About-ADHD/ADHD-Weekly-Archive/Newsletter-Article.aspx?id=73>.

Specific Learning Disorder Update

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Dyslexia & Parafoveal Function

Dyslexics were found to experience reduced parafoveal preview and this negatively affected their silent letter finding, but not their naming speed. This deficit may indicate parafoveal overload of the phonological processor.

Silva, S. et al. (July, 2016). Too little or too much? Parafoveal preview benefits and parafoveal load costs in dyslexic adults. Annals of Dyslexia, 66(2). 187-201.

Dyslexia Subtypes

Israeli researchers from the University of Haifa found there may be three subgroups of dyslexics in every language:

- 1. Those with the double-deficit (Poor RAN & Phonemic Processing)**
- 2. Those with poor spelling**
- 3. Those with poor reading only**

Bar-Kochva, I. et al. (July, 2016). The relations between reading and spelling: an examination of subtypes of reading disability. Annals of Dyslexia, 66(2), 219-234.

Dyslexia and Visual Attention

Israeli researchers found that adult dyslexics do not have a reduced visual attention span when compared to non-dyslexic adults.

Yeari, M. et al. (June 22, 2016). Do dyslexic individuals present a reduced visual attention span? Evidence from visual recognition tasks of non-verbal multi-character arrays. Annals of Dyslexia. DOI: 10.1007/s11881-016-0132-4.

Specific Reading Comprehension Deficit

About 10% of children have a Specific Reading Comprehension Deficit (SRCD). American scientists found that those with SRCD had significantly different neuroanatomies than dyslexics and typically developing children. More specifically, it was found that SRCD children differed from the other groups in having, “...reduced gray matter volume in right frontal areas that were also supported by univariate analysis. These areas are thought to subserve executive processes relevant for reading, such as monitoring and manipulating mental representations.

Bailey, S. et al. (June 20, 2016). Anomalous gray matter patterns in specific reading comprehension deficit are independent of dyslexia. Annals of Dyslexia. DOI: 10.1007/s11881-015-0114-y.

OpenDyslexia & Dyslexia

American researchers found no improvement in accuracy, or reading rate in dyslexics exposed to the OpenDyslexia special font treatment.

Wery, J.J. et al. (2016). The effect of a specialized dyslexia font, OpenDyslexic, on reading rate and accuracy. Annals of Dyslexia. DOI: 10.1007/s11881-016-0127-1.

Dyslexia and Memory For Order

Researchers found dyslexics may have a deficit in short-term memory for order, but not information.

Hechmann, W.M. et al (July 2014). Short-term memory for order but not for item information is impaired in developmental dyslexia. Annals of Dyslexia, 64(2), 121-136.

Internalized Speech and Mathematics Disorder

A Norwegian researcher found that as typically developing children age they begin to use internalized speech and phonological processing significantly more than children with mathematics disorder. This tends to indicate children with mathematics disorder have significant difficulties with phonological memory and internalizing speech as well as difficulties with a developmental difference, and not a developmental delay.

Ostad, S.A. (June, 2016). Private speech use in arithmetical calculation: relationship with phonological memory skills in children with and without mathematical difficulties. Annals of Dyslexia, 65(2), 103-119.

Dyscalculia, Internal Number Line & Symbolic Numbers

Canadian scientists found that children with dyscalculia do not have a number line processing deficit when compared to non-impaired children, but they have a deficit in the ability to access their internal number line from symbolic numbers.

Lafay, A. et al. (March 25, 2015). The Mental Number Line in Dyscalculia: Impaired Number Sense or Access From Symbolic Numbers? [Journal of Learning Disabilities](https://doi.org/10.1177/0022219416640783). DOI: 10.1177/0022219416640783.

Difficulties in Cognitive Processes and How they Relate to Math and Reading

American researchers found, “...that processing speed processing speed contributes to the overlap between reading and attention as well as math and attention, whereas verbal comprehension contributes to the overlap between reading and math”. Executive Functioning was not as a whole found to effect the above. However, specific executive functions were found to be related to specific skills (inhibition to attention/working memory to math).

Peterson, R.L. et al. (January 29, 2016). Cognitive Prediction of Reading, Math, and Attention: Shared and Unique Influences. Journal of Learning Disabilities. DOI: 10.1177/0022219415618500.

Poor Hand Writers, Poor Spellers and Keyboarding

Researchers from Spain and the Netherlands found that Spanish speaking children from grades 1 through 3 found that poor hand writers did not differ from average hand writers in their alphabet writing and keyboarding fluency as well as their number of keyboarding omissions. However, those who were poor spellers and hand writers experienced significant improvement in their written product when keyboarding, but their spelling did not improve. The researchers suggested more help with spelling for those children.

Bisschop, E. et al. (April 11, 2016). Fluency and Accuracy in Alphabet Writing by Keyboarding: A Cross-Sectional Study in Spanish-Speaking Children With and Without Learning Disabilities. Journal of Learning Disabilities. DOI: 10.1177/0022219416633865.

Miscellaneous Information



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Exercise & Parkinson's Disease

In 2003 Jay Alberts, a researcher at the Department of Biomedical Engineering, Center for Neurological Restoration, Cleveland Clinic Foundation participated in a multi-day bicycling event across the state of Iowa where he volunteered to captain a tandem bicycle that was stoked by a woman with Parkinson's disease (The captain rides the front of the bike, and the stoker the back). Alberts, an avid and well-conditioned cyclist, kept the peddling cadence between 80 and 90 revolutions per minute. The stoker had to do the same, because they are both slaved to the same bicycle chains. This is called forced exercise. The second day of the bicycle tour Alberts noticed his stoker's Parkinson's symptoms had significantly improved. Subsequent research (Alberts, et al. July, 2011) has demonstrated such exercise can improve global motor functioning as well as cortical and subcortical activation. Although this research is in its initial stages it offers a possible powerful treatment for Parkinson's.

Alberts, J.L. et al. (July, 2011). It Is Not About the Bike, It Is About the Pedaling: Forced Exercise and Parkinson's Disease. Exercise and Sports Science Reviews, 39(4), 177-186.

Pharmacogenomics, or Pharmacogenetics

This is a type of genetic testing done at the Mayo Clinic that helps psychiatrists choose the correct medication to treat depression and/or anxiety in patients. It helps determine the most efficacious medication with the fewest side effects for each individual patient. It can also help determine dosing, because it can measure how fast each patient metabolizes each medication. This can significantly cut the time to determine the correct medication and dosing for patients, and possibly remove the need for lengthy medication titration trials.

Author (2016). Drug-Gene Testing. Mayo Clinic. From website: <http://mayoresearch.mayo.edu/center-for-individualized-medicine/drug-gene-testing.asp>.