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Website Update
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Dyslexia and Visual Reasoning

Researchers recently found those with dyslexia tend to rely on visual processing for reasoning out problems instead of using internalized speech (A.K.A. Phonological Loop) like non-dyslexic individuals would tend to. This tends to put dyslexics at risk of having academic and work difficulties because the processing needed for problem solving in these settings tends to require internalized speech.

Bacon, A.M., and Handley, S.J. (September 8, 2014). Reasoning and Dyslexia: is Visual Memory a Compensatory Resource. Dyslexia. DOI: 10.1002/dys.1483.

Dyslexia and Music

Scientists have found those with dyslexia have deficits in phonological processing, auditory temporal timing, speech and rhythmic timing. Recently they found That dyslexic musicians with extensive experience with music do not have the common auditory sensitivity and rhythm perception. This may demonstrate music training may help those with dyslexia.

Bishop-Liebler, et al. (July 10, 2014). Auditory Temporal Processing Skills in Musicians with Dyslexia. [Dyslexia](#). DOI: 10.1002/dys.1479.

Cognitive Factors Common to Specific Learning Disorder in Reading/Mathematics

British scientists learned recently poor processing speed, temporal processing and working memory are all related to attentional problems. Poor verbal working memory was related to both Reading and Math LD. However, the poor verbal working memory was only related to rapid auditory naming were found in those with Reading LD. Problems with temporal processing and visual spatial working memory were only found in those with Math LD.

Moll, K. et al. (August 14, 2014). Cognitive Risk Factors for Specific Learning Disorder Processing Speed, Temporal Processing, and Working Memory. Journal of Learning Disabilities. DOI: 10.1177/0022219414547221.

Anxiety & Depression in Dyslexic Vs. Nonverbal LD Children

Italian researchers reported that dyslexic and nonverbal LD children have more generalized anxiety and social anxiety than non-LD children. Dyslexic children had more problems with depression than those without LD and the nonverbal LD children.

Mammarella, I.C., et al. (April 14, 2014). Anxiety and Depression in Children With Nonverbal Learning Disabilities, Reading Disabilities, or Typical Development. Journal of Learning Disabilities. DOI: 10.1177/0022219414529336.

Reading Comprehension Difficulties, Oral and Written Expression

Researchers from Italy discovered that children with reading comprehension problems have difficulty telling stories and writing them as well as their non-impaired peers in part because they have weak working memories.

Carretti, B, et al. (April 7, 2014). Oral and Written Expression in Children With Reading Comprehension Difficulties. [Journal of Learning Disabilities](https://doi.org/10.1177/0022219414528539). DOI: 10.1177/0022219414528539.

Reading and Executive Function

German scientists found that children with spelling difficulties, but no reading problems had significant weaknesses in phonological loop. Those with reading disability without spelling problems had significant problems with the central executive, and nothing else in executive functioning.

Brandenburg, J., et al. (February 14, 2014). Working Memory in Children With Learning Disabilities in Reading Versus Spelling: Searching for Overlapping and Specific Cognitive Factors. Journal of Learning Disabilities. DOI: 10.1177/0022219414521665.

Poor Information Processing and Reading Comprehension

Canadian researchers found that college students poor reading comprehension, but good single word reading had significantly worse reading comprehension due to working memory deficits the more complex the material when compared to non-impaired controls. They also suffer from significantly more problems with sequential and simultaneous processing and this may indicate an overall problem with information processing.

Georgiou, G.K., et al. (January 6, 2014). University Student With Poor Reading Comprehension: The Hidden Cognitive Processing Deficit. [Journal of Learning Disabilities](https://doi.org/10.1177/0022219413513924). DOI: 10.1177/0022219413513924.

Dyslexia and Test Anxiety

Scientists at the University of Georgia discovered college students with Reading Disorder have significantly more test anxiety than their non-disabled peers, and five times more students with Reading Disorder complain of test anxiety than their non-impaired peers. Problems with working memory and nonverbal processing were correlated as related to this anxiety in those with Reading Disorder.

Nelson, J.M., et al. (October 23, 2013). Test Anxiety Among College Students With Specific Reading Disability (Dyslexia): Nonverbal Ability and Working Memory as Predictors. Journal of Learning Disabilities. DOI: 10.1177/0022219413507604.

In-School Neurofeedback Training for AD/HD

Researcher from Tufts and Harvard Universities found that AD/HD children given neurofeedback training along with stimulant medication responded better to treatment than children with AD/HD given cognitive behavioral therapy and stimulant medication and those who only received medication alone. The results were similar at the end of the study as they were at 6 month follow-up. At six month follow-up the group that received cognitive behavioral therapy needed more medication the neurofeedback group did not.

Steiner, N.J., et al. (February 17, 2014) In-School Neurofeedback Training for ADHD: Sustained Improvements From a Randomized Control Trial. [Pediatrics](https://doi.org/10.1542/peds.2013-2059). DOI: 10.1542/peds.2013-2059.

AD/HD Language Problems

Australian researchers found AD/HD children are two and a half times more likely to have language problems than controls. This makes it more likely that children with AD/HD will have problems with word reading and mathematical calculation than controls, too.

Sciberras, E., et al. (April 21, 2014). Language Problems in Children With ADHD: A Community-Based Study. Pediatrics. DOI: 10.1542/peds.2013-3355.

Genetic Commonalities Between AD/HD and Autism Spectrum Disorder

British scientists found common genetic copy variants that suggest common biological pathways that effect nicotinic acetylcholine receptor signaling, cell division, and stimulant medication response in those with AD/HD and Autism Spectrum Disorder.

Martin, J., et al. (July, 2014). Biological Overlap of Attention-Deficit/Hyperactivity Disorder and Autism Spectrum Disorder: Evidence From Copy Number Variants. Journal of the Academy of Child and Adolescent Psychiatry, 53(7), 761-770. e26.

Genetics, Trauma, and AD/HD

South Korean scientists discovered that the COMT gene may be affected by childhood trauma and increase inhibitory deficits in AD/HD children.

Park, S., et al. (July 25, 2014). Interactions Between Early Trauma and Catechol-O-Methyltransferase Genes on Inhibitory Deficits in Children With ADHD. Journal of Attention Disorders. DOI: 10.1177/1087054714543650.

AD/HD and Emotional Dysregulation

AD/HD children and adolescents were found to have significantly more emotional dysregulation than controls, especially when experiencing strong emotions. They also were found to have more difficulty calming down after a blow-up. They were found to have a low threshold for emotional dysregulation, and inflexibility. This was irregardless of which type of AD/HD they had, or if they had comorbid oppositional defiant disorder.

Bunford, N., et al (March 29, 2014). Emotion Dysregulation Is Associated With Social Impairment Among Young Adolescents With ADHD. Journal of Abnormal Psychology. DOI: 10.1177/1087054714527793.

AD/HD and Contextual Memory

Scientists from the University of Victoria in Canada discovered children with AD/HD were better than controls at remembering where they learned information, and were no different in remembering factual information than controls, but they were significantly worse than controls in contextual memory that had a temporal component. This appears to be connected to time blindness.

Kimberly, A., et al. (July 2014). Context-specific memory in children with ADHD. International Journal of Developmental Disabilities. 60(3), 184-197.

AD/HD & Suicide

Researchers from Budapest, Hungary found that children and adolescents with AD/HD have a significantly higher risk of suicidality at their first appointment than controls. This was not dependent on gender, but is exacerbated by comorbid anxiety disorders, depression, ODD/CD, tic disorders and substance use/abuse. They recommended frequent suicide checks for those with AD/HD.

Balazs, J. (September, 2014). The Importance of Screening Routinely for Suicidality in ADHD. The ADHD Report, 22(6), 9-11, 15.

Sleep & Learning

When first practicing a new skill mammals use many neurons in the motor cortex. With practice and sleep the brain narrows down the number of cells that fire while performing the skill. This process continues until mastery is attained when only those cells fire which are required to perform the skill. During sleep the cells fire further refining the cell firing patterns.

Upton, S. (November/December, 2014). Cyborg Confidential. Scientific American Mind, 25(6), 30-35.

Schizophrenia and Genetics

A large team of international researchers from several countries recently discovered 108 genetic loci in the human genome connected to schizophrenia. They discovered connections to the DRD2 gene and to genes connected to the transmission of gluten. This tends to demonstrate that schizophrenia has a genetic component.

O'Donovan, M.C., et al. (July 24, 2014). Biological insights from 108 schizophrenia-associated genetic loci. Nature. DOI: 10.1038/nature13595.

Exercise, Genetics, & Alzheimer's

Researchers from the University of Arizona have stated people with two copies of the APOEε4 gene have a high risk of dementia in old age. In human's evolutionary past this genetic expression allowed our ancestors to have higher metabolism when engaged in exercise (i.e., running from a saber tooth tiger, etc.). But, the same expression caused dementia in old age. However, back then we were so physically active the activity counteracted this effect. Today, however, we are very sedentary compared to our ancestors and we do not do enough exercise to counteract these effects. Perhaps those with this gene expression could reduce their risk of dementia if they exercised more.

Raichlen, D.A., and Alexander, G.E. (2014). Exercise, APOE Genotype, and The Evolution of The Human Lifespan. Cell. DOI: [10.1016/j.tins.2014.03.001](https://doi.org/10.1016/j.tins.2014.03.001).