

A sunset over a desert landscape with silhouetted rock formations. The sun is low on the horizon, creating a bright glow and long shadows. The sky is filled with soft, colorful clouds in shades of orange, yellow, and blue. The rock formations are dark silhouettes against the bright sky.

***SOCIAL DIFFICULTIES OF
LEARNING, ATTENTIONAL
AND AUTISTIC
DISORDERS: SCREENING
AND TREATMENT, 2013
EDITION***

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Sleep & Dyslexia

“The correlation found between sleep spindle activity and reading abilities in developmental dyslexia supports the hypothesis of a role for NREM sleep and spindles in sleep-related neurocognitive processing” (p. 1333).

Bruni, O., Ferri, R., Novelli, L., Terribili, M., Troianiello, M., Finotti, E., Leuzzi, V., and Curatolo, P. (October 1, 2009). Sleep Spindle Activity Is Correlated With Reading Abilities In Developmental Dyslexia. Sleep, 32(10), 1333-1340. PMID: PMC2753811.

Sleep & Dyslexia

“To analyze non-rapid eye movement (NREM) sleep microstructure of children with dyslexia, by means of cyclic alternating pattern (CAP) analysis and to correlate CAP parameters with neuropsychological measures...To overcome reading difficulties, dyslexic subjects overactivate thalamocortical and hippocampal circuitry to transfer information between cortical posterior and anterior areas. The overactivation of the ancillary frontal areas could account for the CAP rate modifications and mainly for the increase of CAP rate and of A1 index in N3 that seem to be correlated with IQ and reading abilities” (p. 539).

Bruni, O., Ferri, R., Novelli, L., Finotti, E., Terribili, M., Troianiello, M. Valente, D., Sabatello, U, and Curatolo, P. (2009). Slow EEG Amplitude Oscillations During NREM Sleep and Read Disabilities In Children With Dyslexia. Developmental Neuropsychology, 34(5), 539-551. doi: 10.1080/87565640903133418.

AD/HD & Circadian Rhythms

“Cortisol rhythms were significantly phase delayed in the ADHD group. These findings indicate that adult ADHD is accompanied by significant changes in the circadian system, which in turn may lead to decreased sleep duration and quality in the condition. Further, modulation of circadian rhythms may represent a novel therapeutic avenue in the management of ADHD” (p. 988).

Baird, A.L., Coogan, A.N., Siddiqui, A., Doney, R.M., Thorne, J. (October 17, 2012). Adult attention-deficit hyperactivity disorder is associated with alterations in circadian rhythms at the behavioural, endocrine and molecular levels. Molecular Psychiatry, 17(10), 988-995. doi: 10.1038/mp.2011.149.

DNA Test for AD/HD

On the basis of these results, Molano is proposing a DNA chip with these 32 polymorphisms, which could be updated with new polymorphisms, as a tool not only for diagnosing but also for calculating genetic susceptibility to different variables (responding well to drugs, normalisation of symptoms, etc.).

The study has also confirmed the existence of the 3 ADHD subtypes: lack of attention, hyperactivity, and a combination. “It can be seen that on the basis of genetics the children that belong to one subtype or another are different,” explains Molano.

Molano, A. (January 21, 2013). A DNA Chip Is Developed To Diagnose Attention Deficit Hyperactivity Disorder. Basque Research. From Website: http://www.basqueresearch.com/berria_irakurri.asp?Berri_Kod=4308&hizk=1.

AD/HD, Medication & Criminality

“Among patients with ADHD, rates of criminality were lower during periods when they were receiving ADHD medication. These findings raise the possibility that the use of medication reduces the risk of criminality among patients with ADHD” (p. 2006).

Lichtenstein, P., Halldner, L., Zetterqvist, J., Sjolander, A., Serlachius, E., Fazel, S., Langstrom, N., and Larsson, H. (November 22, 2012). Medication for Attention Deficit–Hyperactivity Disorder and Criminality. New England Journal of Medicine, 367, 2006-2014. DOI: 10.1056/NEJMoa1203241.

How Methylphenidate Works In The Brain

Kisbye Dreyer, J. and Hounsgaard, J. (October 4, 2012). A Mathematical Model of Dopamine Autoreceptors and Uptake Inhibitors and Their Influence On Toxic and Phasic Dopamine Signaling. Journal of Neurophysiology. doi: 10.1152/jn.00502.2012.

Some Autistic Children Normalize Socially by Adulthood

“Some children who are accurately diagnosed in early childhood with [autism](#) lose the symptoms and the diagnosis as they grow older, a study supported by the National Institutes of Health has confirmed. The research team made the finding by carefully documenting a prior diagnosis of autism in a small group of school-age children and young adults with no current symptoms of the disorder.”

Armstrong, C. (January 15, 2013). Study documents that some children lose autism diagnosis: Small group with confirmed autism now on par with mainstream peers-NIH-funded study. [NIH News \(National Institute of Health\)](#), From website: <http://www.nih.gov/news/health/jan2013/nimh-15.htm>.

Fein D, Barton M, Eigsti IM, Kelley, E, Naigles L, Schultz RT, Stevens M, Helt M, Orinstein A, Rosenthal M, Troyb E, Tyson K. Optimal outcome in individuals with a history of autism. *Journal of Child Psychology and Psychiatry* DOI: [10.1111/jcpp.12037](https://doi.org/10.1111/jcpp.12037)

Autism & Oxytocin Spray

“ To assess the impact of oxytocin on the brain function, Gordon and her team conducted a first-of-its-kind, double-blind, placebo-controlled study on children and adolescents aged 7 to 18 with ASD. The team members gave the children a single dose of oxytocin in a nasal spray and used functional magnetic resonance brain imaging to observe its effect.

The team found that oxytocin increased activations in brain regions known to process social information. Gordon said these brain activations were linked to tasks involving multiple social information processing routes, such as seeing, hearing, and processing information relevant to understanding other people.”

Autism & Oxytocin Spray

Yale University (2012, May 19). Oxytocin improves brain function in children with autism. *ScienceDaily*. Retrieved January 29, 2013, from <http://www.sciencedaily.com/releases/2012/05/120519213236.htm>.

Autism & Oxytocin Spray

“Preliminary results are indicating that in children and adolescents with ASD, intranasal administration of OT results in enhanced activation of the superior temporal sulcus (STS) region during perception of biological motion compared to placebo. When going through RMET-R, OT seems to improve the ability to accurately define and describe other’s mental states as well as enhance brain activation in medial prefrontal cortex, STS, temporal parietal junction and fusiform – all regions previously implicated in social perception and cognition, mentalizing, and theory of mind abilities...”

Autism & Oxytocin Spray

“...These initial results are currently being expended, but they provide a very promising and exciting indicator of the neural mechanisms’ underlying OT’s impact on social perception and cognition in children with ASD. At IMFAR, final results will be presented and discussed. Should this study show that modulating OT levels can induce specific effects on brain functioning and behavior in tasks linked to the social world, it would be possible to explore novel more optimal treatment strategies in ASD.”

Autism & Oxytocin Spray

**Gordon, I.L., Bennett, R.H., vander Wyk, B.C.
Leckman, J.F., Feldman, R. and Pelphrey, K.A.
(May 19, 2012). Oxytocin's Impact on Social
Cognitive Brain Function in Youth with ASD.
Pager presented at the 2012 International
Meeting for Autism Research, Toronto,
Ontario, Canada. From website:
[https://imfar.confex.com/imfar/2012/webpr
ogram/Paper10197.html.](https://imfar.confex.com/imfar/2012/webprogram/Paper10197.html)**