The Carter–Jenkins Center presents
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ADHD UPDATE 2012

by

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1) New report on incidence of ADHD by the CDC (1/01/12)

2) Researches at the University of Illinois claim that ADHD children that play outdoors in settings with lots of green (grassy open fields, parks, etc), daily or several times a week, have milder symptoms than those that do not

3) Pesticides and ADHD
4) A researcher from the Australian National University claims that the two most common types of ADHD (ADHD predominantly inattentive and the ADHD combined) may benefit from individualized assessments and treatments.

5) An intestinal membrane receptor protein, guanylyl cyclase-C (GC-C), known for its role in intestinal functions, when deleted or knocked out in a mice model developed in Dr Giannella’s lab show increased hyperactivity and attention deficits, related to reduced Dopamine levels, consistent with what is observed in human ADHD.
6) The problem of fakers of ADHD. One in four adults may be faking it, and there are a variety of reasons as to why they do that.
7) The question of risk in children and adolescents taking medications for ADHD

8) A study published recently in Clinical Psychology Review by Gregory Fabiano Ph.D., after reviewing the field suggests that improved parent-child communication is highly effective in improving the functioning of ADHD children and goes as far as to say that parental skills can be just as effective as prescription pills!
9) The old question of food dyes and hyperactivity, is being looked at again by the FDA to satisfy a request of a consumers group. Not enough data to link dyes & hyperactivity. "Data do not substantiate a link between the color additives tested and behavioral effects."
10) Pediatric researches claim to have found some genetic variants, for as many as 10% of ADHD patients. They did genome analysis, of 1000 children with ADHD, and 4,500 of children without the disorder. They claimed “Our findings get to the cause of the ADHD symptoms in a subset of children with the disease”
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11) In an article published in August 10/2011 in Science Translational Medicine researches found some new ADHD genes that made a link with autism and other psychiatric disorders.

12) Poor emotional controls and ADHD is a combination running in some families.

13) Adult ADHD, increases the risk of dementia with Lewy bodies, according to an article published in the European Journal of Neurology.
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14) Great shortage of ADHD medications and the various reasons for it. They apparently run from greed by the pharmaceutical companies to inefficient procedures of the FDA

15) ADHD and Pesticides linked in one study

16) ADHD and criminal convictions

17) Gestational diabetes and ADHD risk
18) The Neurobiological Basis of the ADHD Disorder
Any F.T Arnsten, PhD, Craig W. Berridge, PhD, and James T, McCracken, MD, in Clinical Focus, 2009

**FOCUS POINTS**

- The prefrontal cortex (PFC) regulates attention and behavior; lesions to the PFC induce a profile of poor sustained attention, distractibility, impulsivity, disorganization, and poor planning.
- Functional and structural imaging studies of subjects with attention-deficit/hyperactivity disorder (ADHD) reveal differences in prefrontal cortical circuits and poor performance on PFC tasks.
- PFC function is robustly moderated by catecholamines—high or low levels of norepinephrine-engaging postsynaptic α2A adrenoceptors and dopamine-engaging D1 receptors are associated with reduced function.
- ADHD is highly heritable. Genetic studies suggest that several genes involved in catecholamine signaling may confer a portion of risk for ADHD, including some genes that have been associated with poor sustained attention and reduced executive functions.
- Most pharmacologic treatments for ADHD influence catecholamine neurotransmission. Therapeutic doses of stimulants increase norepinephrine and dopamine in key cortical regions that are presumed to lead to improved PFC function.

*Figure 1*

**THE PREFRONTAL CORTEX EXERTS “TOP-DOWN” REGULATION OF ATTENTION AND BEHAVIOR**

The prefrontal cortex regulates attention and behavior. The prefrontal cortex inhibits processing of distracting stimuli and enhances processing of relevant stimuli through extensive projections to the sensory cortices. The right inferior prefrontal cortex is especially important for inhibiting inappropriate responses. These inhibitory abilities likely involve projections to the premotor and motor cortices, and subcortical structures such as the striatum and subthalamic nucleus, and cerebellar cortices by way of the pontine nuclei. These extensive projections allow the prefrontal cortex to orchestrate behavior and attention in a thoughtful manner.

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