August, 2015
Website Update
Kevin T. Blake, Ph.D., PL.C.
American scientists recently found that Mothers with Chemical sensitivities intolerance had significantly more negative medication reactions than controls and had 3 times more children with autism spectrum disorder and 2.3 times more children with AD/HD.

A recent Canadian study found that there is a significant relationship between head injury and AD/HD in adults. The researchers suggested that adults with head injuries should also be routinely be screened for AD/HD.

Prematurity and AD/HD

A Finish study found each week of premature birth increases the risk of AD/HD in newborns significantly. Additionally they found that poor fetal growth significantly increases the risk of having AD/HD.

AD/HD Vs. OCD

A recent literature review draws into question why so many children have AD/HD comorbid with OCD, but the same is not true with adolescents and adults with AD/HD. This the researchers said could be accounted for to some extent due to comorbid tic disorders, but they also said that often OCD symptomatology that appears somewhat AD/HD-like is often seen as AD/HD and not a manifestation of OCD. The researchers suggested that some patients are being diagnosed as having AD/HD and OCD when in reality they have only OCD.

A recent German study found that preschoolers with more emotional knowledge had better attention than those who did not.

Scientists examined the efficacy of the NEBA Health quantitative EEG system as part of assessments for AD/HD. They found that using the system as part of the assessment could lower the chance of mistaking the symptoms of another condition as AD/HD as much as 61 to 88%. This was done by testing the patients’ brain theta/beta brain wave ratios.

Does Adult AD/HD Begin in Childhood?

Researcher from New Zealand took data collected from 1972 and 1973 of patients followed for 38 years to learn their outcomes. They found that about 6% of children (mostly male) and 3% of adults (equally male and female) met criterion for AD/HD. Reportedly 90% of the adults had no history of AD/HD and they did not show typical neuropsychological impairments seen in AD/HD children. The researchers speculated that adult AD/HD may be a different disorder that childhood onset AD/HD.

American researchers discovered when they followed children with psychiatric disorders they had significantly worse young adult outcomes compared to their non-impaired peers. This also applied to children who has subsyndromal disorders.

Brazilian researchers followed 344 adults with AD/HD for seven years and found that 34% of them did not meet criterion for AD/HD after seven years. Although it has been known that about 1/3rd of children with AD/HD go into remission by adulthood this appears to be the first study to indicate adults with AD/HD may go into remission.

Sleep and AD/HD

Australian researchers worked with 244 5 to 12 year old children with AD/HD by doing sleep hygiene training. Most of the children were taking stimulant medication at the time for their AD/HD. The scientist found the severity of the childrens’ AD/HD symptoms modestly subsided, their sleep, quality of life and functioning also improved.

Spanish scientists found after doing a cross-sectional study of 2357 children ages 4 through 12, 6.9% of whom were exposed to secondhand smoke for more than 1 hour per day in the home were more likely to have a mental disorder. The most common mental disorder was AD/HD.

A longitudinal study done in China where 1765 offspring of pregnant mothers. The offspring were followed to 4 or 5 years old. Two Hundred and twenty-six children eventually met criterion for AD/HD. The researchers found that boys born to mothers with significant life stree during the second trimester of pregnancy were significantly more likely to develop AD/HD later in life than any other group.

Cortisol Levels in Children with AD/HD

Some scientists have speculated that children with AD/HD have an anomaly in the regulation of their hypothalamus-pituitary-adrenal axis which causes them to have lower cortisol levels after they have had psychosocial stress than experienced by their non-impaired peers. Swedish researchers performed a study where this was not found in children with AD/HD.

Anxiety Sensitivity, Anxiety, Conduct Disorder, and AD/HD

Anxiety sensitivity is considered a constitutionally based sensitivity to anxiety and anxiety symptoms. This is apposed to experiencing the emotion of anxiety. Turkish researchers found that Anxiety Sensitivity is negatively correlated with Conduct Disorder and Anxiety Sensitivity appears to protect those with AD/HD from developing Conduct Disorder. When a child has Conduct Disorder and AD/HD the Conduct Disorder can cause them to develop anxiety symptoms though.

Facial Expression Reading in Girls with Conduct Disorder

German scientists found that girls with conduct disorder needed more time to process sad, happy, and fearful faces and were not as accurate as their non-impaired peers in identifying sad faces. They became less able to correctly identify fearful faces the more they were exposed to them, too.

Autistic Traits in AD/HD Children

British researchers found that those children with AD/HD that appear to have autistic-like symptoms are those with lower I.Q., more conduct and oppositional symptoms, anxiety, and more motor deficits and working memory problems than the typical AD/HD child. Their social problems were independently related to hyperactive-impulsive symptoms, oppositional behavior, motor problems and repetitive behaviors.

Does using AD/HD Medication Reduce the Risk of Injury in Those with AD/HD?

Dutch scientists found the rate of injuries and hospitalizations of children and adolescents with AD/HD was over twice as high as their cohort, but it was lower than it would have been if they were not on medication. They also found if the AD/HD subject was taking other psychotropic medications they were as much as 5 time more likely to have a serious injury.

Italian researchers found that children with AD/HD have no significant difference in their levels of serum BDNF than their non-impaired peers.

Processing Facial Emotion and Affective Prosody in ASD Vs. AD/HD

Researchers from the Netherlands found that children ages 6-13 with ASD had impaired affective prosody processing and emotional facial expression recognition that could be exacerbated by comorbid AD/HD. The additional difficulties appeared to be caused by inhibitory and attentional symptoms of the comorbid AD/HD.

People Without AD/HD Who Use Unperscribed AD/HD Medications to Study

Researchers form the University of Pennsylvania found that those without AD/HD who used unperscribed AD/HD medication were often to believe they had attention problems. They were also found to have poor study skills, and low motivation.

Australian scientists evaluated the reading and math skills of children with AD/HD and compared them to their non-impaired peers. 3% of the boys and 28% of the girls with AD/HD had below grade level math skills compared to 11% of the non-impaired. They also were delayed in reading, writing, and spelling. If the child with AD/HD was premature this put them even more at risk for academic problems.

Spanish scientists found that the prevalence of AD/HD adults seeking treatment for alcohol dependence is high and this is also associated with higher prevalence of psychiatric comorbidity.

AD/HD and Organizational Courses

Researchers from the University of Wyoming found that AD/HD college students who took a course in organizational skills did significantly better academically than those AD/HD students that did not.

SCT Vs. Inattentive Presentation AD/HD in Chilean Children

Research done with Chilean children with AD/HD found that those children with the inattentive presentation had a significantly stronger relationship with hyperactive-impulsive presentation and oppositional defiant disorder than did children with sluggish cognitive tempo (SCT). The SCT children were found to have significantly more anxiety and depression than those with the inattentive presentation.

Those with the inattentive presentation predicted problems with academics and social interaction whereas those with SCT did not. This shows the validity of SCT as a diagnosis.

A group of Swedish researchers evaluated the diagnostic efficacy of the computer administered QbTest. They found it had moderate validity in determining if a person was AD/HD, and it was unsatisfactory in determining subtypes of AD/HD.

AD/HD and Study Area Noise

Canadian scientists compared the reading comprehension, reading rate, and time spent reading as well as the writing performance, number of words written and writing accuracy of an essay of AD/HD students who either listed to white noise, muffled voice, or no sound while they read and wrote. The students exposed to the muffled voices did worst and those exposed to white noise read and wrote more words than the other two groups. However, the white noise group did no better in academic accuracy than the other groups.

Researchers from the University of Ohio found that students with AD/HD found that they respond and process some emotions differently than those without AD/HD.

Japanese and American scientist found that adolescent males who received 28 days of the supplement citicoline had significantly reduced impulsivity, better motor speed and attention than teens placed on placebo. Please note these research subjects were not AD/HD.

Robots and ASD

Researchers from Belgium found that children with ASD who were asked to interact with a social robot, or a human differed only in their eye contact during the interactions. They looked at the robot’s eyes more.

Researchers from the University College of London found that high functioning adults with ASD when compared to their non-impaired peers were impaired in their social Faux Pas detection, but also seemed to overly detect Faux Pas to compensate for their social difficulties.

Sensory Integration Disorder

Occupational therapist claim that one in six children have Sensory Processing Disorder.

“Although a cadre of occupational therapists fought for 12 years to have the disorder listed in the current iteration of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) the American Psychiatric association (APA) opted not to include it – which means, basically, that the group does not recognize it as a legitimate condition” (p. 64). The American Academy of pediatrics in 2012 said, “the amount of research regarding the effectiveness of sensory integration therapy is limited and inconclusive” (p. 64).

“The present study examined two separate elements of fine motor skills--visual-motor coordination and visual-spatial integration--and their associations with various measures of academic achievement. Visual-motor coordination was measured using tracing tasks, while visual-spatial integration was measured using copy-a-figure tasks. After controlling for gender, socioeconomic status, IQ, and visual-motor coordination, and visual-spatial integration explained significant variance in children's math and written expression achievement. Knowing that visual-spatial integration skills are associated with these two achievement domains suggests potential avenues for targeted math and writing interventions for children of all ages” (p.514).
Reference

Carlson, A.G., et al. (September-December, 2013). Disentangling fine motor skills' relations to academic achievement: the relative contributions of visual-spatial integration and visual-motor coordination.

*Journal of Genetic Psychology, 174*(5-6), 514-533
Developmental Coordination Disorder
Balance and Coordination Disorders

- Children with Coordination Disorders tend to have:
  - Poor Social Competence
  - Low Self-Esteem
  - Reluctance to engage in Physical Activities

Developmental Coordination Disorder

• “I’ve always felt like a klutz. I’m not a good runner. I move quickly. I’m full of energy. But I’m not the most graceful person! Or if you’re talking sports, in grammar school, I got benched a lot because they didn’t want me for a team…Hitting the ball would be a fluke” (p. 150). –Hannah w/ NVLD

• Poor academics keep disabled children out of sports and clubs.

Developmental Coordination Disorder

“Learning to ride a bike, play board games, cards, and sports are all supposed to be fun and a normal part of growing up, but they are difficult for anyone with a spatial learning disability. Being accepted is paramount to any fourth grader. I desperately wanted to do the same things I saw the other kids doing…” (Britt Neff, p. 42).

**Manifestation of DCD**

- Significant delays in motor milestones
- Poor sports performance
- Poor Handwriting
- Drop things often
- Clumsy

Developmental Coordination Disorder

• People with AD/HD may have a significantly reduced life expectancy due to an impulsive lack of concern for health related issues, exercise, diet, drugs, etc.

Developmental Coordination Disorder

• “It is further suggested…that clinicians be aware of the larger realm of possible health-related difficulties that may arise in adults with ADHD and perhaps inquire about them as part of the initial evaluation” (p. 64).

Developmental Coordination Disorder

• People with Asperger’s Disorder often cannot relate to the feeling of satisfaction, etc. of being on a team.
• If they do participate in sports they will have a better chance in individual sports more often.

Developmental Coordination Disorder (DCD)

• These children have significant difficulty learning and internalizing tasks. It’s not the timing of when they learn the tasks.

Subtypes of DCD

- Ideational Motor Planning
- Nonverbal Learning Disorders
- Proprioception and Kinesthetic Disorders
- Minimal Cerebral Palsy (CP)
  - 60% of children with CP outgrow their CP symptoms

Blondis, T.A. (October 18, 2002). *FC1-The Association of Developmental Coordination Disorder (DCD) and AD/HD.* Lecture presented at the 14th Annual CHADD Conference, Miami Beach, FL.
Comorbidity and DCD

- 80% of Dyslexics have coordination problems
- 55% of those with AD/HD have DCD
- Those with NVLD often have psychomotor problems on their body’s left side.
- 50-90% of those with Asperger’s Disorder have coordination problems

Treatment and DCD

- Children with DCD need to learn to verbally mediate to work around their coordination difficulties.
- Two large well designed Canadian studies have demonstrated Sensory Integration Training does not work. The same applies to the British “Kinesthetic Therapy”.

Blondis, T.A. (October 18, 2002). FC-1 The Association of Developmental Coordination Disorder (DCD) and AD/HD. Lecture presented at the 14th Annual CHADD International Conference, Miami, FL.
Treatment and DCD

• Other references on Sensory Integration Therapy and Sensory Integration Disorder:
Treatment of DCD

• 1994 International Consensus Meeting in Canada: Sensory Integration Disorder will be called “Developmental Coordination Disorder”.

• ICD-10: “Specific Developmental Disorder of Motor Function”

• Sensory Integration Training is a “school of thought” among Occupational Therapists as are Developmental and Cognitive Theories.


Harris, Z. (October 27, 2006). ADHD and DCD: The Double WHAMMY. Paper presented at the 18th Annual CHADD International Conference, Chicago. IL.
Treatment and DCD

• “Acquired” AD/HD may respond better to Sensory Integration Training and Kinesthetic Therapy than “Genetic” AD/HD.

• They may work better with Brain Damage than with Developmental Disorders.

Treatment and DCD

• Cognitive Orientation to Occupational Performance (CO-OP):
  – Teaches cognitive strategies to overcome DCD
  – Hand over hand techniques
  – Repetition and corrective feedback


Possible Alternative Treatment of DCD

• Double Blind study of children with DCD treatment group given 6 capsules of 80% fish oil and 20% oil of rose pemrose. After 3 months little improvement in motor but much better academic functioning (10.9 months in reading and spelling 5.3 months) and AD/HD-like symptoms. Replication needed & more research needed!


Ingersoll, B. (October 26, 2006). Complimentry Treatments for AD/HD. Paper Presented at 18th Annual CHADD International Conference, Chicago, IL.
DCD and Helpful Professionals

- American Occupational Therapy Association: [www.aota.org](http://www.aota.org)
- American Physical Therapy Association: [www.apta.org](http://www.apta.org)
- American Speech-Language Therapy Association: [www.professional.asha.org](http://www.professional.asha.org)
- Behavioral Neurologists: [www.anpaoline.org](http://www.anpaoline.org)
- Mental Health Professionals
Developmental Coordination Disorder (DCD) and Balance
DCD and Balance

• Children with DCD have poor muscle tone and need to develop strength.

• Dyslexics have trouble with balance & motor skills, processing speed and working memory, especially with competing tasks.

Blondis, T.A. (October 18, 2002). FC-1 The Association of Developmental Coordination Disorder (DCD) and ADHD. Lecture presented at the 14th Annual CHADD International Conference, Miami Beach, FL.

DCD and Balance

- Dyslexics have abnormal postural reflexes and reflexes in general.
- These abnormalities can cause problems with riding a bike, skipping, hopping, throwing and catching a ball, swimming, fine motor skills, etc.

DCD and Balance

• Body Core=Trunk and Pelvis…provides the body “breaks” to slow down movement
• Legs and arms as well as muscles attach to spine and torso. The spine and torso provide a base.
• The body core is also the body’s center of gravity.

DCD and Balance

• NIH Study of *T’ai Chi Chuan*
  – Improved balance in older adults by 50%

DCD and Balance

• Nowicki and Duke spoke of “Resting Posture” which is the posture one assumes when one is not feeling anything of note and is in a neutral position. Those with Expressive Dyspraxia tend to use Resting Posture inappropriately.

• This may also be caused by poor core body strength.

DCD and Balance

• Treatment:
  – Core strength and control can be developed by balance and stabilization training.
    (September 23, 2003). Strength Training and Stability. From website:
      http://www.benning.army.mil/usapf/Training/Strength
  – American Physical Therapy Association: www.apta.org
  – American Occupational Therapy Association: www.aota.org
DCD and Balance

- **Possible Alternative Treatment**
  - NIH Emory University video tape:
    Dr. Xu’s Tai Chi Research Center
    P.O. Box 98426
    Atlanta, GA 30359

More Research Needed!
Possible Alternative Treatment for Balance Problems

- Power Plate
  - Developed for Russian Mir Space Station Cosmonauts
  - Said to treat osteoporosis & balance problems
  - **More research needed!**

From Website: [www.powerplateUSA.com](http://www.powerplateUSA.com)
Image From Website:
DCD and Balance

- **Alternative Therapy:**
  - Institute for Neuro-Physiological Psychology (INPP)
  - Primitive Reflexes
  - Peter Blythe and Sally Goddard Blythe
  - *No Research indicates this is true!*