# How DSM-5 Has Changed The Conceptualization of AD/HD and What It Means For Classroom Management

Kevin T. Blake, Ph.D., P.L.C.
Tucson, Arizona

Presented in conjunction with

Curriculum Adaptation Training for Teachers of the Schools of the Roman Catholic Diocese of Tucson

With

C. Wilson, Anderson, Jr., MAT
Prior Lake, MN
April 10 through 14, 2013

In the effort to comply with the appropriate boards/associations, I declare that I do have affiliations with or financial interest in a commercial organization that could pose a conflict of interest with my presentation.

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#### ADDITIONAL INFORMATION

➤ Additional information on Autism Spectrum Disorders, Specific Learning Disorders, and AD/HD can be found at:

www.drkevintblake.com



#### CHADD OF TUCSON PARENT SUPPORT GROUP

- CHADD of Tucson: www.chaddoftucson.com
  - Monthly support group for parents of AD/HD children.
- Fourth Thursday of the month
  - St. Cyril's Catholic Church
  - 4725 East Pima
  - **Tucson, AZ 85712**
  - 7:00 to 8:30 p.m.
- Facilitator and Contact:
   Lynne Harrison, Ph.D.
- 520.327.2126



#### CHADD OF TUCSON ADULT SUPPORT GROUP

- CHADD of Tucson: www.chaddoftucon.com
  - monthly support group for adults (age 18 and over) with AD/HD
- Second Wednesday of the month University Medical Center
   1501 North Campbell Ave.
   Room 2500E in the cafeteria
   7:00-9:00 p.m.
- Facilitator and Contact: Kevin T. Blake, Ph.D., P.L.C.
   520.327.7002



#### Helpful Websites



- >CHADD: www.chadd.org
- >CHADD of Tucson: www.chaddoftucson.com
- ➤ National Research Center for ADHD: A program of CHADD: www.help4adhd.org
- **≻LD** online: <u>www.ldonline.org</u>
- > Learning Disabilities Association of America: www.ldnatl.org
- **➢International Dyslexia Association:** <u>www.interdys.org</u>
- Russell A. Barkley, Ph.D.: <u>www.russellbarkley.org</u>
- **➢ Sam Goldstein, Ph.D.:** <u>www.samgoldtein.com</u>

## DSM-5



- **➤ DSM-5** Became available in May 2013
- ➤ Writing began in 2007 2007
- ➤ It is not a cutting edge manual for Specific Learning Disorder, AD/HD and ASD
- Goldstein, S. (October 25, 2006). <u>Advanced Treatment (Interventions) For ADHD Across The Lifespan</u>. Paper presented at the CHADD Special Training Day prior to the 18<sup>th</sup> Annual International Conference, Chicago, IL.
- Author (2010). <u>DSM-5 Development</u>. Washington, DC: American Psychiatric Association; www.dsm5.org/Pages/Default.apsx
- Barkley, R. A. (November 9, 2012). The Other Attention Disorder: Sluggish Cognitive Tempo (ADD/SCT) Vs. ADHD– Impairment, and Management. Paper presented at the 24<sup>th</sup> Annual CHADD International Conference on ADHD, Burlingame, CA, November 8 10, 2012.
- Author (May 1, 2012). An Attention Deficit/Hyperactivity Disorder-Rationale: Rationale for Changes in ADHD in DSM-5 From the ADHD and Disruptive Behavior Disorders Workgroup. From website:

http://www.dsm5.org/ProposedRevision/Pages/proposedrevision.aspx?rid=383#.

## DSM-5



- Attention Deficit/Hyperactivity Disorder
- Specify based on current presentation—
  - Combined Presentation
  - Predominately Inattentive Presentation
  - Predominately Hyperactive/Impulsive Presentation
  - Other Specified Attention
     Deficit/Hyperactivity Disorder

## DSM-5



- > Need to have symptoms prior to age 12.
- >22 symptoms (not age relevant) up from 18 child based.
- **>**9 symptoms of Inattention: Need 6 for significance (may need only 4 if over age 17)
- ➤ 13 symptoms of Hyperactivity/Impulsivity: Need 6 for significance (may need only 4 if over age 17)

#### AD/HD & DSM-5



In DSM-5 there will be one type of Attention-Deficit/Hyperactivity Disorder and it will be Attention-Deficit/Hyperactivity Disorder, Combined Type. What has been learned since 1994 when the DSM-IV was published through longitudinal studies is that what was called Attention-Deficit/Hyperactivity Disorder, Hyperactive/Impulsive Type is the early manifestation of the Combined Type of...

#### AD/HD & DSM-5



...AD/HD in preschool and early grade school. As the child ages and his/her frontal lobe develops they gain more and more control of their hyperactive motor movements and start to appear like what was called (in DSM-IV and DSM-IV, TR) "Combined Type". This process continues until their late 20s/early 30s when their frontal lobes are fully developed. By that time they appear to be "Inattentive Type"...

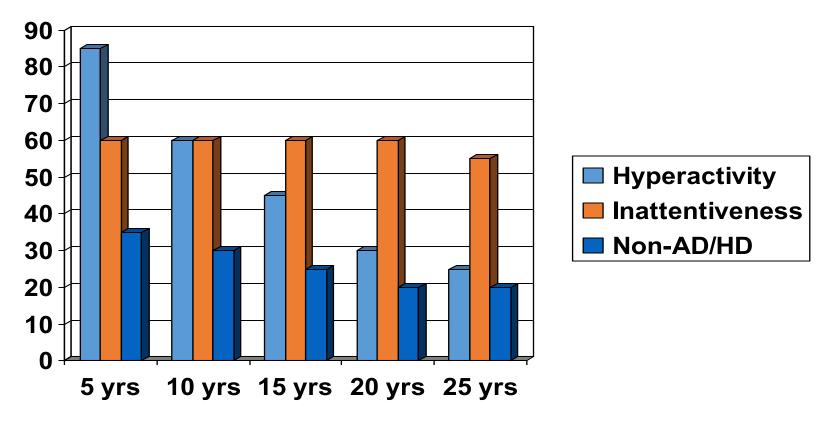
#### AD/HD & DSM-5



...When their current adult behavior is compared to their preschool behavior. Remember, when you diagnose some one with AD/HD, you compare them to their non-AD/HD age peers.

Swanson, J., Hinshaw, S., Hechtman, L. and Barkely, R. (November 9, 2012). Research Symposium 1: Montreal Study; Milwaukee Study; Berkeley Girls ADHD Longitudinal Study (BGALS). Symposium presented at the 24<sup>th</sup> Annual CHADD International Conference, November 8-10, 2012, Burlingame, CA.

#### Longitudinal Studies of AD/HD



Barkley, R.A., Murphy, K.R., & Fischer, M. (2008). <u>ADHD in Adults: What The Science</u> Says. New York, NY: Guilford.

Weiss, G., & Hechtman, L. (1993). <u>Hyperactive Children Grown Up</u>. New York, NY: Guilford.

#### Inattentive AD/HD?



What about Attention-Deficit/Hyperactivity Disorder, Inattentive Type? It is a separate and distinct disorder behaviorally, neurobiologically and genetically from AD/HD. It is not be included in the DSM-5. In research it may be referred to as AD/HD, Inattentive (Restrictive) Presentation, Sluggish Cognitive Tempo and/or Crichton Syndrome.

Barkley, R. A. (November 9, 2012). The Other Attention Disorder: Sluggish Cognitive Tempo (ADD/SCT) Vs. ADHD— Impairment and Management. Paper presented at the 24<sup>th</sup> Annual CHADD International Conference on ADHD, Burlingame, CA, November 8 – 10, 2012.

#### Resources

- Author (2010). Attention-Deficit/Hyperactivity Disorder.
   Washington, DC: American Psychiatric Association:
   <a href="http://www.dsm5.org/ProposedRevision/Pages/proposedrevision.a">http://www.dsm5.org/ProposedRevision/Pages/proposedrevision.a</a>
   <a href="mailto:spx?rid=383">spx?rid=383</a>.
- Barkley, R. A. (November 9, 2012). The Other Attention Disorder: Sluggish Cognitive Tempo (ADD/SCT) Vs. ADHD— Impairment and Management. Paper presented at the 24<sup>th</sup> Annual CHADD International Conference on ADHD, Burlingame, CA, November 8 – 10, 2012.

#### What is a "Developmental Disorder"?

- ➤ It is disorder characterized by a significant delay in the rate a normal human trait develops in an individual.
- ➤ It takes the individual longer to develop this trait than their age peers.
- >AD/HD is a Developmental Disorder

Barkley, R.A. (2006). <u>Attention-Deficit Hyperactivity Disorder, Third Edition</u>. New York, NY: Guilford., P. 92-93.

 Stephen Pinker – "The Blank Slate: The Modern Denial of Human Nature" or better stated, "the Lie of the Blank Slate."

Pinker, S. (2002). <u>The Blank Slate: The Modern Denial of Human Nature</u>. New York, NY: Viking.

 AD/HD is not caused by child rearing practices or environmental experience.

Barkley, R. A. (2002A-Tape 1). <u>ADHD Symposium: Nature, Diagnosis and Assessment-Nature and Comorbidity and Developmental Course of ADHD</u>. University of Massachusetts, January, Westborough, MA: Stonebridge Seminars.

- 65 to 75% of the cases of Combined Type ADHD are caused by genetic anomalies.
- These people with ADHD are said to have "developmental ADHD."

Barkley, R.A. (2008). <u>Advances in ADHD: Theory, Diagnosis and Management</u>. J & K Seminars, L.L.C., 1861 Wichersham Lane, Lancaster, PA 17603; 800-801-5415; <u>www.jkseminars.com</u>.

- 80 to 85% of the variance of those with developmental ADHD is genetic.
- I.Q. is 60 to 65% genetic.

Barkley, R. A. (2002A-Tape 1). <u>ADHD Symposium: Nature, Diagnosis and Assessment-Nature</u> and Comorbidity and Developmental Course of ADHD. University of Massachusetts, January, Westborough, MA: Stonebridge Seminars.

 Russell Barkley, Ph.D. (2008) said regarding Combined Type ADHD, "You cannot train out this disorder, period!" He went on to state the counselor is a "shepherd" of a disabled person.





#### "Acquired ADHD"

- 25 to 35% of cases of ADHD are acquired/caused by brain trauma
- 15 to 25% of cases of ADHD are acquired/caused by pre-natal and perinatal brain injuries: Maternal smoking/drinking, premature birth, etc.
- 3 to 7% of cases of ADHD are acquired/caused by post- natal brain injuries: head trauma, infections, tumors, lead poisoning, PANDAS, etc.

#### "Acquired" ADHD

- Most of those with "acquired" ADHD are males.
- The male brain is more prone to injury and genetic difficulties than the female brain.



- Damage to different neural networks may cause AD/HD symptoms.
- 2. Differences in Brain Development may cause them, too (more common).
- 3. AD/HD, "...is a condition of the brain produced by genes."
- 4. ADHD has multiple causes
- Swanson, J. and Castellanos, X. (1998). <u>Biological Basis of Attention Deficit Hyperactivity Disorder:</u>
  <u>Neuroanatomy, Genetics, and Pathophysiology</u>. Available fromhttp://addbalance.com/add/nih/19981118c.htm.
- Biederman, J. (October 27, 2006). <u>Advances in The Neurobiology of AD/HD</u>. Paper presented at the 18<sup>th</sup> Annual CHADD International Conference, Chicago, IL.
- Barkley, R.A. (2008). <u>Advances in ADHD: Theory, Diagnosis and Management</u>. J & K Seminars, L.L.C., 1861 Wichersham Lane, Lancaster, PA 17603; 800-801-5415; <u>www.jkseminars.com</u>.

#### ADHD is **NOT** new!



## German physician Melchior Adam Weikard first described what we now call AD/HD in 1775.

Barkley, R. A. (November 9, 2012).
The Other Attention Disorder:
Sluggish Cognitive Tempo
(ADD/SCT) Vs. ADHD—
Impairment, and Management.
Paper presented at the 24<sup>th</sup>
Annual CHADD International
Conference on ADHD,
Burlingame, CA, November 8 —
10, 2012.

#### **ADHD** and **Employment**



- 80% of AD/HD children suffer social rejection by second grade.
- Impulsivity?







 Difficulty with others is one of the main reasons AD/HD adults loose their jobs.

..



Ratey, N. and Griffith-Haynie, M. (1998). <u>Coaching to Improve Workplace Performance</u>. Paper presented at the Fourth Annual ADDA Adult ADD Conference, March 26-28, Washington, DC.

#### Emotional Intelligence



 Lane wrote, "Emotional Intelligence may be broadly defined as the ability to use emotional information in a constructive and adaptive manner." (p. 2)

Lane, R.L. (2000). Neural Correlates of Conscious Emotional Experience. In R. Lane, L. Nadel, G. Ahern, J. Allen, A. Kazniak, S. Rapcsak and G. Schwartz (Eds.), Cognitive Neuroscience of Emotion. New York, NY: Oxford University Press, pp. 345-370.

#### Emotional Intelligence

 A prerequisite for empathy is an awareness of one's own emotions.

Lane, R.L. (2000). Neural Correlates of Conscious Emotional Experience. In R. L. Lane, L. Nadel, G. Ahern, J. Allen, A. Kazniak, S. Rapcsak and G. Schwartz (Eds.), Cognitive Neuroscience of Emotion. New York, NY: Oxford University Press, pp. 345-370.



#### Emotional Intelligence



- AD/HD Children live a lifetime of social rejection.
- Around 80% of Combined Type ADHD children are socially rejected because of poor social skills by 2<sup>nd</sup> grade.
- AD/HD children often are not aware of their poor social skills and blame others for their problems.

#### AD/HD and Gender



#### AD/HD girls suffer socially more than AD/HD boys.

Quinn, P. O. and Nadeau, K.G. (2002). <u>Gender Issues and AD/HD</u>. Silver Spring, MD: Advantage.

Goldstein, S. and Gordon, M. (August, 2003). Gender Issues and ADHD: Sorting Fact From Fiction. <u>ADHD Report</u>, <u>11</u> (4), 7-11, 16.

Langer, H. (2002). Role Expectations. In P.O. Quinn and K.G. Nadeau (Eds.), <u>Gender Issues and AD/HD</u>. Silver Spring, MD: Advantage, pp. 70-80.

#### **Idea Stealing?**



- Barkley spoke of how many of those with AD/HD have difficulty with the internalization of speech, and how this in turn can make AD/HD people vulnerable to others "stealing their ideas."
- In addition, their impulsivity may cause problems with vicarious learning. Those with AD/HD may have trouble "stealing" the ideas of others.

Barkley, R.A. (February 19-20, 2002). <u>ADHD and Oppositional Defiant Children</u>. Seminar presented in Phoenix, Arizona.

Barkley, R. A. (2006). <u>Attention-Deficit Hyperactivity Disorder, Third Edition</u>. New York, NY: Guilford, p. 310

#### Play



"...one of the primary purposes of play is to develop the brain." (p. 121)

"...play teaches the young animal how to handle novelty and surprise, such as the shock of being knocked off balance or a surprise attack." (p. 123)

Grandin, T. (2005). Animals in Translation. New York, Scribner.

#### Play

#### AD/HD Children are at great risk for being socially rejected due to their AD/HD symptamatology.

Barkley, R.A. (February 19-20, 2002). <u>ADHD and Oppositional Defiant Children</u>. Seminar presented in Phoenix, Arizona.





- Children develop fine and gross motor skills through play.
- This in turn creates relationships, self-esteem and acceptance by others.

Lerner, J. (1997). <u>Learning Disabilities</u>: <u>Theories, Diagnosis, and Teaching Strategies, Seventh Edition</u>. Boston, MA: Houghton Mifflin.



#### Play

- Isolation hinders children's social and cognitive development.
- Play also directly affects the development of the frontal lobe...executive function.
- Isolation may worsen the genetic problems with executive function caused by AD/HD.
- It can hinder the development of "theory of mind."
- It may also hinder the development of a sense of morality, social roles and the ability to bond with others.

Azar, B. (March, 2002A). It's More Than Just Fun and Games. Monitor On Psychology, 33 (3), pp. 50-51.

Azar, B. (March 2002B). The Power of Pretending. Monitor On Psychology 33 (3), pp. 46-47.

#### AD/HD & Learning From Models

Those with AD/HD have trouble with vicarious learning and would be expected to have trouble learning non-verbal social interaction which is not directly taught. Their impulsivity would make it difficult for them to attend to the non-verbal cues of others, too.

Barkley, R.A. (February 19-20, 2002). <u>ADHD and Oppositional Defiant Children</u>. Seminar presented in Phoenix, Arizona.

#### **Mimicry**



- ➤ "Our talent for mimicry may serve an important purpose. Some studies imply that spontaneous imitation acts as a 'social glue' promoting feelings of friendliness and a sense of togetherness." (p. 55)
- ➢If you mimic someone you are seen as friendly; if not, you are seen as less friendly.
- > You must inhibit imitation to coordinate interactions with others.
- **▶** People with AD/HD can have difficulty doing this.

Sebanz, N. (December 2006/January 2007). It Takes 2 To...Scientific American: Mind. 17 (6), pp.52-57.

Barkley, R.A. (2006). Attention Dericit Hyperactivity Disorder, Third Edition. New York, NY: Guilford.

### ASD & AD/HD

## DSM-5 says that Autism Spectrum Disorders can be comorbid with AD/HD. Most will have the inattentive/Sluggish Cognitive Tempo type, however.

Goldstein, S., and Naglieri, J.A. (August, 2011). Neurocognitive and Behavioral Characteristics of Children with ADHD and Autism: New Data and Strategies. <u>The ADHD Report</u>, <u>19</u>(4), 10-12,16.

Author (May 3, 2012). <u>DSM-5 Development, Attention Deficit/Hyperactivity</u>
<u>Disorder, Rationale</u>. Washington, DC: American Psychiatric Association; From website:

http://www.dsm5.org/ProposedRevision/Pages/proposedrevision.aspx?rid=383#.





Disorder of Attention, Motor Control and Perception (DAMP):

Swedish researchers have been doing longitudinal research since 1977 with a group of children with AD/HD and Developmental Coordination Disorder which they view as one disorder called DAMP. At age 22 30% of the children still met criteria for AD/HD and DCD.

Gillberg, C. (2001). ADHD with Comorbid Developmental Coordination Disorder: Long-Term Outcome in a Community Sample, <u>ADHD Report</u>, <u>9</u> (2), pp. 5-9

Gillberg, C. and Kadesjo, B. (2000). Attention-Deficit/Hyperactivity Disorder and Developmental Coordination Disorder. In T.E. Brown (Ed.), <u>Attention-Deficit Disorders and Comorbidities in Children, Adolescents and Adults</u>. Washington, DC: American Psychiatric Press, pp. 393-406.

#### The Neurology of the Combined Type of AD/HD

Barkley stated there are three areas of the brain that are significantly different in those who are AD/HD:

- 1. The Orbital Prefrontal Cortex-Primarily the Right Side
- 2. The Cerebellar Vermis-Primarily the Right Side
- 3. The Basal Ganglia-Striatum and Globus Pallidus

Barkley, R.A. (2002B). <u>ADHD and Oppositional Defiant Children</u>. Seminar presented February 19-20, Phoenix, AZ.

Barkley, R.A. (2006). Attention-Deficit Hyperactivity Disorder. New York, NY: Guilford.

### AD/HD, Life and The 30 to 40 % Rule



#### Barkley's 30%-40% Rule for Combined AD/HD

People with Combined Type AD/HD tend to be on average 30% - 40% less mature in controlling their hyperactivity, impulsivity, and inattentiveness than their non-disabled age peers.

Barkley, R.A. (1998). <u>ADHD in Children, Adolescents and Adults: Diagnosis, Assessment and Treatment</u>. New England Educational Institute, Cape Cod Symposium (August), Pittsfield, MA.

Barkley, R.A. (2008). <u>Advances in ADHD: Theory, Diagnosis and Management</u>. J & K Seminars, L.L.C., 1861 Wichersham Lane, Lancaster, PA 17603; 800-801-5415; <u>www.jkseminars.com</u>.

### Warning for Driver's Education Instructors with AD/HD Combined Types Students!

- The average 16 year old with Combined Type AD/HD functions like an 11 year old when it comes to controlling their hyperactivity, impulsivity and inattentiveness.
- How many of you would want an 11 year old behind the wheel of a car?



Barkley, R.A., Murphy, K.R. and Fischer, M. (2008). <u>ADHD In Adults: What The Science Says</u>. New York, NY: Guilford.

### Warning for Driver's Education Instructors with AD/HD Combined Type Students!



- AD/HD teens are more likely to have driven a car illegally before they have their drivers license.
- They are less likely to be employing good driving habits.
- They will incur many more traffic citations, especially for speeding.
- They are four times more likely to be in an accident.
- They will have even more problems if they have Oppositional Defiant Disorder and/or Conduct Disorder with their AD/HD.
- Un-medicated people with AD/HD who are sober handle a car as well as a person who is not AD/HD who is legally drunk!

Barkley, R.A. (2006). <u>Attention Deficit Hyperactivity Disorder, Third Edition</u>. New York, NY, Guilford.

#### Warning: Driving and AD/HD

"Fortunately, the driving performance of adults with ADHD has been shown to improve with medication management, at least those aspects of poor driving likely to derive from ADHD itself." (p. 376)



Barkley, R.A., Murphy, K.R. and Fischer, M. (7

ce Says. New York, NY: Guilford.



 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.

Barkley, R.A. (1998). <u>Attention-Deficit Hyperactivity Disorder, Second Edition</u>. New York, NY: Guilford.

Barkley, R.A. (2006). <u>Attention-Deficit Hyperactivity Disorder, Third Edition</u>. New York, NY: Guilford, p. 165.

 Spend significantly more time with them emphasizing the importance of good health and developing ways to ensure they follow through with annual check-ups, etc.

## **Exhaustion and ADHD/Learning Disorders**

Roffman wrote, "One final ongoing issue that is worthy of mention for many with LD/ADHD is the problem of fatigue. The extra effort required to cope with the continued social and academic demands of schooling can be chronically exhausting." (p. 217)

Roffman, A.J. (2000). <u>Meeting The Challenge of Learning Disabilities In Adulthood</u>. Baltimore, MD: Brookes.

# **Anxiety and Learning Disorders/AD/HD**



Roffman wrote, "Adults with LD/ADHD often experience pressure as they work to cope with their symptoms. Anxiety develops out of such day-to-day occurrences as the loss of yet another set of keys..." (p. 49)

Roffman, A.J. (2000). <u>Meeting The Challenge of Learning Disabilities In</u>
<u>Adulthood</u>. Baltimore, MD: Brookes.

### AD/HD and Making Facial Expressions



### Facial Expression and Social Ability



 Regarding facial expressions in children and adults with AD/HD Kuhle, Hoch, Rautzenberg and Jansen (2001) concluded, "Altogether, ... the facial expressions, are uncontrolled and jerky and are often wrongly dimensioned in time and space." (p. 6)

Kuhle, H.J., Hoch, C., Rautzenberg, P. and Jansen, F. (2001). Short-Term Video-Based Observation of Behavior with Special Reference to Eye-Contact, Facial Expression and Motor Activity in Diagnosis and Therapy of Attention Deficiency/ Hyperactivity Syndrome (ADHS). (First Published in): Praxis der Kinderpsychologie und Kinderpsychiatrie 50: 607-621. Obtained from: Kuehle, H. (October 17, 2002). Video Assisted Observation of Visual Attention and Motor Behavior for the Diagnosis and Determination of the Individual Stimulant Dosage in Children with AD/HD. Research Poster Session, 14th Annual CHADD International Conference, Miami Beach, FL.

# Facial Expressions and AD/HD



- AD/HD children's eyes drift away from those they are in conversation with.
- This usually interrupts the flow and their comprehension of the conversation.
- Often parents feel rejected by AD/HD children when they do this.

Kuehle, H.J., Hoch, C and Jansen, F. (2002). <u>Video Assisted Observation of Visual Attention, Facial Expression of the Individual Stimulant Dosage and Motor Behavior for the Diagnosis and for the Determination in Children with AD/HD</u>. Obtained from: Kuehle, H. (October 17, 2002). <u>Video Assisted Observation of Visual Attention and Motor Behavior for the Diagnosis and Determination of the Individual Stimulant Dosage in Children with AD/HD</u>. Research Poster Session, 14<sup>th</sup> Annual CHADD International Conference, Miami Beach, FL.

### Facial Expressions and AD/HD

- AD/HD children smile abruptly.
- There is little or no transition between emotional states.
- Sometimes their facial expression bleeds over into the next emotional state.
- Expression of emotion often appears exaggerated. The quality of expression can be limited due to this.
- Even body movements are jerky and uncontrolled.

Kuehle, H.J., Hoch, C. and Jansen, F. (2002). <u>Video Assisted Observation of Visual Attention, Facial Expression of the Individual Stimulant Dosage and Motor Behavior for the Diagnosis and for the Determination in Children with AD/HD</u>. Obtained from: Kuehle, H. (October 17, 2002). <u>Video Assisted Observation of Visual Attention and Motor Behavior for the Diagnosis and Determination of the Individual Stimulant Dosage in Children with AD/HD</u>. Research Poster Session, 14<sup>th</sup> Annual CHADD International Conference, Miami Beach, FL.

### Possible Treatment of Problems with Facial Expression and AD/HD

- Optimal dosing of a stimulant medication causes a significant reduction in visual attention loss.
- Facial expressions will become smooth and variable.
- Too high a dose can cause a return of the symptoms.
- Can properly ID 80% of the AD/HD children with video procedure.

Kuhle, H.J., Hoch, C., Rautzenberg, P. and Jansen, F. (2001). Short-Term Video-Based Observation of Behavior with Special Reference to Eye-Contact, Facial Expression and Motor Activity in Diagnosis and Therapy of Attention Deficiency/ Hyperactivity Syndrome (ADHS). (First Published in): <a href="Period Praxis der Kinderpsychologie und Kinderpsychiatrie 50: 607-621">Praxis der Kinderpsychologie und Kinderpsychiatrie 50: 607-621</a>. Obtained from: Kuehle, H. (October 17, 2002). <a href="Video Assisted Observation of Visual Attention">Visual Attention and Motor Behavior for the Diagnosis and Determination of the Individual Stimulant Dosage in Children with AD/HD. Research Poster Session, 14th Annual CHADD International Conference, Miami





Executive Functions, Mirror Neurons and Working Memory



#### **Executive Function Defined**

"The use of self-directed actions so as to choose goals and to select, enact, and sustain actions across time toward those goals usually in the context of others often relying on social and cultural means for the maximization of one's long-term welfare as the person defines that to be" (p. 171).

Barkley, R.A. (2012). Executive Functions: What They Are, How They Work, and Why They Evolved. New York, NY: Guilford, p. 171.

### Mirror Neurons & Executive Functions



"Studies show that the capacity to imitate the actions of others is now virtually an instinct at the level of neuronal functioning. The PFC (Prefrontal Cortex, sic) responds to viewing others' actions by activating the same sensorymotor regions of the brain as the acting person is using to create the behavior. The mirror-neuronal system has been linked to theory of mind and to empathy, among other human attributes related to EF (Executive Functions, sic.)" (p. 117).

Barkley, R.A. (2012). Executive Functions: What They Are, How they Work, and Why They Evolved. New York, NY: Guilford.

#### Mirror Neurons



#### How does this relate to ADHD?

Barkley (2008) said that those with Combined Type AD/HD and comorbid Alexithymia typically have intact mirror neurons, they just do not use their mirror neurons due to their frontal lobe difficulties.

Barkley, R.A. (2008). <u>Advances in ADHD: Theory, Diagnosis and Management</u>. J & K Seminars, L.L.C., 1861 Wichersham Lane, Lancaster, PA 17603; 800-801-5415; <u>www.jkseminars.com</u>.

### **Executive Memory Function Problems**



- Working Memory:
  - "...denotes a person's information-processing capacity" (p. 4-5)
  - Is the "memory buffer in the brain."
  - It allows for "theory of mind."
  - "Remembering so as to do." (non-informational)
  - Wechsler Adult Intelligence Scale- Third Edition, Wechsler Memory Scale-Third Edition (1997). <u>Technical Manual</u>. San Antonio, TX: Psychological Corporation.
  - Brown, T. E. (October 11, 2001). <u>Assessment and Treatment of Complicated ADHD Across the Lifespan</u>. Seminar Presented at the Arizona Association of School Psychologists 33<sup>rd</sup> Annual Conference, Mesa, AZ.
  - Frith, C. D. and Frith, U. (1999). Intersecting Minds-A Biological Basis. <u>Science</u>, <u>286</u>, pp. 1692-1695.
  - Barkley, R.A. (2008). <u>Advances in ADHD: Theory, Diagnosis and Management</u>. J & K Seminars, L.L.C., 1861 Wichersham Lane, Lancaster, PA 17603; 800-801-5415; <u>www.jkseminars.com</u>.

### **Working Memory and AD/HD**



 "AD/HD kids are not 'clueless'. They're 'cueless'."

Goldstein, S. (November 20, 1998). Pathways to

Success: Evening the
Odds in the Treatment
of Attention-Deficit
Hyperactivity Disorder.
Seminar presented in
Tucson, AZ.

# **Executive Functions and AD/HD**



- > It appears the problems those with AD/HD have with academic achievement and social communication and behavior are related to EF difficulties.
- > This does not appear to be the case in those with ODD and/or CD without AD/HD.

Clark, C., Prior, M. and Kinsella, G. (2002). The Relationship Between Executive Function Abilities, Adaptive Behavior, and Academic Achievement in Children with Externalizing Behavior Problems, <u>Journal of Child Psychology and Psychiatry</u>, <u>43</u>, p. 785-796. From: (June, 2003). Executive Function and Communication Difficulties May Contribute to Adaptive Behavior Problems. <u>ADHD Report</u>, p. 12-13.

### Theories of AD/HD



### **Summary of Barkley's Theory**

Step 1: Response Delay

Step 2: **Prolongation** 

Step 3: Rule Governed Behavior

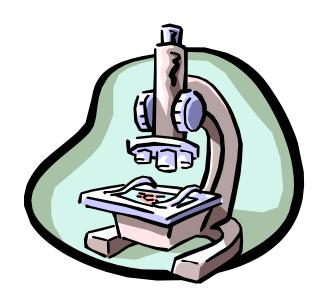
Step 4: Dismemberment of the Environment

Barkley, R.A. (1997). <u>ADHD and the Nature of Self-Control</u>. New York, NY: Guilford.

Barkley, R.A. (2006). <u>Attention-Deficit Hyperactivity Disorder, Third Edition</u>. New York, NY: Guilford.

### **Brown's Theory Summarized**

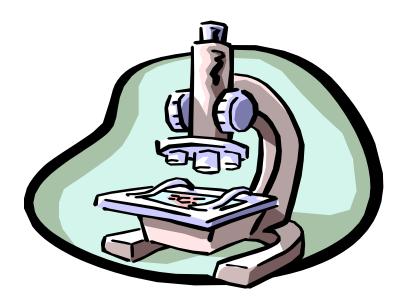
- 1. ACTIVATION
- 2. FOCUS
- 3. EFFORT
- 4. EMOTION
- 5. MEMORY
- 6. ACTION



Brown, T.E. (2002). <u>Social Ineptness & "Emotional Intelligence" in ADHD</u>. Paper Presented at the 14<sup>th</sup> Annual CHADD International Conference, Miami Beach, FL, October 17-19.

Brown, T. E. (February, 2008). Executive: Describing Six Aspects of A Complex Syndrome. <a href="Attention!">Attention!</a>, P. 12-17; From website: www.drthomasebrown.com/pdfs/Executive Functions by Thomas Brown/pdf.

#### Your Tax Dollars at Work



### The Multimodal Treatment Study of Children with Attention Deficit Hyperactivity Disorder

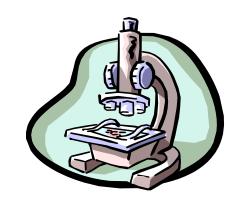
(MTA Study = Multimodal Treatment Assessment of AD/HD)

1999

#### **MTA STUDY**

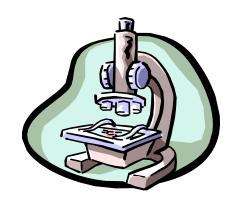
Jensen, P.S., et al. (February, 2001). Findings From the NIMH Multimodal Treatment Study of ADHD (MTA): Implications and Applications for Primary Care Providers. <u>Journal of Developmental and Behavioral Pediatrics</u>, 22 (1), pp. 60-73.

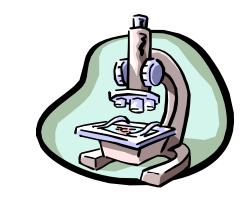




- Mid-1990s
- 579 AD/HD, Combined Type Children
- Demographics matched the 1990 US Census
- Randomly assigned to one of four groups
- After assigned to group each child was thoroughly reassessed to make sure they were AD/HD, CT

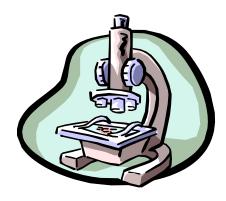
- Group 1: "Experimental Medication"
  - Three medications used
    - Methyltphenidate (Ritalin)
    - D Amphetamine (Dexedrene)
    - Pemoline (Cylert)\*\*
      - If medication one did not work or there was a side effect, changed to the next medication and so on.
      - Each month parent and child was seen by physician. Child checked for response to treatment and side effects. Each month questionnaires given to parents and teachers.

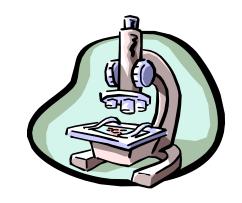




- Group 2: Behavior Modification
  - Parents taught how to use token economies at home and daily report cards, teachers taught how to teach AD/HD child, how to use token economies in the classroom, and daily report cards, AD/HD children were sent to special camp for AD/HD kids, parents and teachers given "800" number for consultation 24/7, continued for 14 months!

 Group 3: "Experimental Medication Plus Behavior Modification Group"





Group 4: "Community Services"

- The parents are told their child has Combined Type AD/HD and they are encouraged to go out to their community and get what services they want for their child...This was the "Control Group."
  - Medication, aroma therapy, etc.

### **MTA Study**

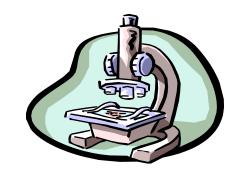


- Medication Management Treatment Group did best with a 50% decline in symptoms.
- Medication with Behavioral Modification Group did no better.
- Behavior Modification Group did better than placebo.
- Community Treatment only had 25% decline in symptoms.
- Medication helps with social interaction.

NIMH Research Treatment for Attention Deficit Hyperactivity Disorder (ADHD): The Multimodal Treatment Study – Questions and Answers. From website:

www.nimh.nih.gov/chilfhp/mt.aqu.cfm

### MTA Study



"In that study (MTA Cooperative Group, 1999) psychosocial treatment alone was very poor compared to medication effects and psychosocial treatment with methylphenidate was no better than methylphenidate alone...Medication was found to reduce negative social interactions both by the treated children and by their peers toward the child with ADHD". (p. 55)

Semrud-Clickman, M. (2007). Social Competence in Children. New York, NY: Springer, p. 55.





"When the discussion is specifically reserved to symptom relief and impairment reduction for ADHD, this series of articles adds to an impressive body of scientific literature demonstrating that medication treatment, in the case of methylphenidate, is cost efficient and may be all that is needed for good responders." (p. 3)

Goldstein, S. (December, 2004). Do Children with ADHD Benefit from Psychosocial Intervention, <u>ADHD Report</u>, <u>12</u> (6), 1-3.

Effects of Properly Administered Stimulant Medication to

Children with AD/HD

"The behavioral improvements produced by stimulants are in sustained attention, impulse control, and reduction of task- irrelevant activity, especially in settings demanding restraint of behavior... Generally noisy and disruptive behavior also diminishes with medication. Children with ADHD may become more compliant with parental and teacher commands, are better able to sustain such compliance, and often increase their cooperative behavior toward others with whom they may have to accomplish a task as a consequence of stimulant treatment. Research also suggests that children with ADHD are able to perceive the medication as beneficial to the reduction of ADHD symptoms and even describe improvements in their selfesteem."

Barkley, R.A. (February 22, 2013). <u>ADHD IN Children: Diagnosis and Treatment</u>. Poway, CA: ContinuingEdCourse.net. From website: <a href="http://www.continuingedcourses.net/active/courses/course004.php">http://www.continuingedcourses.net/active/courses/course004.php</a>.

### Effects of Properly Administered Stimulant Medication to Children with AD/HD

"There is little doubt now that the stimulant medications are the most studied and most effective treatment for the symptomatic management of ADHD and its secondary consequences."

Barkley, R.A. (February 22, 2013). <u>ADHD IN Children: Diagnosis and Treatment</u>. Poway, CA: ContinuingEdCourse.net. From website:

# What the Longitudinal Studies & The MTA Study 8 Year Follow-Up Say About AD/HD Treatment

By far the best results come from uninterrupted treatment with medication and behavioral techniques throughout life.

Swanson, J., Hinshaw, S., Hechtman, L., and Barkley, R. (November 9, 2011). Research Symposium I: Montreal Study; Milwaukee Study; Berkley Girls with ADHD Study (BGALS). Symposium presented at the 24<sup>th</sup> Annual CHADD International Conference, November 8-10, 2012, Burlingame, CA.

Possible Alternative Medicine Treatment for Working Memory Problems

#### **❖** Working Memory Training:

- > Torkel Klingberg, M.D., Ph.D.
- > Karolinska Institute- Stockholm, Sweden
- CogMed software company (RM Program)
- > AD/HD deficient in visual spatial working memory (WM) that becomes worse with age.
- ➤ MAY help relieve visual spatial WM difficulties and reading comprehension in Combined Type AD/HD.
- > More Research is needed! www.cogmed.com

Klingberg, T. (February, 2006). Training Working Memory. <u>AD/HD Report</u>, <u>14</u> (1), pp. 6-8.

Barkley, R. (February, 2006). Editorial Commentary Issues in Working Memory Training in ADHD. <u>ADHD</u> Report, <u>14</u> (1), pp. 9-11.

Ingersoll, B. (October 26, 2006). <u>Complementary Treatments for AD/HD</u>. Paper Presented at the 18<sup>th</sup> Annual CHADD International Conference, Chicago, IL.

Klingberg, T. and Anderson, M. (October 28, 2006). Computerized Training of Working Memory in Children with AD/HD. Paper presented at the 18<sup>th</sup> Annual CHADD International Conference, Chicago, IL.

### Literature Review of Working Memory Training

"The literature review highlights several findings that warrant further research but ultimately concludes that there is a need to directly demonstrate that WM capacity increases in response to training. Specifically, we argue that transfer of training to WM must be demonstrated using a wider variety of tasks, thus eliminating the possibility that results can be explained by task specific learning. Additionally, we express concern that many of the most promising results (e.g., increased intelligence) cannot be readily attributed to changes in WM capacity. Thus, a critical goal for future research is to uncover the mechanisms that lead to transfer of training".

Shipstead, Z., Redick, T.S. and Randall, W.E. (2012). Is Working Memory Training Effective? <u>Psychological Bulletin</u>, DOI: 10.1037/a0027473.

Treatment of AD/HD Across the Age Span

- 1. Diagnosis
- 2. Psychoeducation about AD/HD
- 3. Medication
- 4. Accommodation

Barkley, R. A. (1998). <u>ADHD in Children, Adolescents, and Adults: Diagnosis, Assessment, and Treatment</u>. New England Educational Institute Cape Cod Symposia, August, Pittsfield, MA.

Barkley, R.A. (2006). Attention-Deficit Hyperactivity Disorder. New York, NY: Guilford, p. 6

### Classroom Management For AD/HD Children



#### What Works Clearinghouse

- The U.S. Department of Education, through the Institute of Education Sciences has created the "What Works Clearninghouse" to provide the latest research to classroom teachers with what works with all kind of kids in the classroom.
- http://ies.ed.gov/ncee/wwc/

### Why Do I Have To Complete Those Obnoxious Questionnaires?

"Due to the pervasive nature of the problems and high cormorbidity for additional problems, assessment for ADHD involves a thorough emotional, developmental, behavioral, and medical evaluation by a team of trained professionals. Rather than label or diagnose the behavior problem, teachers must describe the behaviors they observe. Factors required for children to succeed in a classroom become the basis of teachers' reports and concerns..."

### Why Do I Have To Complete Those Obnoxious Questionnaires?

"Coming to class with a pencil, being able to see the blackboard, remaining in one's seat, participating, and so forth are all criteria that teachers can use to define the probability of success for students with ADHD...Quantitative data are collected through the completion of standardized questionnaires that allow evaluators to compare the referred child to a general population. In some cases,..."

### Why Do I Have To Complete Those Obnoxious Questionnaires?

"...the student is administered standardized tests to help rule out other conditions such as LD. Results from both qualitative and quantitative data are then evaluated by a pediatrician or psychologist to confirm the diagnosis of ADHD. ADHD is a medical diagnosis, and, although the school provides invaluable information, the final diagnosis is made by medical personnel" (pp. 59-60).

Mather, N., and Goldstein, S. (2001). <u>Learning Disabilities and Challenging Behaviors: A Guide to Intervention and Classroom Management</u>. Baltimore, MD: Brookes.

### "How Long Do I Have To Give This AD/HD KID THIS ACCOMMODATION?"

Barkley (2012) said that makes as much sense as asking, "How long to we have to allow the child in the wheelchair to use a ramp?" The child will always need accommodations and 'special ed'.

Barkley, R. A. (November 9, 2012). The Other Attention Disorder: Sluggish Cognitive Tempo (ADD/SCT) Vs. ADHD– Impairment and Management. Paper presented at the 24<sup>th</sup> Annual CHADD International Conference on ADHD, Burlingame, CA, November 8 – 10, 2012.

## Behavioral Interventions Are to Be Used as Prompts For AD/HD Children

"Important to note from Barkley's theoretical stance is that behavioral interventions are not being done chiefly to increase skills or information, as if children with ADHD were ignorant of them, but are being done to prompt internally (mentally) mediated information that can guide performance as well as enhance the motivation of these children to show what they already know. From this perspective, ADHD is a disorder of performance, not of knowledge of skills, and thus behavioral interventions are used to cue the use of those skills at key points of performance in natural settings and to motivate their display through the use of artificial consequences that ordinarily do not exist at those points of performance in natural settings.

Barkley, R.A. (February 22, 2013). <u>ADHD IN Children: Diagnosis and Treatment</u>. Poway, CA: ContinuingEdCourse.net. From website: <a href="http://www.continuingedcourses.net/active/courses/course004.php">http://www.continuingedcourses.net/active/courses/course004.php</a>.

#### "This Kid with AD/HD Has Obnoxious Parents!"

"In general, there seems to be at least a 40–50% chance that one of the two parents of the child with ADHD will also have adult ADHD".

Barkley, R.A. (February 22, 2013). <u>ADHD IN Children: Diagnosis and Treatment</u>. Poway, CA: ContinuingEdCourse.net. From website:

"Giving this kid an accommodation is unfair. If I give it to this kid I must give it to all the others."

- If a child needs glasses to see the board do all children in the class need to wear glasses with the same prescription so it will be "fair"?
- Being "fair" is not always the most moral thing one can do for a child. It may be give them what they need.
- I learned this from a guy named C. Wilson Anderson, Jr., MAT

#### How Safe Are Medications For AD/HD?

- ➤ "This cohort study, conducted with 1,200,438 children and young adults (aged 2-24 years) and 2,579,104 person-years of follow-up, including 373,667 person-years of current use of ADHD drugs, only found 7 serious cardiovascular events in current users."
- ➤ "Patients should continue to use their medicine for the treatment of ADHD as prescribed by their healthcare professional."

Author (December 20, 2011). FDA Drug Safety Communication: Safety Review Update of Medications used to treat Attention-Deficit/Hyperactivity Disorder (ADHD) in children and young adults. Silver Spring, MD: US Food and Drug Administration. From website: <a href="http://www.fda.gov/drugs/drugsafety/ucm277770.htm">http://www.fda.gov/drugs/drugsafety/ucm277770.htm</a>.

#### How Effective Are Medications for AD/HD?

"There is little doubt now that the stimulant medications are the most studied and most effective treatment for the symptomatic management of ADHD and its secondary consequences ...As a result, for many children with moderate to severe levels of ADHD, this may be the first treatment employed in their clinical management. And for some, where little or no significant comorbid disorders exist, it may be the only treatment required."

Barkley, R.A. (February 22, 2013). <u>ADHD IN Children: Diagnosis and Treatment</u>. Poway, CA: ContinuingEdCourse.net. From website:

### How Do Stimulant Medications Effect Classroom Behavior?

"In general, classroom behavior is significantly improved as is work productivity although there is less of an impact on academic accuracy...which is usually not as problematic for children with ADHD as is productivity."

Barkley, R.A. (February 22, 2013). <u>ADHD IN Children: Diagnosis and Treatment</u>. Poway, CA: ContinuingEdCourse.net. From website:

#### Teacher Behavior & AD/HD

"The major implications of this research is that the behavior of the students with BD (Behavior Disorders, sic.) in general education settings is more dependent on setting factors and teacher practices than is the behavior of students without BD" (p. 236).

Bevda, S.D., Zentall, S.S. and Ferko, D.J.K (2002). The Relationship Between Teacher Practices and The Task-Appropriate and Social Behavior of Students With Behavior Disorders. <u>Behavior Disorders</u>, <u>27</u>, 236-255. From website: <a href="http://www.edst.purdue.edu/zentall/resume/research.htm#chap.">http://www.edst.purdue.edu/zentall/resume/research.htm#chap.</a>