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Understanding and Managing the ADHD Experience from Childhood Through Adulthood

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Understanding and Managing The ADHD Experience from Childhood Through Adulthood

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Child, Adolescent & Adult Psychiatrist

Lynchburg, Virginia

AACC 2013 "Our Time is Now"
World Conference

Nashville, Tennessee September 12, 2013



OBJECTIVES

- 1) Understand the experience of children, adolescents and adults with ADHD.
- 2) Address identification and integrative treatment (medication and non-medication strategies) of ADHD and conditions comorbid with ADHD (including Oppositional Defiant Disorder, Explosive behavior, Mood Dysregulation, and Anxiety Disorders).
- 3) Recognize the importance of a comprehensive life approach to helping individuals with ADHD.



Combined Presentation
Predominantly Inattentive Presentation
Predominantly Hyperactive/Impulsive Presentation
Other Specified Attention-Deficit/Hyperactivity Disorder
Unspecified Attention-Deficit/Hyperactivity Disorder

10

ADHD & VISION: "UNFOCUSED"

ANALOGY:

- BOTH INVOLVE FOCUS
- BOTH HAVE BIOLOGIC BASIS
- BOTH IMPAIR FUNCTION
- THE CHILD DOES NOT KNOW ANY OTHER WAY TO BE OR SEE
- THE CHILD MAY BEHAVE BETTER IN CERTAIN SITUATIONS OR SEE BETTER IF HE SQUINTS
- BOTH REQUIRE & RESPOND TO PROPER CORRECTION, i.e., FULLY ADJUSTED
- BOTH RETURN TO BASELINE WHEN CORRECTION IS REMOVED



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ADHD & VISION: "FOCUSED!"

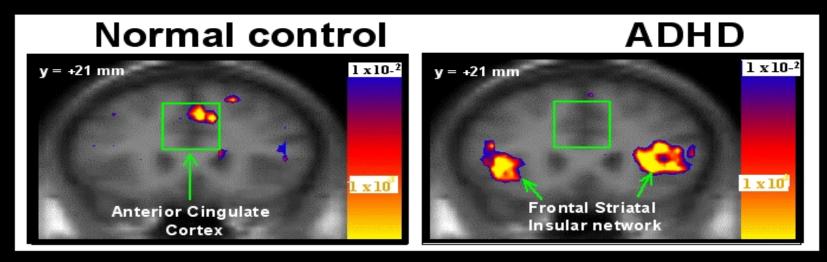
- IMPROVED FOCUS ENHANCES SUCCESS IN RELATIONSHIPS, ACADEMICS, AND SELF-ESTEEM
- FOCUS IS IMPORTANT ALL DAY, EVERY DAY
- FOCUS IS CRUCIAL IN ACTIVITIES SUCH AS ACADEMICS OR OPERATING A MOTOR VEHICLE AND IMPORTANT SOCIALLY
- SOMETIMES FOCUS CHANGES FOR THE BETTER BUT USUALLY IT REQUIRES LIFE-LONG CORRECTION

WHILE IMPERFECT, THE ANALOGY HELPS MAKE SENSE OF ADHD



© Kuhnley, 2005

Neuroimaging and ADHD

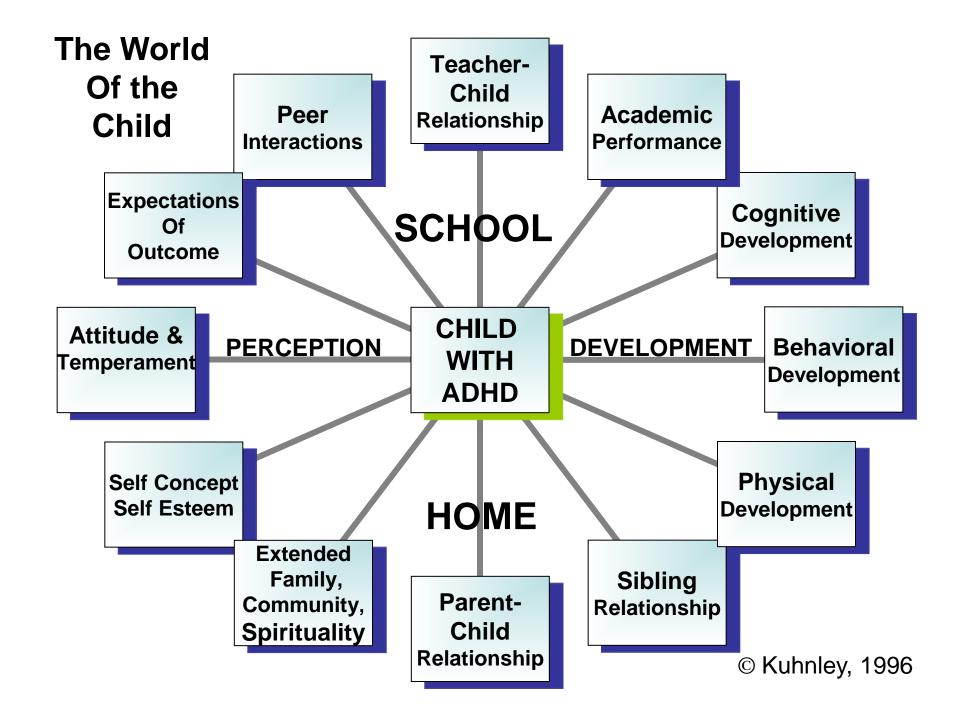


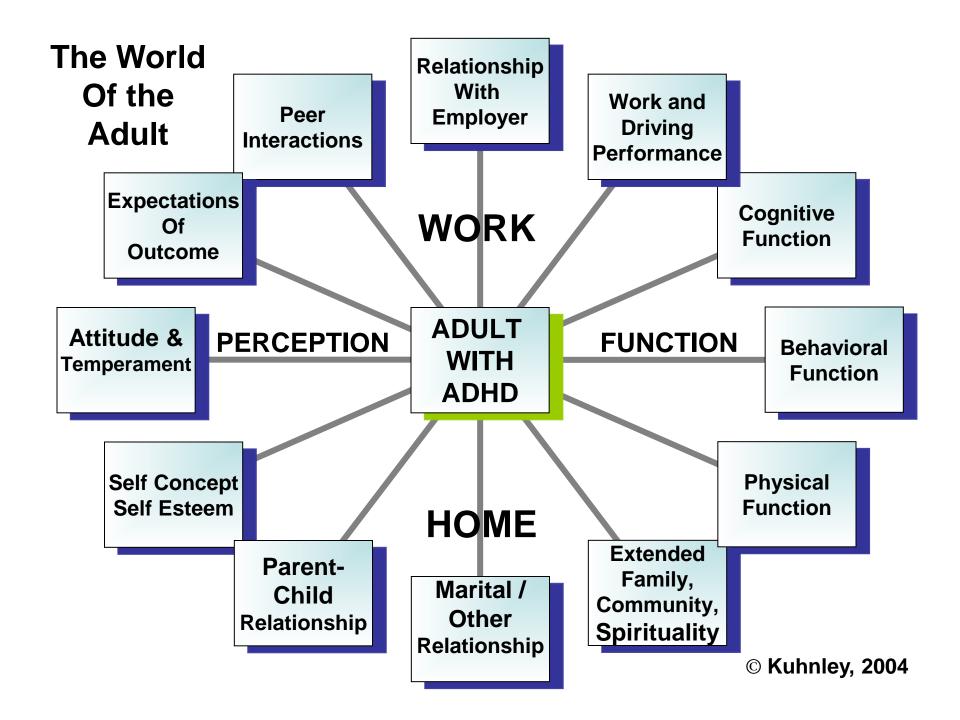
- fMRI shows decreased blood flow to the anterior cingulate and increased flow in the frontal striatum
- PET imaging shows decreased cerebral metabolism in brain areas controlling attention
- SPECT imaging shows increased DAT protein binding

MGH-NMR Center & Harvard-MIT CITP. Adapted from Bush, et al. Biol Psychiatry. 1999;45:1542-1552.

Genetics

- O.8 heritability factor > 80% of ADHD attributable to genetic influence
- Exceeds asthma (0.4), schizophrenia (0.7) and rivals height (0.88)
- Numerous specific genes are associated with ADHD including genes involved with dopamine
- The number of genes involved has a cumulative effect





THE ADHD EXPERIENCE

THE CHILD WITH ADHD WANTS & TRIES TO DO WELL – BUT, <u>USUALLY</u>, IS UNAWARE OF OWN BEHAVIOR



INATTENTION, IMPULSIVITY, & HYPERACTIVITY PRODUCE PROBLEMS IN BEHAVIOR & PERFORMANCE.



OTHERS PERCEIVE THE CHILD AS MISBEHAVING
AND LABEL THE BEHAVIOR AS BAD.
THE CHILD EXPERIENCES SHOUTING, PUNISHMENT,
AND REJECTION FROM ADULTS & PEERS





THE CHILD IS ABLE TO EXERT SOME CONTROL IN 1:1, NEW, EXCITING, HIGHLY MOTIVATING, OR VISUALLY-STIMULATING SITUATIONS



THE CHILD'S OCCASIONAL CONTROL ONLY CONFIRMS THE PERCEPTIONS OF OTHERS THAT, OVERALL HE IS NOT TRYING HARD ENOUGH & COULD DO BETTER IF HE WANTED TO.



THE CHILD GETS LITTLE OR NO CREDIT FOR EFFORT,
FEELS HELPLESS & OUT OF CONTROL,
& PERCEIVES SELF AS BAD AND / OR
THE WORLD AS UNFAIR AND REJECTING



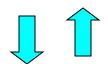


THE CHILD MAY EXTERNALIZE
ANGER AND FRUSTRATION INTO
AGGRESSION, BLAME OTHERS,
AND MAY DEVELOP
OPPOSITIONAL DEFIANT DISORDER
OR CONDUCT DISORDER

THE CHILD MAY INTERNALIZE
NEGATIVE PERCEPTIONS,
BLAME HIMSELF, DEVELOP A
NEGATIVE SELF-IMAGE OR
DEVELOP ANXIETY DISORDER
OR DEPRESSION



SOME CHILDREN MAY CHOOSE
TO MISBEHAVE TO TRY TO REDUCE
THE SENSE OF HELPLESSNESS &
CREATE THE ILLUSION OF CONTROL



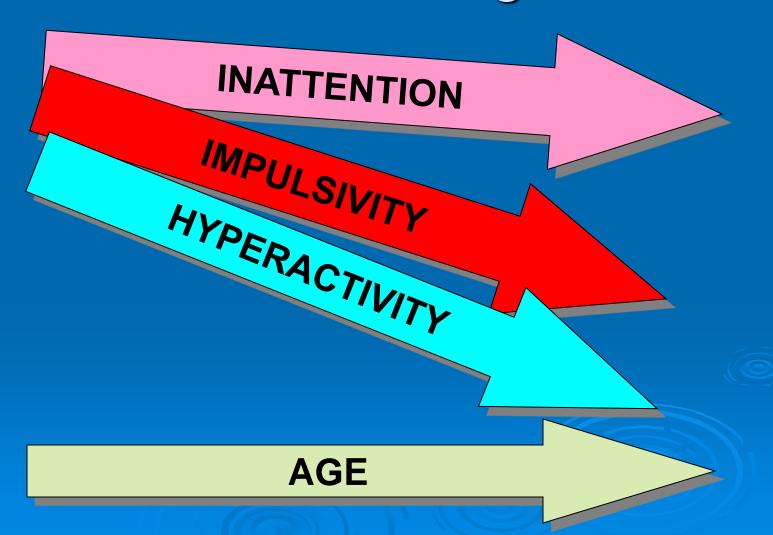
THIS ONLY CONFIRMS
THE PERCEPTIONS OF OTHERS
THAT HE HAD CONTROL ALL ALONG

THE CHILD MAY
CHOOSE TO MAKE
LITTLE OR NO EFFORT
TO DO WELL

Concepts Useful in Understanding ADHD

- > Directed Attention vs. Fascination Attention
- Barkley introduced a concept of "the executive function" to explain ADHD pathophysiology
 - "the ability to maintain an appropriate problem-solving set for attainment of a future goal."
 - Behavioral inhibition is critical to the development and execution of the 4 important executive functions:
 - sensing of the self (nonverbal working memory);
 - internalization of speech (verbal working memory);
 - self-regulation of affect-motivation-arousal; and
 - self-directed play (behavioral analysis and synthesis).

Core ADHD Symptoms Decline With Age

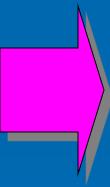


DSM-IV-TR® - INATTENTION

- Childhood
 - Difficulty sustaining attention
 - Does not listen
 - Cannot organize
 - Loses things
 - Easily distracted & forgetful
 - Difficulty following instructions



- Difficulty sustaining attention
- Does not listen
- Cannot organize
- Misplaces things
- Easily distracted & forgetful
- Difficulty finishing tasks / Poor time management



DSM-IV-TR® - IMPULSIVITY

- > Childhood
 - Blurts out answers
 - Cannot wait his or her turn
 - Intrudes on or interrupts others

- > Adulthood
 - Impulsive job changes
 - Drives too fast, traffic accidents
 - Irritability, quick to anger

DSM-IV-TR® SYMPTOMS OF HYPERACTIVITY

- Childhood
 - Squirms and fidgets
 - Runs or climbs excessively
 - Cannot play or work quietly
 - "On the go," driven by a motor
 - Talks excessively

- > Adulthood
 - Fidgets when seated
 - Inner Restlessness
 - Overwhelmed
 - Self-selects active jobs
 - Talks excessively



POTENTIAL AREAS OF IMPAIRMENT

- > Academic limitations
- Occupational/vocational problems
- Relationship difficulties
- Low self-esteem
- Injuries
- > Motor vehicle accidents
- Smoking/substance abuse
- Legal difficulties

CONTINUATION OF IMPAIRMENT THROUGH THE LIFESPAN

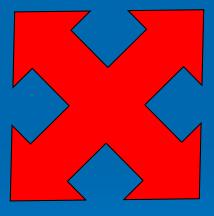
Childhood	Adulthood
School failure, underachievement	Job failure, underemployment
Multiple injuries	Fatal car wrecks, risk taking, accidental injuries
Drug experimentation	Drug dependence
Oppositional Defiant Disorder, Conduct d/o	Antisocial PD, criminal involvement
Impulsivity, carelessness	Unwanted pregnancy, STDs, reckless driving
Repetitive failure	Hopelessness, frustration, depression

Wilens and Dodson. J Clin Psych. 2004

DIAGNOSTIC DILEMMA

MISDIAGNOSIS

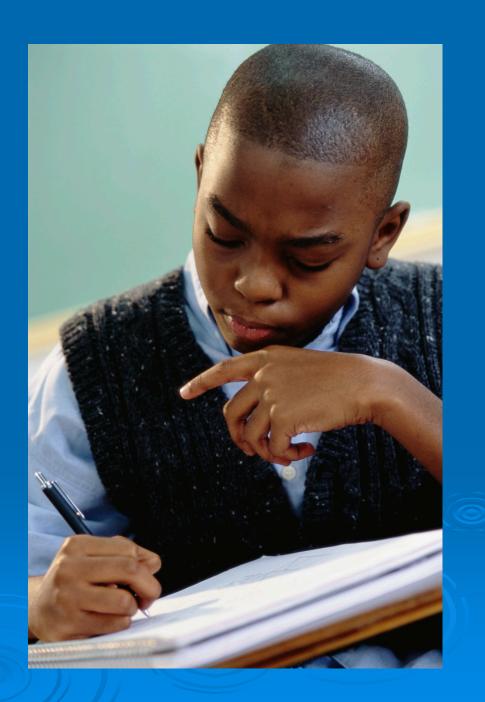
DIFFERENTIAL DIAGNOSIS



COMORBIDITY

MISSED DIAGNOSIS

Brandon 15 years old



Brandon, 15 years old

- School and day treatment program referred him for medication for "ADHD"; teacher rating scales suggested diagnosis.
- Mom did not describe ADHD symptoms at home; parent rating scale did not suggest ADHD.
- Brandon claimed he could control the behavior if he wanted to.

Brandon, 15 years old

- I referred Brandon for psychological testing to assess intellect, attention span, and possible learning disability.
- Psychological testing confirmed low average intellect, very significant learning disability, but good attention span.
- Psychologist observed his behavior during testing and just prior to re-entry to area with his peers—noting change to image of "bad" when he had an audience of his peers—thus deflecting attention away from his disability.

Brandon, 15 years old



- Treatment plan focused on:
 - Specific remediation in areas of learning disability
 - Behavior modification—he was motivated by being on the wrestling team
 - Providing prosocial avenues for experiencing success in front of peers

American Academy of Child and Adolescent Psychiatry (AACAP) Practice Parameters: Diagnosis

- Parent interview is core assessment
- Obtain academic, behavioral, psychoeducational testing, and attendance reports from school
- Use parent and teacher rating scales (when possible)
- Complete medical history and physical examination
- Evaluate for comorbidity

Rating Scales / Resources

- Vanderbilt ADHD diagnostic teacher rating scale (VADTRS) & parent scale
- DSM-IV (DSM-5) symptom checklist
- > Conners scale
- Statewide needs assessment program (SNAP-IV): www.adhd.net
- > ADDitude magazine: additudemag.com
- > www.chad.com
- www.aacap.org
- > www.addwarehouse.net

Differential Diagnosis

- Normality
- Environmental
 - Abuse or neglect
 - Family adversity
- Medical
 - Absence seizures
 - Sensory deficits
 - Sleep disorders
 - Thyroid disorders (rare)

Differential Diagnosis vs Comorbidity

- Psychiatric
 - Oppositional defiant disorder / Conduct disorder
 - Obsessive-compulsive disorder
 - Substance use disorder
 - Anxiety disorder / mood disorder
- Neurodevelopmental
 - Posttraumatic stress disorder
 - Learning disorder
 - Speech / language disorder
 - Mental retardation
 - Asperger syndrome / autism

Comorbid Conditions in Children with ADHD

Comorbidities	Range
Anxiety disorder	8% - 30%
Conduct disorder	8% - 25%
Oppositional-defiant disorder	45% — 64%
Affective disorder	15% — 75%
Tic disorder	8% — 34%
Mania/hypomania	0% - 22%
Learning/academic problems	10% - 92%

Spencer TJ, et al. *Pediatr Clin North Am*. 2000;46:915-927. Biederman J, et al. *Arch Gen Psychiatry*. 1996;53:437-446.

INATTENTIVE SUBTYPE of ADHD

HALLMARKS:

- LACK OF CONCENTRATION
- APPARENT LACK OF EFFORT

OTHER FEATURES:

- Appear: sluggish, underactive, daydreamy
- May gaze into space & be labeled "SPACE CADETS"
- Peers view them as "TUNED OUT" or "NOT WITH IT"
- Quietly underachieve and may be mislabeled as "SLOW LEARNERS" OR "LEARNING DISABLED";
- NOT behaviorally disruptive
- NOT difficult to manage by parents or teachers

INATTENTIVE SUBTYPE of ADHD

- MALE: FEMALE RATIO 2:1
- DIAGNOSED LATER THAN COMBINED & HYPERACTIVE/IMPULSIVE SUBTYPES
- ACCURATELY DIAGNOSED < 50% OF TIME
- SIGNIFICANT DEFICIT IN SOCIAL SKILLS RE:
 - JOINING A GROUP OF CHILDREN AT PLAY
 - RESOLVING A DISPUTE
 - INITIATING A FRIENDSHIP
 - FAILING TO RECOGNIZE IMPORTANT NONVERBAL "BODY LANGUAGE" SOCIAL CUES

GIRLS WITH ADHD

- 75% OF GIRLS WITH ADHD MAY BE MISSED
- LESS HYPERACTIVITY, AGGRESSION AND BEHAVIOR PROBLEMS THAN BOYS
- MORE LIKELY TO HAVE THE INATTENTIVE SUBTYPE OF ADHD WITH SYMPTOMS OF:
 - TIMIDITY
 - FORGETFULNESS
 - DIFFICULTY LISTENING
 - DISTRACTIBILITY
 - INTERNALIZATION: ANXIETY &/OR DEPRESSION
 - LOW SELF-ESTEEM / "SUFFER SILENTLY"

Patricia
16 years old



Patricia, 16 years old—History

- In interview neither parents nor Patricia endorsed symptoms of ADHD
- Parents were high-achieving
- Patricia was a Straight "A" student until one year ago but just could not sustain the effort anymore
- Diagnosed with Depression and treated with antidepressant (SSRI) with some improvement
- Anxiety Disorder also responding somewhat to antidepressant
- Felt hopeless, worthless, fat, ugly, & stupid
- Sincerely wanted to die > hospitalized

Patricia, 16 years old

- In Therapy:
 - She described her life and revealed the impact of ADHD, Predominantly Inattentive subtype
- > Review with mom:
 - Mom had wondered about ADHD but had engaged in denial
 - After acknowledging her fears, she noted that both she and dad had struggled with it all their lives but had succeeded anyway
- Intervention: combined stimulant medication and psychotherapy produced a very good outcome

Medication

Individual Therapy (CBT, Mindfulness) Group Therapy Skill Development

Multimodal (Integrative) **Treatment**

Family Therapy
Psychosocial
Psychoeducational

Attachment
Parenting
Behavioral
Modification

Spiritual Counseling

Environmental Accommodations
Life style interventions (nutrition, exercise, sleep, etc.)

"Cutting Edge" Management

- Child / Adolescent
 - Parent/patient education
 - Behavior Modification
 - Medication likely

- > Adult
 - Patient education
 - Life management
 - Medication likely
- Assess & address the "world of the patient"
- Individualized treatment plan / approach
- Treat to "optimization" or "normalization"
 - In other words, "20/20 focus"
- Assess and address comorbid conditions
- Encourage long-acting, once-daily medications

Education of Patients and Family

- Understanding the disorder
 - —Medical cause
 - —Not due to poor parenting
- Environmental restructuring
 - —Classroom changes
 - —ADHD-friendly modifications in family, work, leisure activities
 - —Structure, lists, delegating
- Parent support groups: for example, www.chadd.org, www.add.org

AACAP. J Am Acad Child Adolesc Psychiatry. 1997;36:858-1218.

Nonpharmacologic Approaches to Treating ADHD

- "This first step is essential: studies have shown that parents' beliefs about themselves, their ADHD children, and their parenting are associated with child treatment outcomes"
- "Subsequent sessions focus on teaching parents to:
 - Pay attention to appropriate behavior,
 - Ignore minor inappropriate behavior,
 - Give clear and concise directions, and
 - Establish effective incentive programs, such as token or point reward systems."

Nonpharmacologic Approaches to Treating ADHD

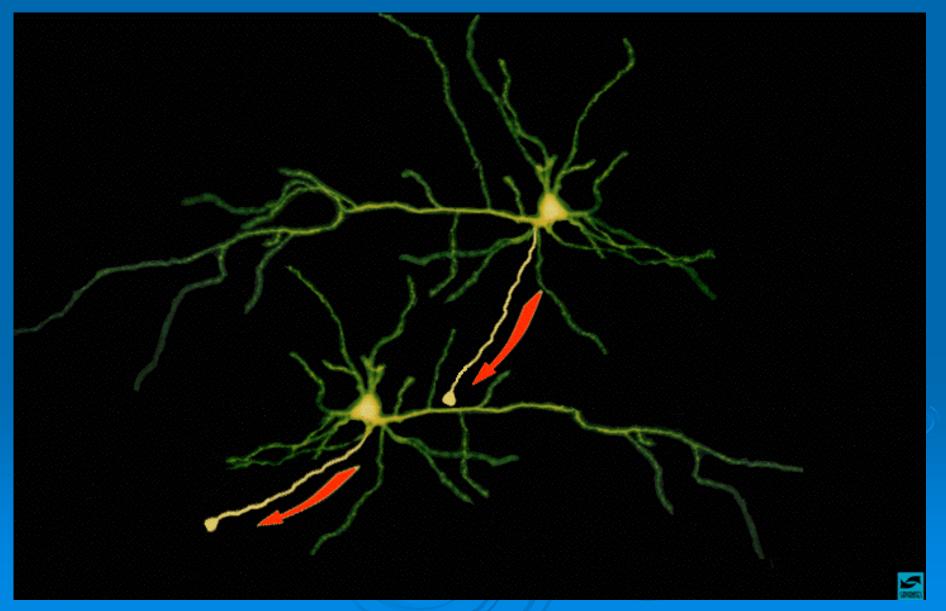
- Through school consultation, mental health professionals directly assist teachers of ADHD children with implementing various behavior management strategies in the classroom.
- Examples of academic adjustments include:
 - Reducing workload to fit the child's attention span,
 - Altering teaching style and curriculum,
 - Setting time limits for work completion,
 - Dividing longer assignments into smaller steps,
 - Increasing the immediacy of consequences.

Nonpharmacologic Approaches to Treating ADHD

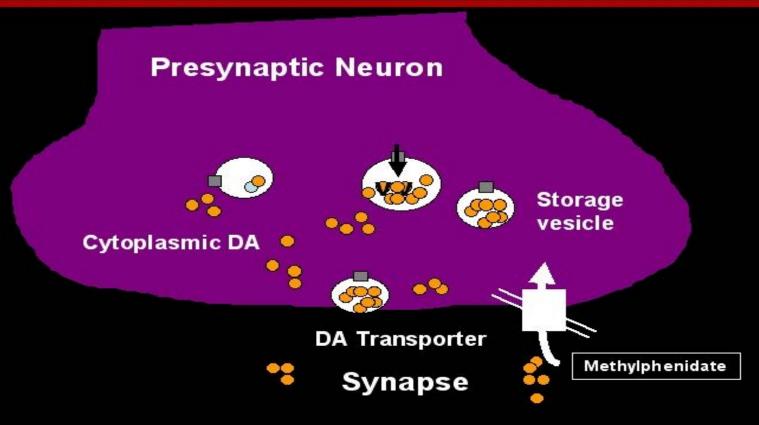
- In 2001, Conners and colleagues[26] developed expert consensus guidelines for the diagnosis and treatment of ADHD.
- These guidelines indicated that behavioral treatment was an appropriate first-level treatment in several scenarios:
 - For milder ADHD
 - When the family prefers psychosocial treatment
 - For preschool-age children with ADHD; and
 - In the presence of comorbid anxiety disorders

Summary of neuronal transmission

National Institutes of Health (NIH)



Probable Mechanism of Action of Methylphenidate



Wilens T, Spencer TJ. Handbook of Substance Abuse: Neurobehavioral Pharmacology. 1998;501-513.

Roles of Neurotransmitters in ADHD

Dopamine

- Enhances Signal
- Improves Attention
 - Focus
 - Behavior
 - On-task vigilance
 - On-task behavior
- Decreases
 Hyperactivity

Norepinephrine

- Dampens Noise
- Enhances Executive Operations
 - Planning
 - Working Memory
 - Organization
- Controls Impulsivity

Relative Degree of Action of ADHD Medications on Neurotransmitters

Medication	Dopamine	Norepinephrine
Amphetamine	Strong	Strong
Methylphenidate	Strong	Weak
Atomoxetine	Weak	Strong

Adapted from Solanto MV, et al, eds. Stimulant Drugs and ADHD. Oxford; 2001;

Methylphenidate Preparations

(Duration of Action)

Ritalin (immediate release)	3-4 hours
Ritalin-LA (long-acting)	8-10 hours
Metadate CD	8-10 hours
Focalin (dexmethylphenidate)	4 hours
Focalin XR (extended release)	8-12 hours
Concerta (OROS)	10-12 hours
Daytrana (methylphenidate patch)	12+ hours
Quillivant XR (Liquid)	10-12 hours

Amphetamine Preparations

(Duration of Action)

Dexedrine (immediate release)	4-6 hours
Dexedrine spansules (long-acting)	6-8 hours
Adderall (mixed amphetamine salts)	4-6 hours
Adderall XR (extended release)	8-12 hours
Vyvanse (lisdexamfetamine)	12+ hours

Other Preparations

- Strattera (Atomoxetine)
 - FDA-approved
 - DEA non-scheduled / refillable
- Wellbutrin (bupropion)
 - Antidepressant
- \triangleright Long-acting α -2 agonist (FDA-approved)
 - Intuniv (guanfacine) (once daily)
 - Kapvay (clonidine) (twice daily)
- > Short-acting α -2 agonist (Not FDA-approved)
 - Tenex (guanfacine) (less sedating)
 - Catapres (clonidine) (more sedating)

Stimulant Dosing

- No variable predicts optimal stimulant dose
 - Not weight
 - Not age
 - Not gender
 - Not plasma levels
 - Not rating scale scores



20/20

 The stimulant, the dose, and the formulation must be tailored to individual response, tolerability, and daily needs.

Why Start with a Long-acting Formulation?

- Core impairments occur all day long
- Short-acting formulations produce problems due to Peaks and Valleys of treatment effect
- Long-acting formulations provide up to 12 hours of smoother treatment effect
- Problems / Stigma created by in-school dosing
- Medication compliance is affected by rapidity, duration & degree of medication effect; frequency of dosing; & therapeutic alliance
- Diversion problematic with short-acting formulations

Medication Side Effects

STIMULANTS: METHYLPHENIDATE AMPHETAMINE

- Decreased appetite
- Insomnia / Sedation
- Headaches
- Stomachaches
- Irritability/moodiness (rebound)
- Motor tics

STRATTERA (ATOMOXETINE)

- Insomnia / sedation
- Headache
- Abdominal pain upper
- Decreased appetite
- Cough
- Vomiting
- Irritability



- Several year history of "confirmed" ADHD "mostly" responsive to stimulant medication.
- History of chronic worry about school, friends, family, safety of herself and her family, and world events.
- "Periodic Bouts" of decreased concentration and irritability despite stimulant medication.
- Complaints of headaches, stomachaches, and tiredness unrelated to medication.

DIAGNOSIS?

- Diagnosis:
 - ADHD
 - Generalized Anxiety Disorder
- Interventions:
 - Medications
 - Concerta 36 mg q am
 - Zoloft 50 mg q am
 - Anxiety Management Strategies
- Response—Well-controlled / excellent function

- Follow-up Visit after a year of stable function
 - Mom reports the medication is suddenly no longer working as Ashleigh is recently hyperactive, irritable, distractible, anxious, angry, & acting out behaviorally
 - Review of psychosocial issues with mom fails to reveal any change in stressors or family situation
 - Interview of Ashleigh fails to reveal any stressors
 - Requesting Ashleigh to draw her feelings on the dry erase board revealed ANGER at mom and fear there would not be enough food or enough room
 - WHEN.....

- Mom had twins!—mom had learned she was pregnant with twins just prior to onset of symptoms.
- Intervention—assisted mom and Ashleigh in communicating together:
 - Ashleigh enumerated her worries and fears to Mom regarding birth of twins;
 - Mom reaffirmed her love for Ashleigh and assurance of room arrangements and ample food supply; also opportunity to help with twins
- Outcome—Ashleigh calmed and returned to previous level of good function immediately after session without any adjustment to medication.

The MTA: multimodal treatment study of children with ADHD

- Combined (Comb) therapy is most effective
 - Medication Management (MedMgt) + Behavioral Management (Beh)
- Comorbidity affects outcome
- Subgroup with ADHD, anxiety, and disruptive behavior disorders responded optimally to Combined therapy
- ADHD-anxious children who received Beh performed just as well as did those receiving MedMgt, and Comb yielded an even better response for this comorbid subgroup

QuEST

- According to the Quality of Life, Effectiveness, Safety, & Tolerability (Qu.E.S.T.) study:
- Adults with untreated ADHD score below national norms on a variety of mental health subscales, but
- Scores improve and reach national norms after appropriate stimulant treatment



- School reported symptoms consistent with moderate ADHD, disruption and "lying" in school
- Parents described ADHD and impaired reality testing at home
- Parents requested psychotherapy to address problems as their faith did not approve use of medications

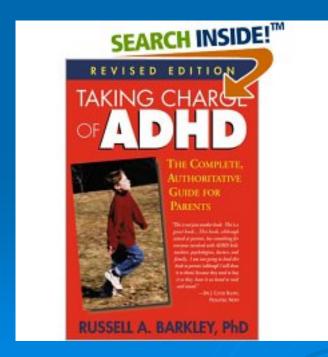
- Weekly therapy sessions focused on:
 - Developing impulse control and patience
 - Differentiating reality and fantasy
 - Developing planning and organizational skills
 - Finding ways to self-motivate
 - Practicing suppression of reaction to peers "pushing his buttons"
 - Organizing thoughts and understanding and developing concept of time and situation
 - Et cetera

Outcome:

- Core ADHD symptoms were mild and much less problematic
- Family developed home environment conducive to promoting development of skills & maturation
- School made accommodations to improve learning
- Joey develop internal control AND.....
-the teacher caught the "button pushers" and apologized to Joey for not believing him!

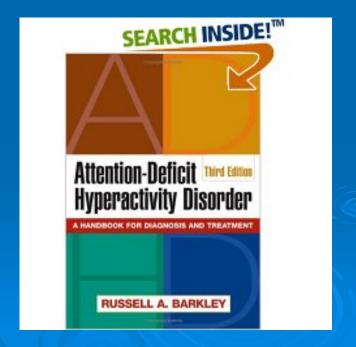
Recommended Reading

Taking Charge of ADHD:
The Complete, Authoritative
Guide for Parents
(Revised Edition) (Paperback)
by Russell A. Barkley



Amazon.com

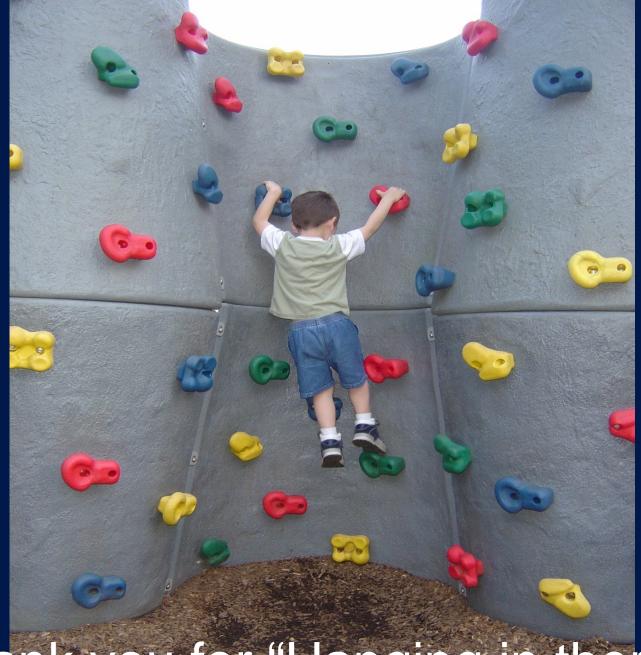
Attention-Deficit Hyperactivity Disorder,
Third Edition:
A Handbook for Diagnosis and Treatment
(Hardcover)
by Russell A. Barkley



Amazon.com

SUMMARY

- Understand and address the "world" of the patient in the pursuit of accurate diagnosis and specific ongoing individualized treatment.
- Use combination multimodal therapy and patient/family education to address ADHD and any comorbidities.
- Seek optimization or normalization of the ADHD and any comorbidities, i.e. seek 20/20 focus/function.



Thank you for "Hanging in there"

QUESTIONS??





