ADHD Lectures Online

View 10 hours of parent presentations and 25+ hours of professional presentations on ADHD by Dr. Barkley at this website:

ADHDLectures.com

For CE Credits, the same presentations can be found at:

PsychContinuingEd.com

For written CE courses by Dr. Barkley, visit:

ContinuingEdCourses.com
Symptoms and Demographics
Obvious Symptoms

Age-Inappropriate Hyperactivity-Impulsivity

• Impaired verbal and motor inhibition
• Impulsive decision making; cannot wait or defer gratification
• Greater disregard of future (delayed) consequences
• Excessive task-irrelevant movement and verbal behavior
  – Fidgeting, squirming, running, climbing, touching
• Restlessness decreases with age, becoming more internal, subjective by adulthood
• Emotionally impulsive; poor emotional self-regulation
  – Impatient, low frustration tolerance, quick to anger, easily excitable, and generally greater levels of expressed emotions
More Obvious Symptoms

Age-Inappropriate Inattention

• But there are at least 6 types of attention:
  – Arousal, alertness, selective, divided, span of apprehension, & persistence
  – Not all are impaired in ADHD
• Poor persistence toward goals or tasks
• Greater reactivity to distractions
• Less able to re-engage the incompleted task following disruptions
• Impaired working memory (remembering so as to do)
ADHD Varies by Setting

**Better Here:**
- Fun
- Immediate
- Frequent
- High
- Early
- Supervised
- One-to-one
- Novelty
- Fathers
- Strangers
- Clinic Exam Room

**Worse Here:**
- Boring
- Delayed Consequences
- Infrequent Feedback
- Low Salience
- Late in the Day
- Unsupervised
- Group Situations
- Familiarity
- Mothers
- Parents
- Waiting Room
Prevalence (United States)

- 2-5% of children (using DSM-III or III-R)
- 7-8% of children (using DSM-IV) (~3-4 million)
  - Adding Inattentive Type doubles prevalence over III-R
- 4-5% of adults (~12 million in US)
- Varies by sex, age, social class, & urban-rural
  - 3:1 Males to females in children (5:1 in clinical samples)
  - <2:1 males to females in adults
  - More common in children; less so in adults
  - Somewhat more common in middle to lower-middle classes
  - More common in population dense areas
  - For instance, 12-15% of U.S. military dependents (DSM-III-R)
  - No evidence for ethnic differences to date that are independent of social class and urban-rural
Persistence to Adulthood

- 70-80% persistence into adolescence
- **Young Adulthood** (age 20-26) (Barkley et al. 2002; Milwaukee Study)
  - 3-8% Full disorder (self-report using DSM3R)
  - 46% Full disorder (parent reports using DSM3R)
  - 66% - Using 98th percentile of severity (parent report)
  - 85-90% remain functionally impaired
- **Adulthood** (mean age 27)
  - 14-35% recovered from disorder
  - 44-55% still fully disordered (diagnosable)
  - 15-30% highly symptomatic but not diagnosable
Diagnostic Criteria
DSM-IV Criteria for ADHD

• Manifests 6+ symptoms of either inattention or hyperactive-impulsive behavior
• Symptoms are developmentally inappropriate
• Have existed for at least 6 months
• Occur across settings (2 or more)
• Result in impairment in major life activities
• Developed by age 7 years
• Are not best explained by another disorder, e.g. Severe MR, PDD, Psychosis
• 3 Types: Inattentive, Hyperactive, or Combined
What Changed in DSM5

• Symptom list remains the same (18) but with parenthetical clarifications for teens and adults
• Symptom threshold for children and teens remains the same (#6) but is reduced for adults (#5)
• Age of onset adjusted to age 12 years
• Requires corroboration of self-reports
• Replaces subtypes with “presentations”
• Will impairment be defined?? (should be the “average person” standard)
Other Issues DSM5 Failed to Address

• Inattention list is mislabeled
  – Include executive functioning (working memory)
• Symptoms of impulsiveness or poor inhibition are chiefly verbal
  – needed to add poor impulse control generally and motor, cognitive, and affective/motivation specifically
• Symptoms of poor executive emotion self-regulation are important central features but receive no mention
• Symptoms and wording are not appropriate past childhood – parenthetical clarifications may help but not enough
  – Need more items for adult stage of disorder
More Issues

• Symptom threshold (6) not appropriate past childhood – adjustment to 5 for adults helpful but not enough
  – May have to adjust thresholds down to 4 of 9 if > age 17 and higher than 6 if < 4 yrs
• Threshold for children based mainly on boys (3:1)
  – May need to be lower for girls; use rating scales
• Duration may be too short for preschoolers:
  – try 1 year or more
• Requires cross-setting occurrence of symptoms that implies need for parent-teacher agreement
  – Instead, blend reports of both and use history of cross setting impairment
What About the Inattentive Type (ADD)?

DSM subtype

- Inattentive
  - Formerly Combined Types
    - View as always Combined Types
  - Sub-threshold Combined Types
    - View as milder Combined Types
  - Sluggish Cognitive Tempo
    - View as qualitatively different type

30-50%
A Second Disorder of Attention:
Sluggish Cognitive Tempo
SCT Symptoms on Rating Scales

- Daydreaming excessively
- Trouble staying alert or awake in boring situations
- Easily confused
- Spacey or “in a fog”; Mind seems to be elsewhere
- Stares a lot
- Lethargic, more tired than others
- Underactive or have less energy than others
- Slow moving or sluggish
- Doesn’t seem to understand or process information as quickly or accurately as others
- Apathetic or withdrawn; less engaged in activities
- Gets lost in thought
- Slow to complete tasks; needs more time than others
- Lacks initiative to complete work or effort fades quickly
What do we know about SCT?

• Most symptoms of Sluggish Cognitive Tempo (SCT) are not characteristic of the C-Type\(^1,2\)
• SCT Symptoms form 2 dimensions of daydreamy-confused and sluggish/lethargic in factor analysis. The former are the more diagnostic from ADHD\(^2\)
• Slow, Error Prone Response Style & Processing
  – Less able to use relevant environmental cues in task responding\(^2,3\)
• Poor Focused or Selective Attention
  – Slower reaction times, more omission errors\(^1,4\)
  – Unlike ADHD-C type, sluggish style is cross-situational\(^4\)

ADHD Inattentive Type - SCT

- Socially shy, reticent or withdrawn – less impaired socially than ADHD children
- No motor disinhibition problems or impulsiveness on ratings or on cognitive testing in most studies\(^1,\ 2\)
  - If anything, they can be overly inhibited\(^4\)
- Little evidence for executive function deficits on tests; if present are in working memory and problem-solving.\(^3\)
- But some EF deficits are evident on EF ratings in daily life. In children, these are far milder than in ADHD. In adults, they are more prominent. In both, they are mostly in Self-Organization and Problem-Solving

More Distinguishing Features of SCT

- Comorbidity: Rarely show Aggression or ODD/CD
- Greater risk may be for anxiety symptoms
- Possibly greater risk for depression (?)
- Lower levels of parenting stress
- Greater parental concerns regarding school failure
- Equally impaired in educational performance
  - But ADHD is a productivity disorder while SCT is an accuracy disorder
  - Greater frequency of math disorders in SCT (?)
- Greater family history of anxiety and LD (?)
Treatment Implications for SCT

- All research has been with children, not with adults.
- All drug research was with methylphenidate and used ADD without H cases (or Inattentive Only) – not selected specifically for SCT.
- Less Likely to Have a Clinically Impressive Response to Stimulants (based on a few studies; need more research):
  - (Barkley Study finds 65% improve modestly in symptom ratings but only 20% showed a good clinical response warranting continued medication).
- Better response to social skills training in children than ADHD cases:
  - Up to 25% of ADHD cases become more aggressive in social skills groups due to peer deviancy training.
  - Training works best for shy, withdrawn, anxious children.
- Good (better?) response to joint home-school treatments:
  - MTA study: anxious cases did the best in psychosocial treatment.
  - Pfiffner (2007) study shows good response to home-school behavioral training and child training in social and organizational skills that is targeted at ADHD-I specific problems.*


More SCT Treatment Considerations

• More responsive to cognitive therapy (??)
  – It doesn’t work for children with ADHD but if this is not ADHD then try it again?
  – It does work for anxiety disorders and depression

• Do adults respond to CBT focusing on EF deficits as well as do ADHD adults?
  – And do they need to be on medication like ADHD adults?
    Doubtful, as ADHD medications don’t seem as useful for SCT

• Consider atomoxetine (??) Why? It may treat anxiety in ADHD cases – SCT cases are more likely to have anxiety

• Consider modafinil (anti-narcoleptic) (??) Why? Is SCT a disorder of arousal?

• If SCT is ruminative or related to OCD, consider clomipramine or fluvoxamine used to treat OCD (??)
ADHD As A Disorder of Executive Functioning (Self-Regulation)
The Prefontal Cortical Networks Involved in EF Are Also the Networks Implicated in Self-Regulation and in ADHD

- **The frontal-striatal circuit**: Associated with deficits in response suppression, freedom from distraction, working memory, organization, and planning, known as the “cool” or “what” EF network.

- **The frontal-cerebellar circuit**: Associated with motor coordination deficits, and problems with the timing and timeliness of behavior, known as the “when” EF network.

- **The frontal-limbic circuit**: Associated with symptoms of emotional dyscontrol, motivation deficits, hyperactivity-impulsivity, and proneness to aggression, known as the “hot” or “why” EF network.


Problems with the EF Construct

• Lacks any consensus definition
  – More than 20 definitions exist
  – Most emphasize self-regulation, goal directed behavior, and problem-solving

• Lacks any theory of EF, especially as it extends into daily life

• Considered to be a meta-construct serving as an “umbrella” term for a set of more specific components
  – But up to 33 components have been attributed by experts to EF

• Assessment of EF often employs psychometric tests. But:
  – They are unreliable and often poorly normed
  – They lack ecological validity
    • do not correlate with EF rating scales or observations
  – Do not predict impairment in major domains of life in which EF is important for effective functioning; EF ratings do predict impairment
Most Common EF Components

• Inhibition and interference control
• Self-Awareness and self-monitoring
• Nonverbal working memory
• Verbal working memory
• Planning and problem-solving
• Anticipation and preparation to act
• Self-Regulation across time
• Emotional Self-Control
Defining EF as Self Regulation

• Self-regulation is:
  – Any action directed at one’s self
  – Intended to change one’s behavior from what it otherwise would have been
  – So as to change the likelihood of a later consequence (so as to attain a goal)

• The EFs are types of self-directed actions

• “EF is the use of self-directed actions (self-regulation) to choose, enact, and sustain actions across time toward a goal usually in the context of others and often relying on social and cultural means for the maximization of one’s longer-term welfare as the person defines that to be.”

(Barkley, R. A. Executive Functioning and Self-Regulation, 2012, New York: Guilford Publications)
EFs as Self-Directed Actions

- Inhibition = Self-Restraint
- Self-Awareness = Self-Directed Attention
- Nonverbal working memory = Self-Directed Sensory Motor Actions (Imagery)
- Verbal working memory = Self-Speech
- Planning and problem-solving = Self-Play
- Emotional Self-Control = Self-Directed Emotion and Motivation
Think of Executive Functioning As A Hierarchy That Forms an Extended Phenotype Essential for Social Existence
Michon’s Model of Driving

**Level IV: Strategic Abilities**
i.e., Purpose or goals for using the car, best routes through traffic to attain the goals, time likely needed to attain each goal, knowledge needed to enact the plan effectively (weather, traffic, construction, known accidents, etc.)

**Level III: Tactical Abilities**
i.e., abilities required to operate the vehicle on roadways in the presence of and interactions/conflicts with other drivers and their vehicles, such as driving laws, knowledge of safe driving tactics, etc.

**Level II: Operational Abilities**
i.e., familiarity with and sound management of the vehicle and its components such as steering, braking, acceleration, signaling, mirrors, seat belts, other safety equipment [ex. Driving a car in an empty parking lot]

**Level I: Basic Cognitive Abilities Required to Drive**
i.e., normal reaction time; visual field perception; motor speed, agility, coordination, and range of motion; visuo-spatial reasoning; hearing; language and reading abilities, etc.
Barkley’s Model of EF

**Level IV: Strategic – Cooperative Abilities**
i.e., Underlies human coordinated group activities in which goals can be attained that are not possible for any individual. Underlies cooperative ventures, division of labor, formation of communities and governments

**Level III: Tactical – Reciprocal Abilities**
i.e., Underlies human social exchange, turn taking, reciprocity, promise keeping. Basis of economic behavior (trading); Underlies ethics, social skills and etiquette; Basis for legal contracts

**Level II: Methodical – Self-Reliant Abilities**
Essential for daily adaptive functioning, self-care, and social self-defense
i.e., Self-Organization and Problem-Solving, Self-Management to Time, Self-Restraint, Self-Motivation, Self-Regulation of Emotions

**Level I: Instrumental – Self-Directed Abilities**
i.e., self-awareness, executive inhibition and interference control, nonverbal and verbal working memory, planning, problem-solving, self-motivation, emotion regulation
Self-Regulatory Strength is a Limited Resource Pool

- S-R Fuel Tank (Willpower)
  - Inhibition & Self-Restraint
  - Self-Management to Time (NV-WM)
  - Self-Organization & Problem-Solving (V-WM)
  - Emotional Self-Regulation
  - Self-Motivation

The pool increases in capacity with maturation.

Use of EF/SR reduces the pool temporarily.

So Does: Stress, Alcohol, Drug Use, & Illness
How Does ADHD Fit Into EF?

EF Comprises a Single Domain that Can Be Usefully Subdivided into two Broad Dimensions

**Inhibition:**
- Motor, Verbal, Cognitive & Emotional

**Meta-Cognition:**
- Nonverbal WM
- Verbal WM
- Planning/Problem-solving
- Emotional self-regulation

Where does ADHD fit into them?

Hyperactivity-Impulsivity

Inattention
Understanding ADHD

- ADHD disrupts the 5 levels of EF/SR but especially the tactical and higher levels thereby creating a disorder of self-regulation across time.
- ADHD can be considered as “Time Blindness” or a “Temporal Neglect Syndrome” (Myopia to the Future).
- It adversely affects the capacity to hierarchically organize behavior across time to anticipate the future and to pursue one’s long-term goals and self-interests (welfare and happiness).
- It’s not an Attention Deficit but an Intention Deficit (Inattention to mental events & the future).
Understanding ADHD

It’s a Disorder of:

- Performance, not skill
- Doing what you know, not knowing what to do
- The when and where, not the how or what
- Using your past at the “point of performance”

The point of performance is the place and time in your natural settings where you should use what you know (but may not)
Implications for Treatment

- Teaching skills is inadequate
- The key is to design prosthetic environments around the individual to compensate for their EF deficits
- Therefore, effective treatments are always those at the “point-of-performance”
- The EF deficits are neuro-genetic in origin
- Therefore, medications may be essential for most (but not all) cases – meds are neuro-genetic therapies
- But some evidence suggests some EFs may also be partly responsive to direct training
- While ADHD creates a diminished capacity: Does this excuse accountability?
  - (No! The problem is with time and timing, not with consequences)
Behavioral treatment is essential for restructuring natural settings to assist the EFs

- They provide artificial prosthetic cues to substitute for the working memory deficits (signs, lists, cards, charts, posters)
- They provide artificial prosthetic consequences in the large time gaps between consequences (accountability) (i.e., tokens, points, etc.)
- But their effects do not generalize or endure after removal because they primarily address the motivational deficits in ADHD

The compassion and willingness of others to make accommodations are vital to success

A chronic disability perspective is most useful
How can we compensate for EF deficits? By reverse engineering the EF system

- Externalize important information at key points of performance
- Externalize time and time periods related to tasks and important deadlines
- Break up lengthy tasks or ones spanning long periods of time into many small steps
- Externalize sources of motivation
- Externalize mental problem-solving
- Replenish the SR Resource Pool (Willpower)
- Practice incorporating the 5 strategies for emotional regulation in daily life activities
Replenishing the EF/SR Resource Pool

S-R Fuel Tank (Willpower)

- Regular limited practice using EF/SR and the Willpower Pool can increase later pool capacity. However, the capacity may eventually diminish once practice is terminated.

- Greater Rewards and Positive Emotions
- Statements of Self-Efficacy and Encouragement
- 10 minute breaks between EF/SR tasks
- 3+ minutes of relaxation or meditation
- Visualizing and talking about future rewards before and during SR demanding tasks
- Routine physical exercise; Also Glucose ingestion

Assessment is Driven by Issues

- Current concerns about the child
- History of those concerns
  - Onset, course, periodicity
- Differentiating among likely disorders
- Determining developmental inappropriateness
- Assessing for comorbid disorders
- Establishing domains of impairment
- Is adjustment of parents an issue?
- Surveying child and family strengths
- Mapping out community resources
- Need for collateral professional evaluations
What Methods Assess These Issues

• Current concerns
  – Unstructured parent interview
  – History - Onset, course, periodicity
    – Semi-structured interview on the concerns
      • (see ADHD Clinical Workbook, guilford.com)

• Differential Diagnosis
  – Broad band rating scales
    • Child Behavior Checklist (Achenbach – U of VT)
    • Behavioral Assessment System for Children (Pearsonassessments.com)
  – Structured interview of diagnostic criteria for DSM disorders likely to be present
    • ADHD Clinical Workbook (guilford.com)
  – Adequate clinical knowledge of childhood psychiatric disorders and their symptoms !!! (Mash & Barkley, 2003, Child Psychopathology, guilford.com)
More Issues & Methods

• Developmental inappropriateness
  – DSM criteria (structured interview) (ADHD Clinical Workbook)
  – Behavior rating scales specific to ADHD (Many available)
    • ADHD-IV Scale (guilford.com), Conners (Multihealth.com)
  – Neuropsychological testing – limited utility (don’t use for diagnosis)
    • Good positive predictive power; Poor negative predictive power
  – Behavior rating scales assessing EF (BRIEF, Barkley DEFS-CA; May 2012)

• Situational Pervasiveness
  – Home and school situations questionnaires (ADHD Clinical Workbook, guilford.com)

• Domains of Impairment
  – Interview with parents and teachers (ADHD Clinical Workbook)
  – Rating scales (face page of CBCL or BASC)
    • Social Skills Rating System (pearsonassessments.com)
    • Child Impairment Rating Scale (website - Ccf.buffalo.edu/resources_downloads.php)
    • Barkley Functional Impairment Scale – Children & Adolescents (May 2012)
More Issues & Methods

• Comorbidity
  – Review of DSM disorders – structured interview
    • ADHD Clinical Workbook (guilford.com)
  – Academic achievement screening (LDs ????)
    • PIAT, WRAT, WIAT, Woodcock-Johnson
  – Brief IQ screening (MR ??) (Kaufman BIS, Wechsler BIS)

• Psychological adjustment of parents
  – Symptom Checklist-90-Revised (pearsonassessments.com)
  – Adult ADHD screening scales
    • Barkley AARS-IV (Guilford.com), Conners (MultiHealth.com)
  – Marital screening – Locke-Wallace

• Child and Parent Strengths (interview)

• Community Resources (Interview, phone contact with social services, etc.)
Treatment Package

- I. Evaluation (Diagnosis)
- II. Education (Counseling)
- III. Medication
- IV. Modification (behavior)
- V. Accommodations
  - at home
  - in school
  - in the community
Empirically Proven Treatments

• Parent Education About ADHD
• Psychopharmacology
  – Stimulants (methlyphenidate, amphetamines)
  – Noradrenergic medications (atomoxetine, bupropion)
  – Anti-hypertensives (e.g., guanfacine XR)
• Parent Training in Child Management
  – Children (<11 yrs., 65-75% respond)
  – Adolescents (25-30% show reliable change)
• Family Therapy for Teens: Problem-Solving, Communication Training (30% show change)
• Cognitive Behavioral Therapy for adults
  – As a supplement to medication management
Empirically Proven Treatment

- Teacher Education About ADHD
- Classroom Behavior Management
- Special Education Services (IDEA, 504)
- Regular Physical Exercise
- Residential Treatment (5-8%)
- Parent/Family Services (25+%
- Parent/Client Support Groups (CHADD, etc.)
Unproved/Disproved Therapies

- Elimination Diets – removal of sugar, additives, etc. (Weak evidence)
- Megavitamins, Anti-oxidants, Minerals
  - (No compelling proof or disproved)
- Sensory Integration Training (disproved)
- Chiropractic Skull Manipulation (no proof)
- Play Therapy, Psycho-therapy (disproved)
- Self-Control (Cognitive) Therapies for Children
- Social Skills Therapies (in clinic)
  - Better for Inattentive (SCT) Type and Anxious Cases
Experimental Treatments

• Neurofeedback (EEG conditioning)
  – Mixed evidence; best controlled studies are not supportive

• Working Memory Training (CogMed)
  – Good initial results by developer
  – Replications show some improvements mainly in parent but not teacher ratings

• Challenging Horizons (after school multimodal intervention for teens)

• Omega 3/6 fatty acids
  – modest improvements 1/3rd effect size of meds
  – 25% response rate; mostly among inattentive type