

Understanding and Supporting Children with ADD/ADHD in the Classroom



Dr. Candice Murray
Registered Psychologist
October 2019

Learning Objectives

- ADHD Basics
- How ADHD impacts learning
- Strategies for managing ADHD at school

Does ADHD Matter?

Academics

- Writing: Organizing ideas, missing details, missing punctuation & capitalization, careless spelling errors
- Math: Rote memory, word problems, multi-step problems
- Reading: Skip or add words, reading comprehension

Does ADHD Matter?

(Merrill et al., (2017))

Elementary School

- Less work completion
- Less work accuracy
- Less on-task behaviour
- Less homework completion

Middle/High School

- Poor organizational skills
- Lower grades
- Higher rates of skipping school
- Higher rates of dropping out of school

Does ADHD Matter?

(Merrill et al., (2017)

Clear relationship between ADHD and academic underachievement

ADHD

- ADH vs ADHD
- Key: Frequency, Severity, Chronicity
- Like depression, anxiety

Core ADHD Symptoms

Distractibility

Restlessness

Impulsivity

ADHD Symptoms

All children with ADHD have

inconsistent attention

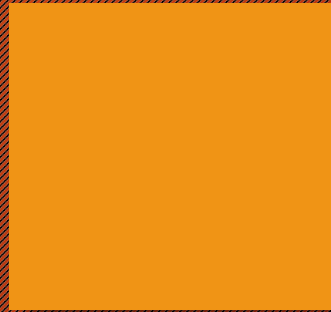
ADHD Symptoms

Some children with ADHD have
high levels of

hyperactivity and impulsivity

Distractibility

(auditory, visual, internal thoughts)



Inconsistent listening → learning gaps → fall behind

Impulsivity & Restlessness



Start without fully hearing instructions

Rush through school work (speed > quality)

Executive Functions: The Teacher

- Response inhibition (stopping)
- Working memory (mental multi-tasking)
- Emotional control (staying calm)
- Sustained attention (concentrating)
- Task initiation (starting tasks)
- Planning (seeing the big picture and ways to get there)
- Organization (keeping track of information)
- Time management (estimating time)
- Goal-directed persistence (perseverance)
- Flexibility (shifting between tasks)
- Meta-cognition (evaluate yourself)

EF Fast Facts

- EF better predictor of school success than IQ
- Located in prefrontal lobes of brain
- Take 25 years to mature (peaks at 30)
- 30% developmental delay (12yrs = 8 yrs)
- Deficits show when demands present (>grade 4)
- Standardized testing underestimates EF deficits (cued, brief, supervised, structured)

Delayed Cortical Thickening

Shaw, Rappaport & Evans, 2007



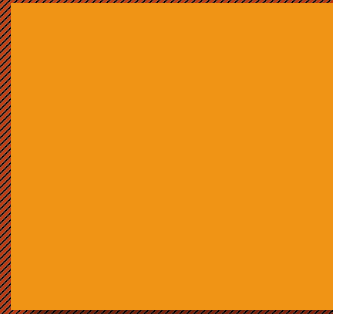
Domains of Impairment

Before School	School	After School	Bedtime
Difficulty with <ul style="list-style-type: none">● Waking up● Getting dressed● Eating breakfast● Packing bag● Leaving house on time	Difficulty with <ul style="list-style-type: none">● Academics● Sitting at desk● Finding their stuff● Getting along with kids at recess and lunch● Assemblies	Difficulty with <ul style="list-style-type: none">● Sports/Clubs● Homework● Risky behavior● Sitting through dinner● Staying off screens● Getting along with siblings	Difficulty with <ul style="list-style-type: none">● Bedtime prep● Settling down and falling asleep

Social Impact -Video



ADHD at School



Distractibility

- Focus depends on interest
- Distracted by noises, sights, thoughts
- Don't complete tasks on time
- Miss questions or pages on exams
- Can't take accurate class notes
- Reading hard (have to re-read; can't retain)
- Hyper-focus = difficulty with transitions

Impulsivity

- Make inappropriate comments
- Interrupt during class
- Take on too much
- Low threshold for frustration
- Temper outbursts
- Push others in line ups / poor physical boundaries

Hyperactivity

- Get up from desk often
- Fidget at desk (draw, twirl hair, chew pencils, bite nails, kick desk legs, try to engage other students)
- Talk too much

Executive Dysfunction

Response inhibition

- Blurt out ideas
- Butt into conversations
- Grab others' belongings
- Rush through boring tasks
- Illogical sequence to stories

Working Memory

- Trouble with verbal instructions
- Note-taking hard
- Mental math hard
- Forget ideas while writing

Executive Dysfunction



Emotional control

- Easily frustrated
- Act before understanding source of conflict

Sustained attention

- Can't read for same length of time as other students
- Reading comprehension impacted
- Get first part of instructions but not later parts
- Get up from desk more - needs supervision
- Incorrect instructions for homework/projects
- Math, spelling errors

Executive Dysfunction

Task Initiation / Procrastination

1. Too absorbed in current task to shift
2. Lack of interest in upcoming task
3. Skill deficit (don't know where to start)

Executive Dysfunction

Planning (seeing the big picture & how to get there)
Organization (keeping track of info & ideas)

- Difficulty with beginning a project or creating an outline for an essay (resist making an outline)
- Trouble telling a story in a logical sequence
- Writing lacks logical sequencing and/or sufficient details
- Can't come up with a logical plan of attack on tests (doesn't preview, lacks strategy)
- Spend too much time on less important parts (title page)
- Can't break steps down (or figure out sequence) for a project

Executive Dysfunction

Planning & Organization

- Forget to hand in completed homework
- Misplace class materials and personal belongings (pencils, books, gym strip, shoes, coat, hat, etc)
- If there is a planner, it is not being used
- Overwhelmed/anxious/avoidant due to the above

Executive Dysfunction

Time Estimation

- Spend too much time on some questions, rush others (tests, assignments)
- Late for deadlines, class, miss school bus
- Ask for extensions
- Pull “all nighters”

Executive Dysfunction

Goal Directed Persistence

- Do not complete larger projects (flits around, piecemeal)

Meta-Cognition

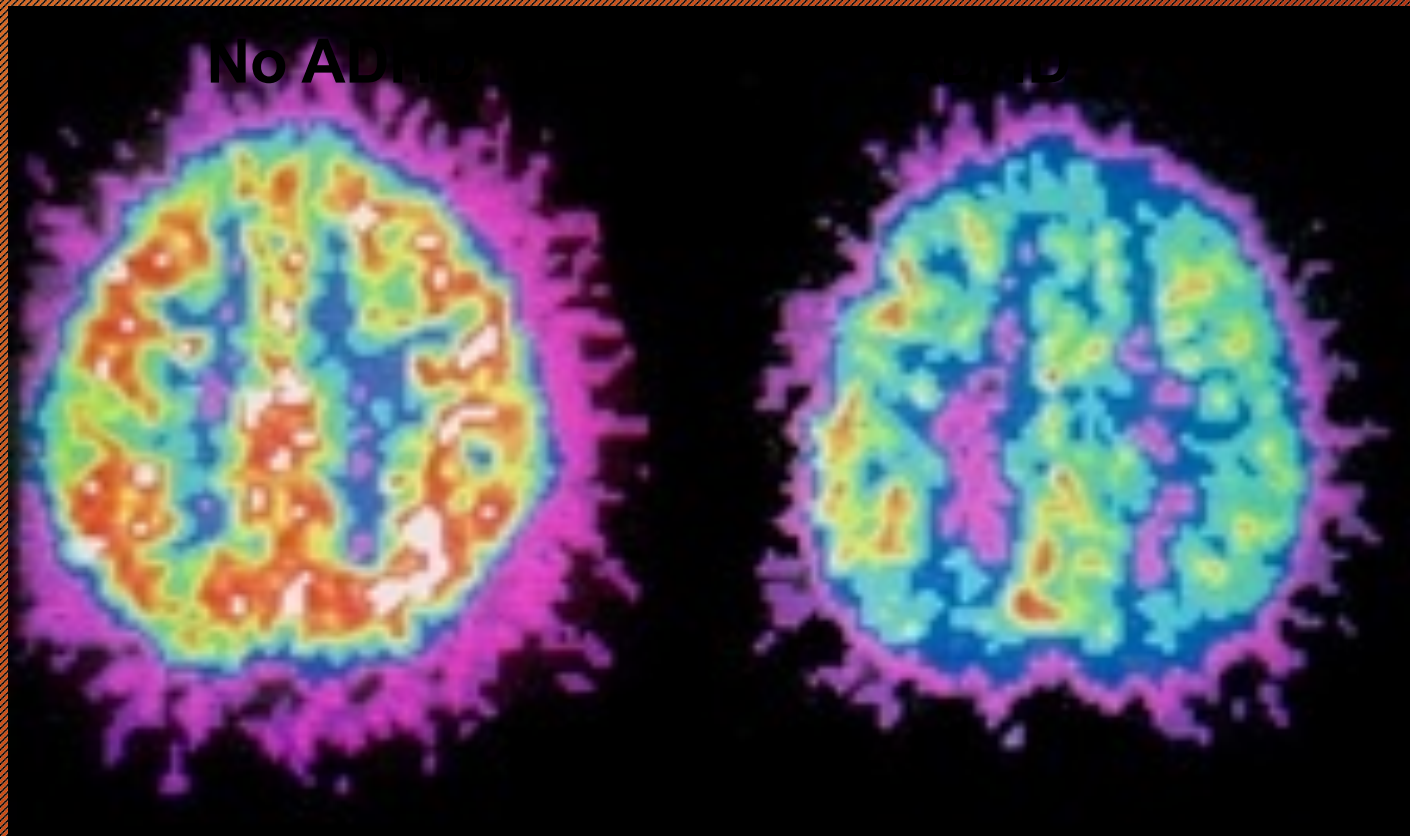
- Poor insight, poor awareness

Neurobiology of ADHD

- Brain scans show decreased activity in prefrontal cortex
- Smaller frontal lobes, basal ganglia, & cerebellar vermis
- May have delayed maturation of the prefrontal circuits
- Left caudate nucleus larger than normal population (n=Left larger than right side)
- Neurotransmitter dysregulation of dopamine, norepinephrine, and serotonin.

Neuroimaging and ADHD

Positron-emission tomography (PET) Scanning



Decreased activity in prefrontal cortex and premotor cortex

Evidence-Based Treatments for ADHD: 5 Pillars

Multi-Modal Treatment

1. Education about ADHD (parents, teachers, child)
2. Medication (stimulants 1st line treatment)
3. Behavioural Parent Training programs (<12years)
4. School supports/accommodations
5. Organizational skills (EF) interventions (>8yrs old)

Education about ADHD

- www.howtoadhd.com
 - Jessica McCabe

- Essential Ideas for Parents
 - Dr. Russell Barkley

Education about ADHD



ROLLING
WITH ADHD

Wish you could just *roll* with the
ADHD in your family?



Rolling with ADHD is the new
free online learning series from
BC Children's Hospital

Sign up and start today
rollingwithADHD.ca



- Kelty Mental Health website

Behavioural Classroom Management

Chronis et al , 2007; DuPaul et al., 1997; Evans et al., 2014

Effective, but less than medication (Pelham & Fabiano, 2008)

1. Instructional modification

- reducing task length
- dividing tasks into sub-units (chunking)
- goal setting with shorter time intervals
- increased stimulation of the task (color, texture, highlighting, rate of presentation, multi-sensory)

2. Positive & response cost contingencies (immediate feedback about performance e.g., praise; point systems; clear rules)

Behavioural Classroom Management

Chronis et al , 2007; DuPaul et al., 1997; Evans et al., 2014

3. Organizational training (notetaking, study skills, homework skills)

4. Peer tutoring (students provide 1:1 assistance, continuous prompts, frequent feedback)

Very few studies direct academic interventions (mostly instructional/task/material modification)

School Strategies - Distractibility



Don't Yak



Restricting Access to iPhone/iPad/Android

- Restrict access to devices?
- Restrict access to certain sites (Qustodio, Screen Time, etc)

School Strategies for Distractibility

Medication

Reduce environmental distractions:

- Sit near teacher (away from friends, doors, windows)
- Wear headphones; ear plugs
- Study carrel or resource room

Break tasks down into shorter segments (15-20 minutes)

- <https://www.youtube.com/watch?v=SCAGc-rklfo>
- 2:08:22 to 2:10:21

School Strategies for Distractibility



Giving instructions: Use name, eye contact, touch

Keep them active (take notes with back up) : Livescribe pen

Increase interest by giving them choice (reading, writing)

School Strategies for Distractibility

Less material on page

School Strategies for Restlessness

Keep Moving!

School Strategies for Restlessness

- Move at desk (stand, elastic band, gum)
- Move in class (chores, exercises)
- Leave class briefly (hallway, bathroom)

School Strategies for Restlessness

https://www.youtube.com/watch?v=71PB_Rulk5M

School Strategies for Impulsivity



School Strategies for Impulsivity

Less material
on page

School Strategies for Impulsivity

Less material
on page

School Strategies for Impulsivity

Break tasks into shorter segments

Proofreading:

- Time delay
- Last to first
- Bonus marks for catching errors

School Strategies for EF (Organizational Skills)

Organizational Skills Training (OST)

A behavioural treatment for organization, time management, planning

- 1) Skills instruction**
- 2) Practice
- 3) Breaking skills into sub-steps
- 4) Parents/teachers trained to prompt, praise, reward skill use (prizes for applying skills at home, school)

School Strategies for EF (Organizational Skills)

OST SKILLS:

- Recoding assignments/due dates in calendar/planner
- Organizing papers into 1 or 2 binders (separate sections for each subject)
- Using checklists for materials
- Tracking time for tasks
- Breaking tasks into steps, write down order before starting

Improves organizational skills, IA ADHD Sx (EF), academics (Bikic et al., 2017)

Works with teens; 16 twenty minute skills block sessions (Langberg et al., 2017)

Calendar/planner

- Have one: 1 planner (paper or electronic)
- Carry: Portable
- Enter: Due dates, appointments, to-do items
- Use: Check each morning and evening

Rewards Daily Report Card (DRC)

Target Behaviour	Teacher's Initials
Assignments completed on time	
Desk neat and organized	
Wrote homework instructions in planner	
Used backpack checklist	

Strategies for EF

VISUAL AIDS

- Externalize important information (schedule, to-do list, due dates, steps for tasks, scoring rubrics, model of finished product)
- Externalize time (clocks, beeping watches, kitchen timers)
- External motivators (rewards, incentives)

Assistive Technology: Writing (time management)

Assignment Calculator

www.lib.umn.edu/help/calculator

Assistive Technology: Writing (dysgraphia)

Note-Taking: Ipad, Laptop, smart pen (e.g., Livescribe)

Writing essays: Speech Recognition Software (e.g., Read & Write Google, Dragon Naturally Speaking)

Write over pdfs

Assistive Technology: Writing (organization of ideas)

Graphic organizers (e.g., Inspiration, Mindomo)

Templates with prompts (e.g., Mindomo)

Assistive Technology: Writing (conceptual/editing)

Word prediction, editing with read-back feature (e.g., WordQ; Read and Write for Google)

Word retrieval issues
(e.g., Word Bank Universal)

Fun: Make multi-media books (Book Creator)

Assistive Technology: Reading

Kindle

Reading pen (e.g., Wizcom scanning pen)

Text to Speech software (with highlighting features)

MP3 recordings of textbooks

Human narrated books:
Audible, Learning Ally

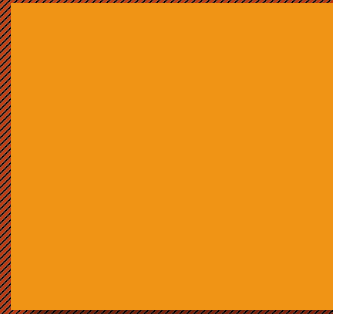
Assistive Technology: Math

Allow calculators

Allow formula sheets

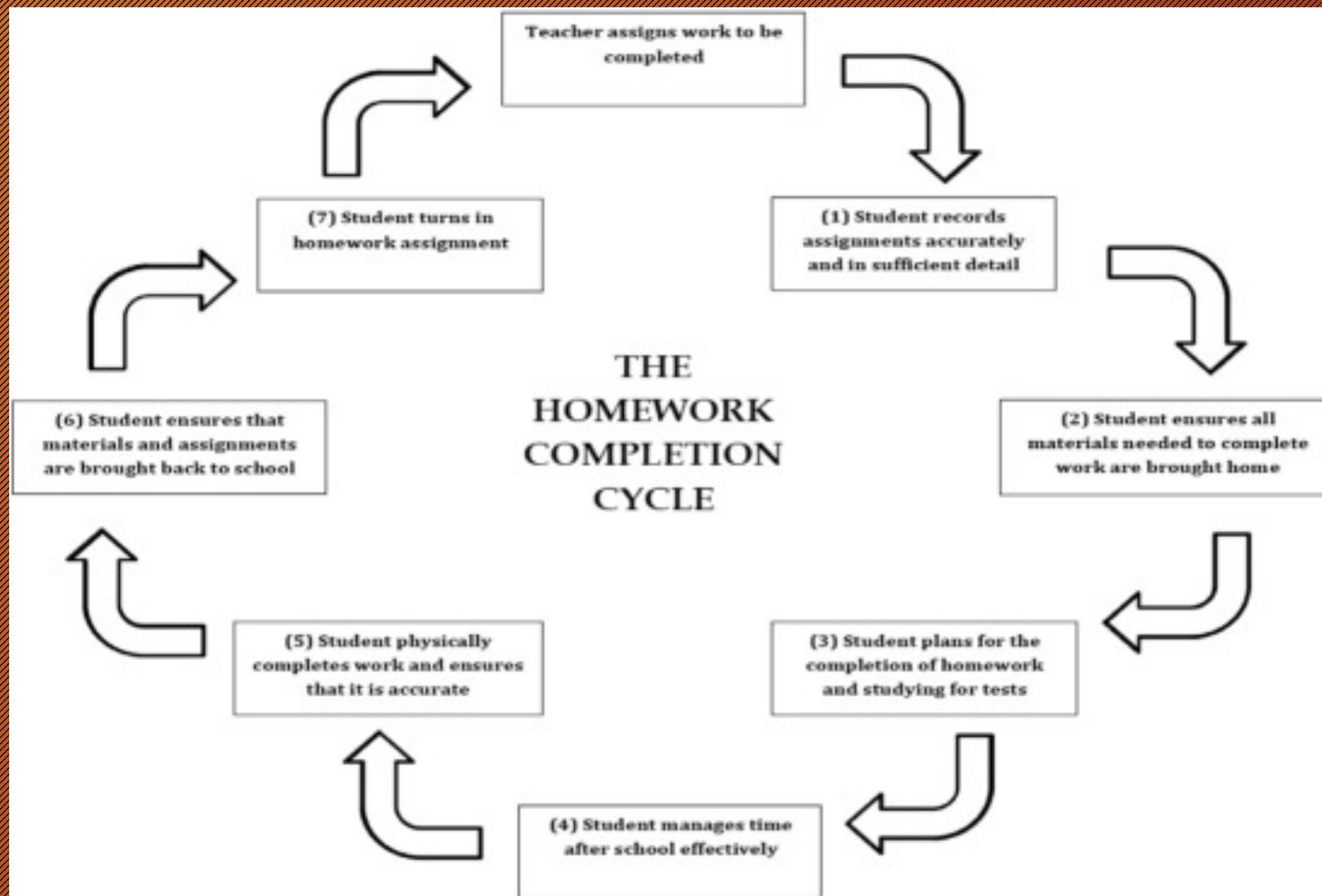
Virtual math websites (Khan academy)

Last but not least: Homework



Homework Steps

Assess point of break down & intervene



Last Thoughts: Can't vs Won't

No amount of effort will compensate for lack of skill or ability