

ADHD and Executive Dysfunction

With
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The impact of ADHD at School

- ADHD symptoms contribute to poor school performance
- Some children with ADHD do extremely well in school
- For many others, underachievement in school is a hallmark characteristic of the condition



- Inattention
- Hyperactivity
- Impulsivity

Although they may be bright intellectually, many children with ADHD lag behind their peers developmentally by as much as 30%. Primarily in social and emotional functioning

As a result, they may seem immature or irresponsible and are less likely to

- remember their chores
- complete their homework
- work independently

They are more likely to

- say things or act impulsively before thinking
- the quality and amount of their work will fluctuate from day to day

Parents and teachers may need to

- provide more positive feedback
- supervise schoolwork more closely
- give reminders of homework
- interact more frequently with each other to help the child





**90% of children
with ADHD will
experience
difficulty in school**

Common learning problems and their practical implications for school performance:

Inattention and poor concentration:

- Difficulty listening
- Daydreams
- Misses lesson content or homework
- Lacks attention to detail
- Makes careless mistakes
- Doesn't notice errors in grammar, punctuation, capitalisation, spelling
- Difficulty staying on task and finishing schoolwork
- Distractible
- Moves from one uncompleted task to another
- Lacks awareness of time

Impulsivity:

- Rushes through work
- Doesn't double check work
- Doesn't follow directions
- Takes short cuts in written work especially maths (does it in his head)
- Difficulty delaying gratification
- Hates waiting



Spoken Language (oral expression):

- talks a lot spontaneously
- talks less in response to questions where they must think and give organised, concise answers
- avoids responding in class or gives rambling answers

Language-processing problems common among children with ADHD:

Listening and Reading

- Comprehension: becomes confused with lengthy verbal directions
- loses main point
- difficulty taking notes
- difficulty following directions
- may not "hear" or pick out homework assignments from a lesson
- poor reading comprehension
- can't remember what is read - must reread material

Written Language:

- slow reading and writing
- takes longer to complete work
- produces less written work
- difficulty organising essays
- difficulty getting ideas out of head and on paper;
- written test answers or essays may be brief
- responses to discussion questions may be brief



Medication Wears Off

- problems with medication wearing off at school are less common due to long-acting medications
- the intermediate range medications (6-8 hours) may wear off by early afternoon
- Class difficulties, irritability, or misbehaviour may be linked to times when medication has worn off

Poor Organisational Skills:

- disorganised
- loses homework
- difficulty getting started on tasks
- difficulty knowing what steps should be taken first
- difficulty organising thoughts
- sequencing ideas
- writing essays
- planning ahead

Poor Working Memory:

difficulty memorising material such as

- multiplication tables
- maths facts or formulas
- spelling words
- foreign languages
- history dates

Impaired Sense of Time:

- loses track of time
- is often late
- doesn't manage time well
- doesn't anticipate how long task will take
- doesn't plan ahead for future



Restlessness or hyperactivity

- Can't sit still in seat long enough to complete work
- Needs to fidget

Other Factors

Sleep Disturbances

- Children may come to school feeling tired
- may sleep in class
- Many children with ADHD (50%) have difficulty falling asleep at night and waking up each morning
- Half of them wake up tired even after a full night's sleep
- Children may have battles with their parents before arriving at school

Low Frustration Tolerance

- Children may become frustrated more easily and "blow-up" or impulsively say things they don't mean, especially as their medication is wearing off.
- They may blurt out answers in class.
- they may be argumentative or impulsively talk back to a teacher
- Transitions or changes in routine, such as when substitute teachers are present, are also difficult for them



**Why do Children
with ADHD have
these difficulties?**

Executive Function Defecits

ADHD is a
Neurological Deficit
that substantially
restricts the normal
development of the
executive functions of
the Brain

What Is Executive Function?

Executive function is the cognitive process that organises thoughts and activities, prioritises tasks, manages time efficiently, and makes decisions

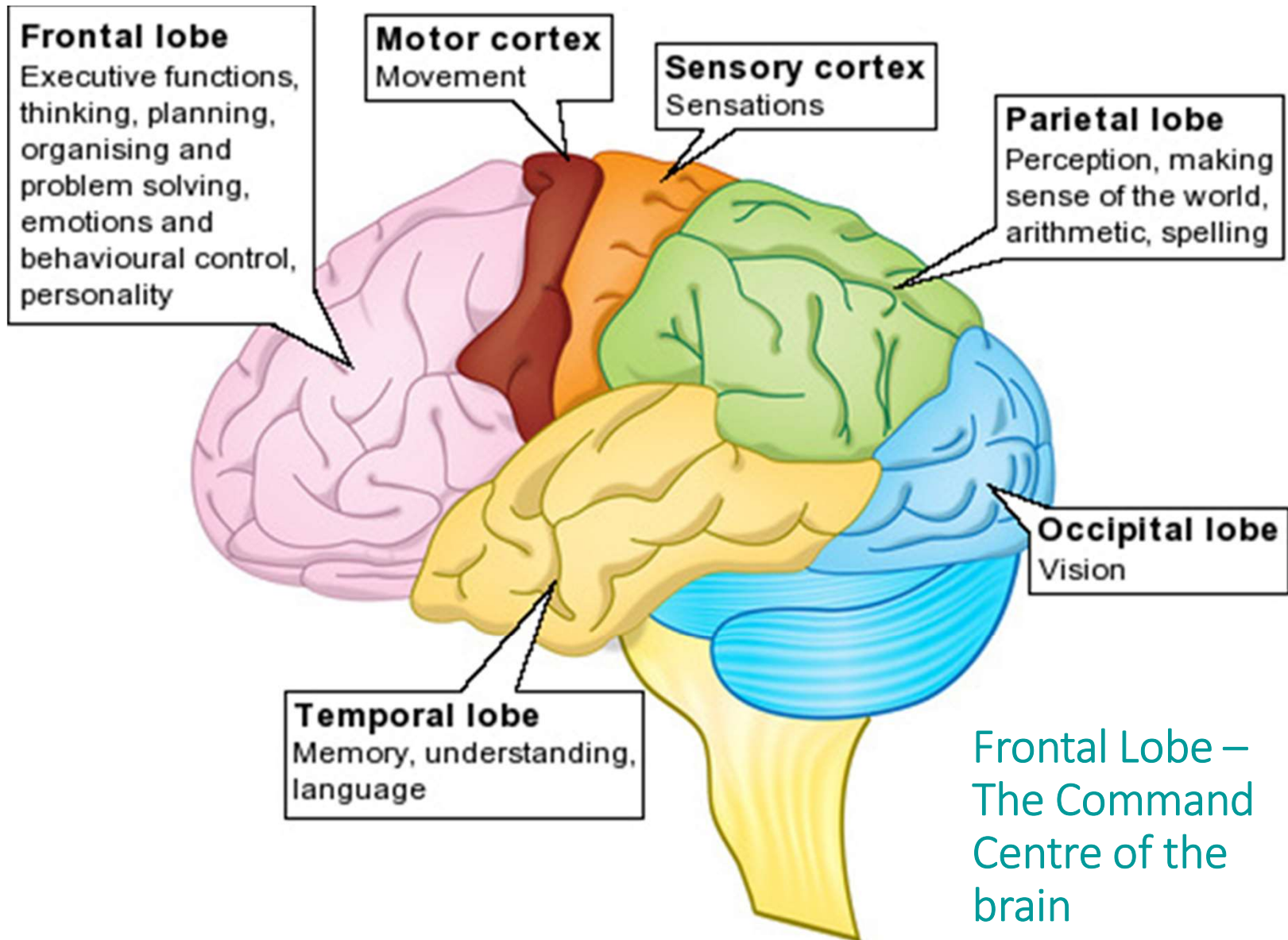
Executive function skills are the skills that help us establish structures and strategies for managing projects and determine the actions required to move each project forward

Individuals with executive dysfunction often struggle to analyse, plan, organise, schedule, and complete tasks at all — or on deadline

They misplace materials, prioritise the wrong things, and get overwhelmed by big projects



Source:
Russell A. Barkley, Ph.D



Is Executive Dysfunction a Symptom of ADHD?

The term “executive functioning” was coined in the 1970s by Karl Pribram, whose research indicated that the executive functions are mediated primarily by the prefrontal cortex

So far, we know about four circuits in prefrontal cortex of the brain that relate to executive function — and executive dysfunction.



Source:
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The “What” Circuit:

The “What” Circuit is linked to working memory, so it’s in this circuit that what we think starts to guide what we do

This is particularly true when it comes to plans, goals, and the future



1

The “When” Circuit:

The “When” Circuit is the timing circuit of the brain — it coordinates not just how smooth behaviour will be and the sequence of behaviour, but also the timeliness of your actions and when you do certain things

An improperly functioning “When” Circuit in a child with ADHD explains why they often have problems with time management



2

The “Why” Circuit:

Often referred to as the “hot” circuit because it’s linked to our emotions — it’s where what we think controls how we feel, and vice versa

It’s the final decision maker in all our plans

When thinking about multiple things we could be doing, this is the circuit that eventually chooses among the options based on how we feel about them and their emotional and motivational properties



3

The “Who” Circuit:

It’s where self-awareness takes place — it’s where we’re aware of what we do, how we feel (both internally and externally), and what’s happening to us



4

Executive Function and the ADHD Brain

By viewing ADHD in relation to these four circuits, you can understand where symptoms originate

Depending upon which circuits are most impaired and least impaired, you can see variation in the kinds of symptoms that any individual is going to have:

Some children have more working memory deficit

Some children have more emotion regulation problems

Some children have more difficulties with timing, but less difficulties with all the others

But they all involve these circuits



Source:
Russell A. Barkley, Ph.D



Executive function is judged by the strength of these seven skills:

- 1. Self-awareness:** Simply put, this is self-directed attention
- 2. Inhibition:** Also known as self-restraint
- 3. Non-Verbal Working Memory:** The ability to hold things in your mind. Essentially, visual imagery — how well you can picture things mentally
- 4. Verbal Working Memory:** Self-speech, or internal speech. Most people think of this as their “inner monologue”



5. Emotional Self-Regulation: The ability to take the previous four executive functions and use them to manipulate your own emotional state. This means learning to use words, images, and your own self-awareness to process and alter how we feel about things

6. Self-motivation: How well you can motivate yourself to complete a task when there is no immediate external consequence

7. Planning and Problem Solving: Experts sometimes like to think of this as “self-play” — how we play with information in our minds to come up with new ways of doing something. By taking things apart and recombining them in different ways, we’re planning solutions to our problems

The Modern View of ADHD - Executive Functions

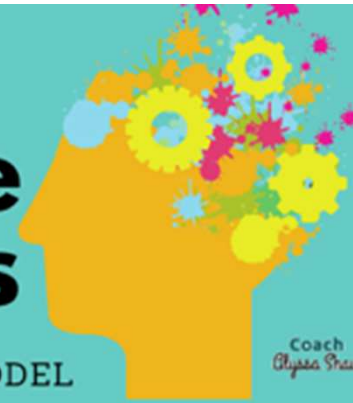


“The problem is not
KNOWING what to do,
but **DOING** what you
know”

It is a problem in
PERFORMANCE/EXECUTION
rather than a problem in the
KNOWLEDGE/SKILL of the
child

Executive Functions

DR. THOMAS BROWN'S MODEL



1. Activation

organizing,
prioritizing,
& activating
to work.



2. Focus

focusing,
sustaining &
shifting
attention to
tasks



3. Effort

regulating
alertness,
sustaining
effort &
processing
speed.



4. Emotion

managing
frustration &
modulating
emotions



5. Memory

utilizing
working
memory &
accessing
recall



6. Action

monitoring
self-
regulating
action



Accommodations should be individualised and made to accommodate each child's specific learning problems

Common classroom accommodations which are extremely helpful to children with ADHD include:

- untimed tests
- use of calculator or computer
- modification of homework
- elimination of unnecessary writing - write answers only, not questions
- reduced demands on limited working memory capacity
- written homework assignments given by teachers
- utilisation of note takers or guided lesson notes
- Breaks/Weighted breaks
- Wobble Chair
- Visual Aids/Timetables
- Reduced distractions

Typically, misbehaviour of children with ADHD is not malicious but rather the result of their inattention, impulsivity, and/or failure to anticipate the consequences of their actions:

- They may not think before they act or speak
- They have trouble controlling their emotions
- If they think it, they often say or do it
- If they feel it, they show it

Belatedly, and with remorse, they realise they should not have said or done certain things

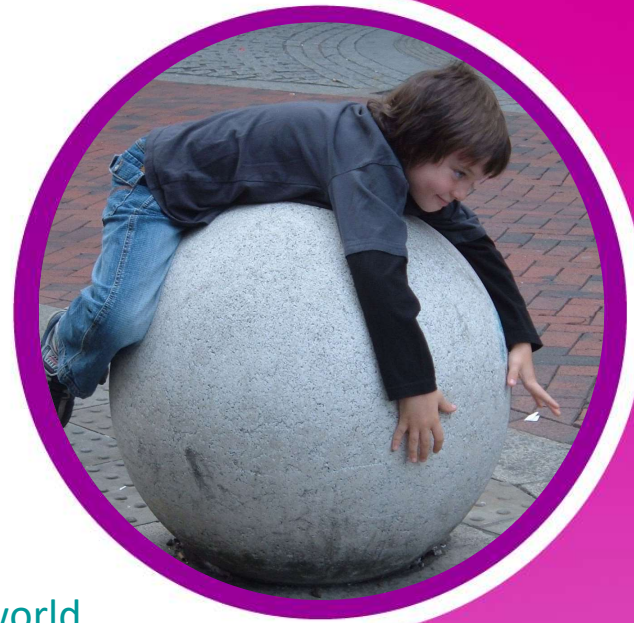
Children with ADHD have many positive qualities and talents:

- high energy
- creativity
- figuring out new ways of doing things

These are traits that are typically valued in the adult work world, that may cause difficulties for the students, parents and teachers

When they become adults, children with ADHD can be very successful

Having parents and teachers who believe in a child is essential for success!





THANKS FOR
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WANT TO GET IN TOUCH?

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