



# An introduction to executive function



Core executive function skills



Uses of executive function



Anatomy of the brain



Executive dysfunction



Improve executive function

## What is executive function?

**Executive function is a set of cognitive skills that allow people to:**



Organise thoughts



Prioritise tasks



Manage time



Make decisions



Follow directions



Understand instructions



Executive function is like the **management system** of the **brain**.








These mental functions help us **organise and manage** the many tasks in our **daily life**.



# What are core executive function skills?

There are different types of executive functions. These functions have individual roles, but work together when a person needs to achieve a goal.

## The basic areas of executive function are:

	<b>Attention control.</b> The ability to focus attention and concentrate on something specific.		<b>Cognitive flexibility.</b> The ability to switch from one mental task to another, to think about multiple things at once.
	<b>Cognitive inhibition.</b> The ability to tune out irrelevant information.		<b>Inhibitory control.</b> The ability to ignore distractions, impulses or desires to keep on-track with beneficial behaviours.
	<b>Working memory</b> The ability to hold several thoughts while problem solving or performing a task.		

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

<b>1</b>	<b>Self-awareness</b>	<b>2</b>	<b>Self-restraint</b>
<b>3</b>	<b>Non-verbal working memory</b>	<b>4</b>	<b>Verbal working memory</b>
<b>5</b>	<b>Emotional self-regulation</b>	<b>6</b>	<b>Planning/problem solving</b>
<b>7</b>	<b>Self-motivation</b>		



Anyone who exhibits symptoms of ADHD will have difficulty with all or most of these 7 executive functions. Essentially, ADHD is an executive function deficit disorder.

## Uses of executive function

Analysing information	Being able to focus on something
Keeping track of your behaviours	Making plans
Managing behaviour	Paying attention
Remembering important details	Staying organised or managing time

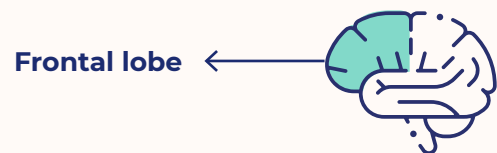
## The anatomy of the brain

### Brain regions involved in executive function and the ADHD brain

There are 4 circuits within the brain that explain where symptoms of ADHD originate. Depending upon which circuits are most and least impaired, you can see the variation in types of symptoms that any individual has.

### The “what” circuit

This is linked to **working memory** and is where our thinking guides what we do, such as when **planning and thinking** about the future.



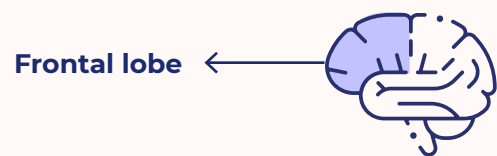
This circuit stems from the **frontal lobe** and goes back into an area of the brain called the **basal ganglia**.



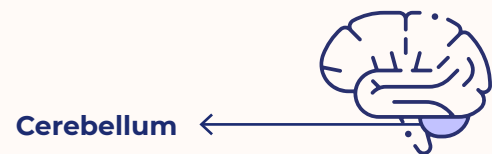


## The “when” circuit

This is the **timing circuit of the brain** - coordinating sequences of behaviour as well as when to do certain things.



This circuit stems from the frontal lobe and goes into a brain region called the **cerebellum**, at the very back of the brain.

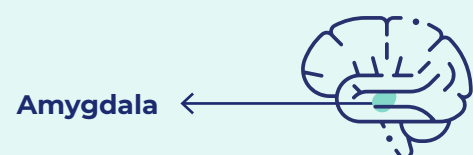


## The “why” circuit

This is linked to **emotions and is the decision maker** in all of our plans, helping to choose among options based on how we feel about them.



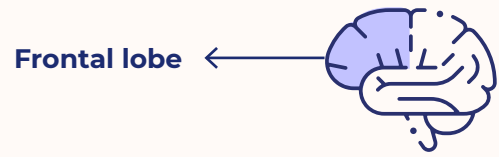
This circuit also originates in the frontal lobe and goes through the centre of the brain to the **amygdala**.



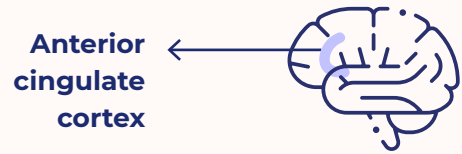


## The “who” circuit

This is where **self-awareness takes place**, it's where we're aware of what we do, how we feel, and what's happening to us.



This final circuit goes from the frontal lobe to the back of the frontal lobe, including the **insular cortex** and the **anterior cingulate cortex**.



## Impact of executive dysfunction

When there are problems with executive functions, people may struggle with different areas of life, including school, work, and relationships.

**People with impairments in executive functions can experience problems in several key areas:**

1

Organising, prioritising, and initiating tasks

2

Focusing, maintaining, and shifting attention

3

Regulating alertness, sustaining effort, and processing speed

4

Monitoring and self-regulating action – this can impact social relationships and impulsive reactions

5

Managing frustrations and regulating emotions

6

Using working memory and accessing recall

Disclaimer: These resources are shared to provide information and help with your reported symptoms/presentations. This does not confirm a diagnosis.



## Potential problems with executive dysfunction

Difficulties with executive functions **can affect people in different ways** and to differing degrees of severity. Some problems that people may experience include:

Anxiety when routines are disrupted	Always losing belongings
Always being late due to poor time management	Difficulty prioritising things
Problems completing tasks	Trouble controlling impulsive behaviours

## Ways to improve executive function

- 1** **Baby steps.**  
Break up large tasks into small steps.
- 2** **Check lists.**  
Create checklists for things you need to do.
- 3** **Transition time.**  
Give yourself time to transition between activities.
- 4** **Scheduling.**  
Make a schedule to help you stay on track.
- 5** **Visual aids.**  
Use visual aids to help you process or understand info.
- 6** **Take notes.**  
Write down due dates or important deadlines.

## General support

**Psychiatry UK**

The UK's leading online psychiatric service

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**NHS**

Helping you take control of your wellbeing

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