

# Executive Function Junction

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# Who is Nectar?

The Nectar Group is an education company dedicated to helping students overcome learning challenges so that they can reach their full potential. With our assessment-driven process, we use scientific tools to evaluate and pinpoint the root causes of learning difficulties. Then, we create custom solutions utilizing cognitive neuroscience to resolve those root issues.

- We optimize learning and take a holistic approach to improving school, work, and life performance by providing:
- Therapeutic interventions that are grounded in neuroscience to treat the causes of learning difficulties for all ages
- K-12 and collegiate level academic tutoring in reading, writing, and math to build solid content and prepare students for college and beyond
- Study skills and executive function coaching to ensure successful student outcomes
- One-to-one educational services via educational consulting, individualized schooling, and homeschool support

# Who do we work with?



Clients ages 6 and up



All types of diagnoses:

ADHD, Dyslexia, Autism Spectrum, “Slow Learners”, Gifted, Twice Exceptional, TBI



Students and adults looking for a competitive edge & college prep



Nectar provides all services to clients around the world via our unique eCoaching remote video services

# What is Executive Functioning?

The executive functions are a set of processes that all have to do with managing oneself and one's resources in order to achieve a goal. It is an umbrella term for the neurologically-based skills involving mental control and self-regulation.

The executive functions all serve a "command and control" function; they can be viewed as the "conductor" of all cognitive skills.

- Executive functions help you manage life tasks of all types. For example, executive functions let you organize a trip, a research project, or a paper for school.



# Executive Function – “Air Traffic Control”


Being able to focus, hold, and work with information in the mind, filter distractions, and switch gears is like having an air traffic control system at a busy airport to manage.

The junction where our cognitive skills and behavioral abilities to utilize and control them come together





# What Skills Make Up Executive Functioning?

1. Response Inhibition
  2. Emotional Control
  3. Sustained Attention
  4. Organization
  5. Flexibility
  6. Goal Directed Persistence
  7. Working Memory
  8. Task Initiation
  9. Planning and Prioritization
  10. Time Management
  11. Metacognition
  12. Tolerating Stress
- 

## Executive Functions

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graph TD; EF[Executive Functions] --- A[ACTIVATION: Organizing, prioritizing, and activating to work]; EF --- F[FOCUS: Focusing, sustaining and shifting attention to task]; EF --- E[EFFORT: Regulating alertness, sustaining effort, and processing speed]; EF --- EM[EMOTION: Managing frustration and modulating emotions]; EF --- M[MEMORY: Utilizing working memory and accessing recall]; EF --- ACT[ACTION: Monitoring and self-regulating action];
```

**ACTIVATION:**  
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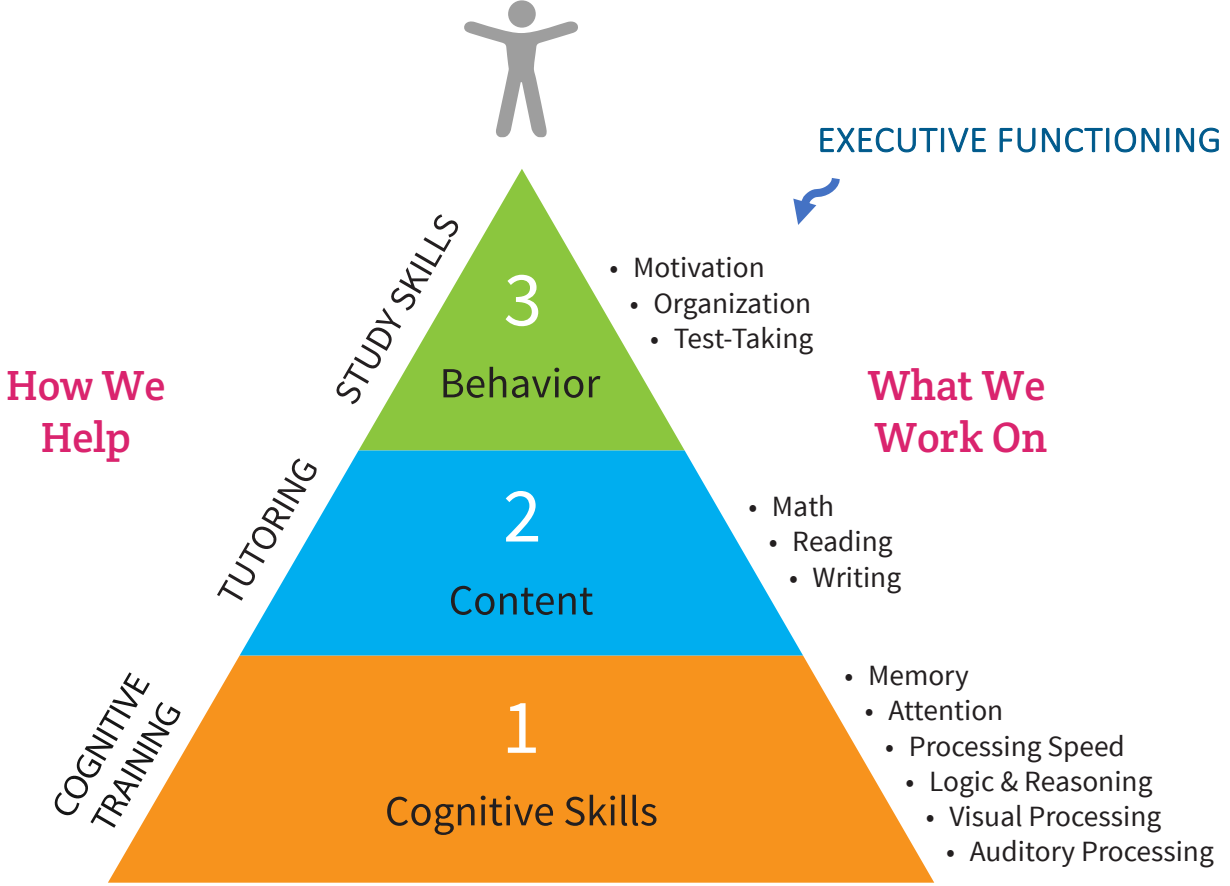
**ACTION:**  
Monitoring and  
self-regulating  
action

Source: Dr. Thomas Brown

# How do we address executive function deficits?



# The Potential Pyramid™



# Why Assessment is so important for Executive Function!

Find the ROOT CAUSE to treat it!

Symptoms vs Causes

Different treatments for different causations

- Is it cognitive or behavioral?



# **Executive Functions Questionnaire**



# Assessment Options

## Comprehensive Cognitive Assessment

- Non-diagnostic, identification of root causes & treatment plan

## Psychoeducational Assessment

- Full diagnostic assessment, identification of root causes, diagnosis and treatment plan. Includes cognitive, as well as:
- Behavioral – BRIEF, BASC and Connors , DKEFS
- Attention and Focus (IVA-2 or Connors Continuous Performance Test)



# Recommendations for Student Growth





# Can Executive Function Weaknesses be Improved or Cured?

Spectrum: Mild, Mild-Moderate, Moderate, Moderate-Severe, Severe

Effective treatment moves one to the less severe end of the spectrum, and in some cases off the spectrum where diagnostic criteria are no longer met

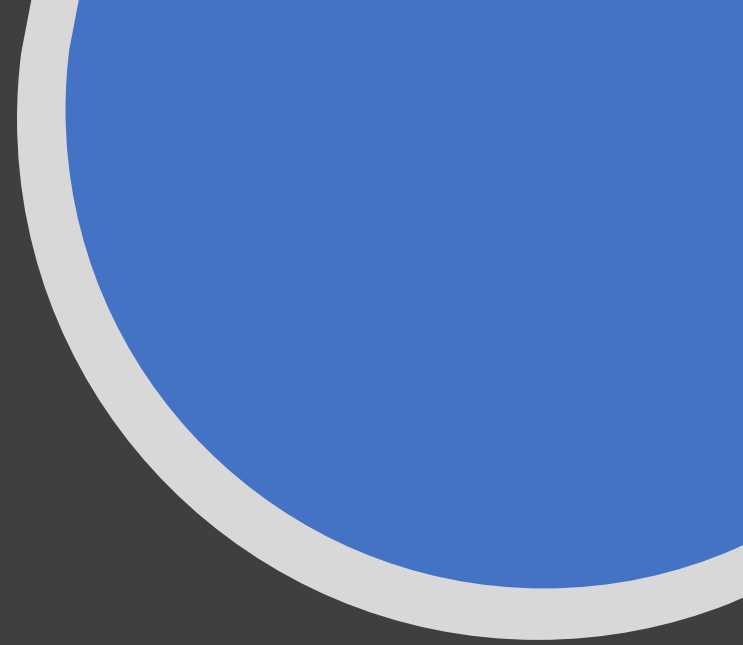
Two approaches: Compensation through accommodation/modification or overcoming through treatment/intervention of the root causes

# The difference between compensatory measures and treatment:

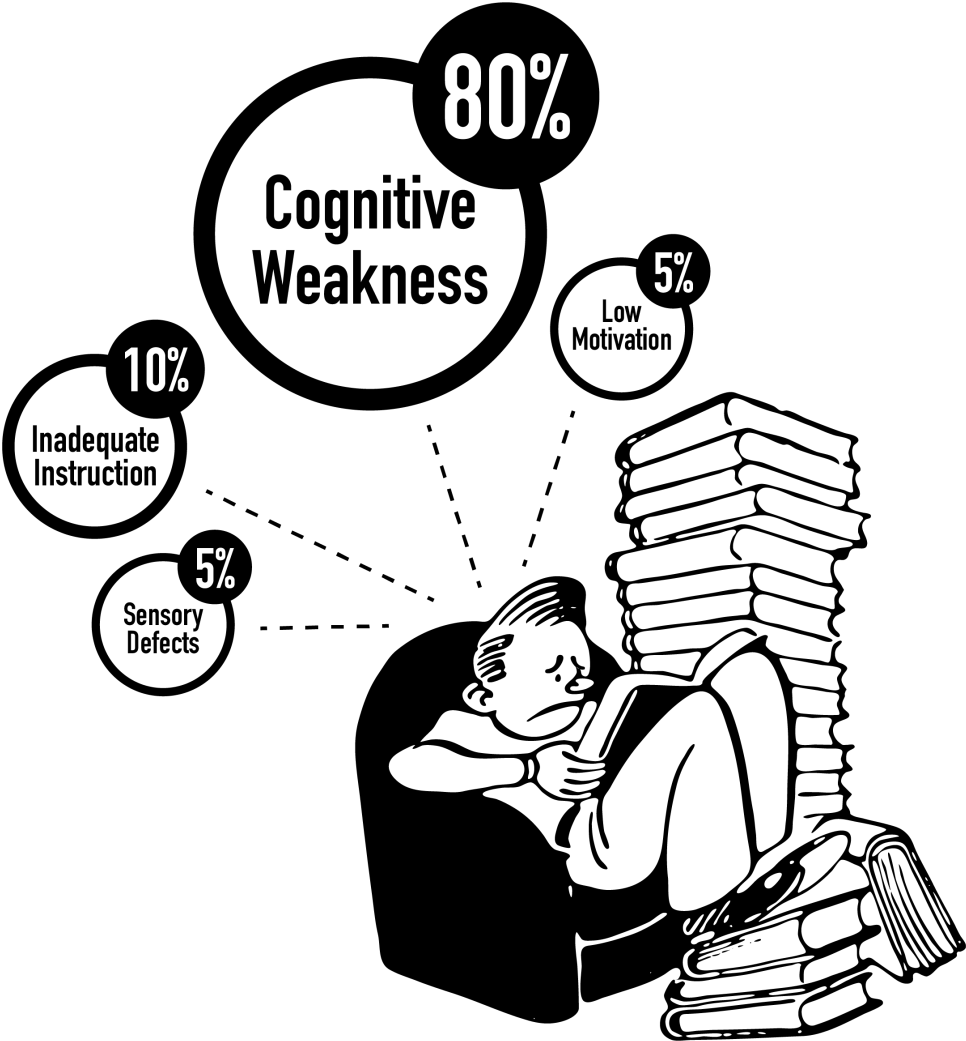
Compensatory measures focus on coping with the disability and symptom management

Intervention focuses on overcoming the disability by treating the root cause

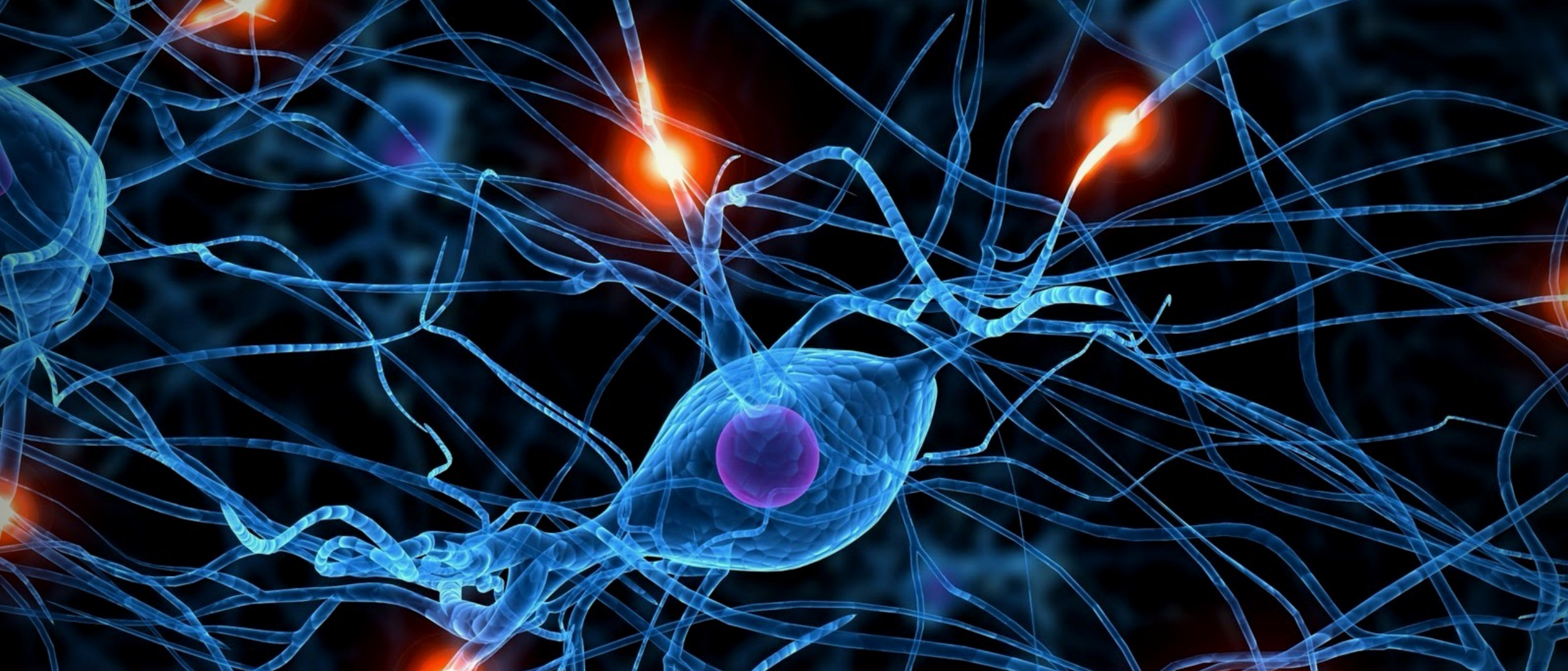
# Treatment through Intervention



# Causes of Learning and Executive Function Difficulties







# Neuroplasticity



# Neuroplasticity

**HEBB'S LAW: Neurons that fire together, wire together ( 1949)**


**“Your brain – every brain- is a work in progress. It is ‘plastic’. From the day we’re born to the day we die, it continuously revises and remodels, improving or slowly declining, as a function of how we use it (Merzenich).”**

# Cognitive Training

- Cognitive assessment to pinpoint specific cognitive strengths and weaknesses
- One-to-one intensive coaching that targets cognitive deficits
  - Works by stressing a weak area through mental exercise, encouraging the brain to build new neural networks
  - Neurons that fire together, wire together! (Hebb's Law)
  - Corrective measure that improves the primary underlying causes of learning disabilities and executive function deficits: weak cognitive skills



# **Accommodations & Modifications**





**Our Goal =  
Helping Kids  
Build SYSTEMS**

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# 1. Activation: Organization & Prioritization

Students who struggle with this might struggle to get tasks done until it's an emergency or underestimate time needed to complete work.

How to Help:

## Visual Calendars

Anticipating what is coming in the schedule can allow the brain to start self-regulation of transition without you even knowing

Helps diminish impulsivity caused by working memory deficit of "what's left" or next

Also allows the child to build responsibility to move into next subject if the prior task is completed







## 2. Focus, Sustaining, and Shifting Attention to Tasks

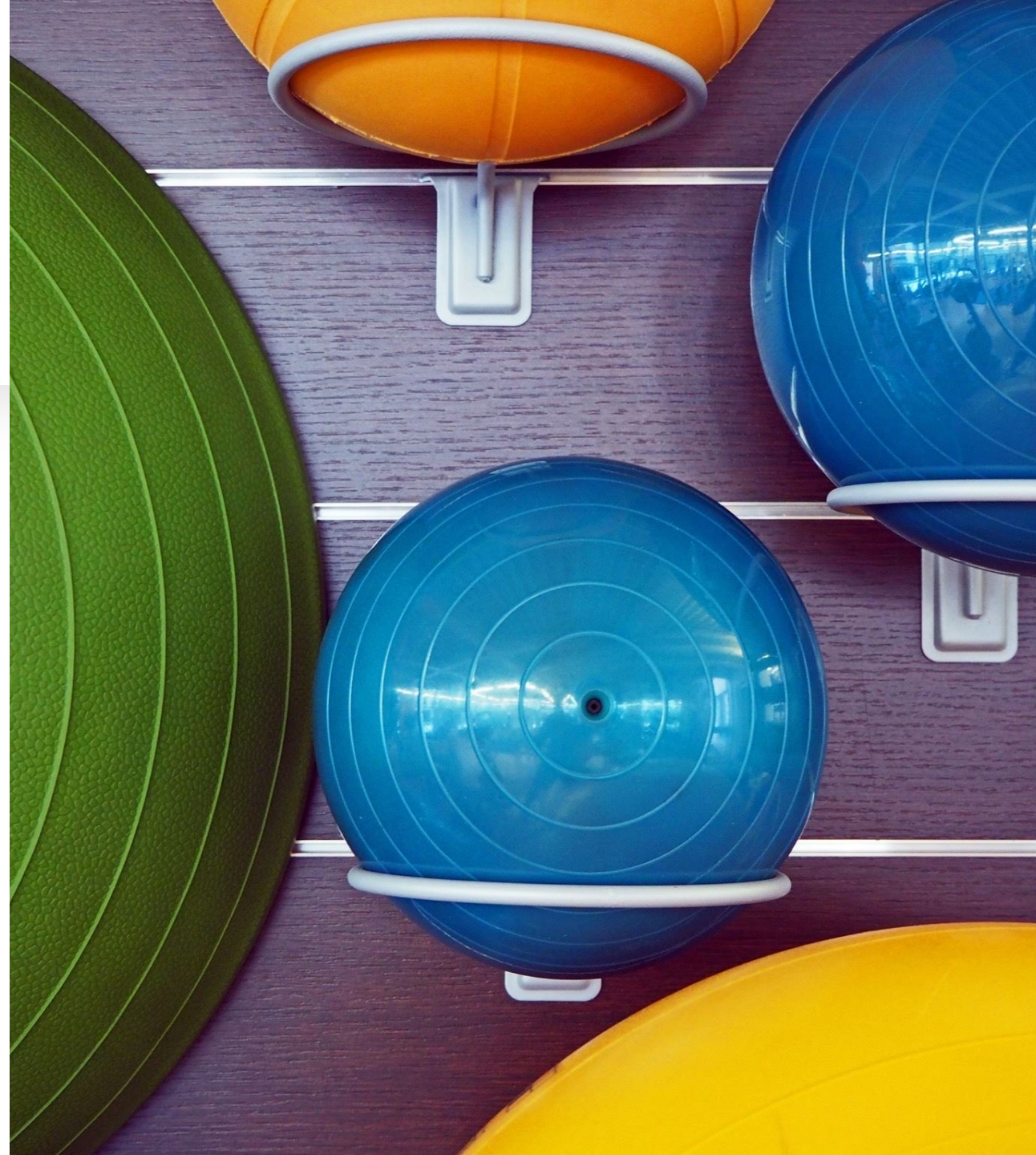
- Pomodoro Technique
- Start with shorter focus blocks and build up
  - Ex: 5-10 minutes with a hand's on math lesson, then transition to 5-10 minutes of whiteboard practice, then 5-10 minutes of math facts games
- Also helps with “hyperfocus” – limiting time to prioritize all tasks





# ADHD and Executive Function

- Build in variety and choice to help utilize natural attention
- Explore optimum work times
- Minimize External Distractibility
  - How do we help students block out distractions?
  - Think of the 5 senses
    - (Ex: Sound cancelling headphones for siblings)



# Logistics for Optimizing Environment

- Choose a space outside the bedroom where technology and distractions can be minimized
- Have all the materials a student might need at their station
- Keep the space organized and devoid of clutter
- Desks facing wall, no extra stimuli on desk



# 3. Regulating Alertness, Sustaining Effort, and Processing Speed



Optimize time of day for learning and which subjects require the most energy and sustained effort



Maintain blood sugar with brain healthy snacks



Allow for enough time to process, especially working through multi-step work



## 4. Managing Emotional Control

The ability to manage emotions in order to achieve goals, complete tasks, or control and direct behavior

Reduce and  
eliminate  
emotional  
triggers

Explore and  
rehearse healthy  
coping  
mechanisms

Build logic and  
reasoning skills to  
help your child be  
able to utilize

Encourage  
breaks!

# Tolerating Stress

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- Have emotion check-ins
- Model and teach healthy coping mechanisms
  - Self-care, exercise, fun family activities
- Take time to recharge and build in breaks



## 5. Working Memory and Accessing Recall

The ability to hold information in memory while performing complex tasks.

### “Off-loading”

- Teach your child to write checklists
- Write down instructions for them- especially multi-step tasks
- When possible/appropriate, audio record directions or lectures

Use flow-chart to indicate steps in longer assignments

Use a color-coding scheme to prioritize tasks

- Multi-step math problem
- Outline for steps of writing



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## Working Memory & Attention

- “Neuroscientists studying memory functions have argued that what is currently referred to as working memory is not simply a memory unit of the mind, but a complex system that involves both “working attention” and “working memory” serving together to manage the continuous flow of information in the mind (Brown).”
- **By bringing up the working memory through cognitive training, you actually solve MANY attention and executive functioning issues from the root.**



# 6. Monitoring and Self-Regulating Action

**Metacognition: The ability to stand back and take a birds-eye view of oneself in a situation.**

- Have discussion with your children about their behaviors and performance
- Ask them:
  - What's your problem?
  - What's your plan?
  - Are you following your plan?
  - How did you do?



# Helping Students to Self-Evaluate and Build Skills

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- Helping students practice situations / contexts:
  - Evaluating the person and place
  - Gauging the emotions of others
- Hyperfocus on other's reactions or being self-conscious
  - Help them debrief the situation and ease their anxieties

A stack of three books is shown against a red background. The top book has a blue cover, the middle one has an orange cover, and the bottom one has a yellow cover. The words 'REFLECT', 'RETHINK', and 'REVISE' are written in large, bold, black letters on the spines of the books, with the first letter of each word in red.

REFLECT

RETHINK

REVISE

# Goal Directed Persistence

The ability to have a goal, follow through to the completion of the goal and not be put off by or distracted by competing interests



Set SMART Goals

Specific, Measurable, Attainable,  
Realistic, Time-framed

Break goals into smaller, more  
manageable steps.



Reward your child!

# Intervention to Address EF Weaknesses

- Testing to pinpoint root cause

Based on root cause:

## Functional Interventions

- Cognitive Training
- Academic Coaching
- Executive Function/Study Skills Coaching

## Emotional Interventions

- Counseling/Play Therapy
- Neurofeedback (if trauma related)
- Social Skills Groups

# Study Skills and Executive Function Coaching



Time Management and Organization



Study Hacks and Habits



Responsibility and Self-Advocacy



Study Strategies



Critical Thinking Skills



Note-taking



Test-taking Strategies




# Psychological Interventions



- **Counseling (talk therapy, play therapy and art therapy)**
  - Learn and practice strategies to mitigate executive function weaknesses
  - Help increase coping with the emotional impacts of symptoms
  - Learn how to challenge negative thinking and build self-esteem.
- **Parent Coaching**
  - Emotional and intervention support for parents
  - Teaching specific discipline techniques that are proven to be effective in reducing behavior problems
  - Learn how to communicate more effectively and increase familial coping
  - Parent Child Interaction Therapy



# How The Nectar Group Can Help

- Psychoeducational assessments to diagnose learning disabilities and disorders.
  - Cognitive assessments to pinpoint strengths and weaknesses and determine intervention.
  - Cognitive Skills Training to strengthen key skills such as working memory, attention, and logic and reasoning.
  - Individual tutoring to fill academic gaps resulted from poor executive function.
  - Executive Function and Study Skills Coaching to improve skills such as self-advocacy, study skills, time management, and organization.
  - Free phone consultations to determine best next steps.
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# Thank you so much for your time!



Feel free to contact us at:



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