

# INTRODUCTION TO EXECUTIVE FUNCTIONS

Jennifer Sato, MA, OTR/L
Los Angeles Unified School District
October 2026

# OBJECTIVES

| | | |
|---|---|---|
| 01 | WHAT ARE EF? | Participants will describe executive functions and the hierarchy of components |
| 02 | EF IN DEVELOPMENT | Participants will explain EF in relation to child development |
| 03 | EF DEFICITS IN SCHOOL | Participants will discuss what EF deficits look like in school |
| 04 | SCHOOL BASED OT ROLE IN EF | Participants will recognize the role of the school-based OT in addressing EF |

# WHAT ARE EXECUTIVE FUNCTIONS?

Executive functions are the underlying mechanisms necessary for an individual to effectively participate in self-directed, complex and non-routine activities across varied environments (Josman and Meyer, 2019).

While there are many definitions of executive functions, experts from all fields believe that these are the brain functions that allow humans to interact with the world, communicate, and participate.



# EXECUTIVE FUNCTION HIERARCHY

| | |
|---|---|
| Occupational Performance | observable, integrated action |
| Functional Behavioral Components | initiation, self monitoring, emotional control, organization of materials, task completion |
| Higher Order Constructs | planning, problem solving, reasoning, organization |
| Core Foundational Components | inhibition, working memory, cognitive flexibility |



# CORE FOUNDATIONAL COMPONENTS



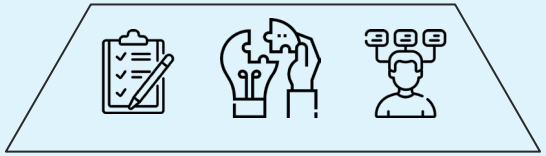
These 3 primary core components are the building blocks for more complex skills

•Inhibitory Control (Inhibition): The ability to control impulses, suppress automatic or dominant responses, and resist distractions to respond appropriately to a situation. It is often identified as the most significant EF factor influencing participation in early childhood.

•Working Memory: The capacity to hold information mentally and manipulate, associate, or use it for higher-level cognitive tasks. It is essential for learning, following multi-step instructions, and solving complex problems.

•Cognitive Flexibility (Shifting): The ability to adapt thinking, shift between different tasks or mental states, and change perspectives in response to new environmental demands.

# HIGHER ORDER & ADVANCED COMPONENTS



Building upon the core skills, individuals develop advanced constructs necessary for navigating novel and goal-oriented situations

- Planning: The overarching ability to identify and select the necessary steps in advance to achieve a future goal. It is the most frequently cited component in OT literature.
- Problem-Solving: The process of reasoning through actions to generate solutions to novel or complex challenges.
- Reasoning: The ability to think logically and apply acquired knowledge to make decisions.
- Organization: The systematic arrangement of thoughts, materials, and actions to complete tasks efficiently.

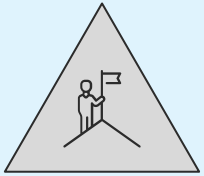
# FUNCTIONAL BEHAVIORAL COMPONENTS



Using an OT lens, you can think of this as daily observable behaviors:

- Initiation: The ability to start or begin an activity or task without hesitation.
- Self-Monitoring/Task Monitoring: The capacity to check, update, and keep track of one's own performance to recognize when a switch in strategy or a next step is required.
- Emotional Control: The ability to modulate, express, and experience emotional reactions appropriately to serve goal-directed behavior.
- Organization of Materials: The ability to manage the physical environment and belongings needed for daily tasks.
- Task Completion/Termination: The ability to follow through until a task is finished and stop a behavior when it is no longer appropriate.

# OCCUPATIONAL PERFORMANCE

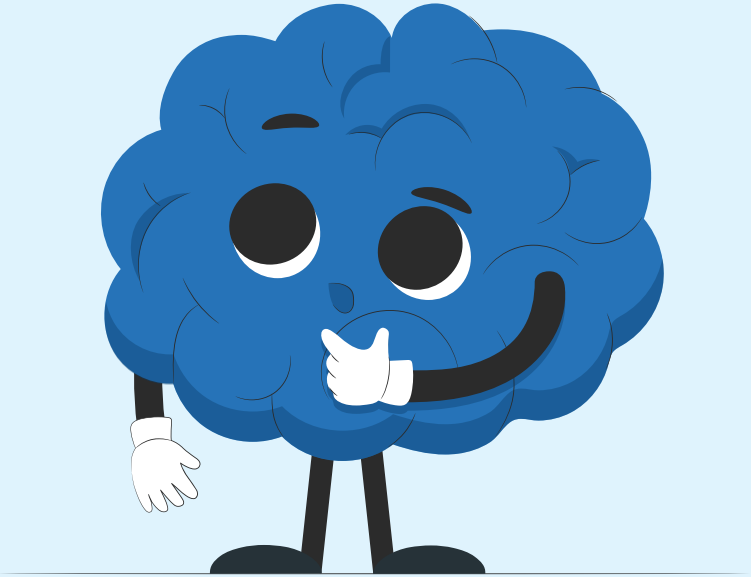


The successful integration of executive skills in real-world occupations

- IADLs
- School Performance
- Work Performance

# EF DEVELOPMENT

The development of executive function (EF) in children begins in infancy and continues through adolescence into early adulthood. Often conceptualized as the brain's "air traffic control system," these higher-order cognitive processes allow children to manage their thoughts, emotions, and actions to achieve goals (Doebel, 2020).



# EF DEVELOPMENT

## EXECUTIVE FUNCTIONING SKILL DEVELOPMENT BY AGE

Life Skills ADVOCATE

| | PLANNING | TIME MANAGEMENT | TASK INITIATION | ORGANIZATION | PROBLEM SOLVING | FLEXIBILITY | WORKING MEMORY | EMOTIONAL CONTROL | IMPULSE CONTROL | ATTENTIONAL CONTROL | SELF-MONITORING |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **INFANT (0-24 MONTHS)** | • Focusing for objects.<br>• Pointing & grabbing. | | | • Shows interest in color, size, shapes.<br>• Beginning matching skills. | • Engages in cause and effect play.<br>• Figuring out 'how things work' through simple body movements and basic play skills. | • Older children in this range play simple role play or imaginative play games. | • Plays hide-and-seek and simple recall games<br>• Participates in and enjoys familiar rhymes and songs. | | | • Plays simple games like peek-a-boo and pat-a-cake.<br>• Imitation and copying behaviors emerge. | |
| **TODDLER (2-4 YEARS)** | • Understands simple instructions and can run simple errands. | • Beginning understanding of time concepts including seasons, days, weeks, etc.<br>• Follows visual picture schedules to order tasks.<br>• Practices waiting. | • Able to independently start and complete tasks that take up to 10 minutes. | • Understands categories and patterns.<br>• Can sort toys and objects by function, form, and class.<br>• Cleans up toys and belongings with adult assistance. | • Completes simple puzzles and games that combine language and movement to accomplish a goal.<br>• Decision-making and turn-taking during play promote basic problem solving. | • Beginning skills to shift between activities.<br>• Sometimes able to manage transitions and unexpected changes without upset. | • Follows along to songs and fingerplays with many steps and movements. | • Labels own emotions and the emotions of others.<br>• May often have tantrums or upset when frustrated, tired, or overwhelmed, requiring adult comfort to soothe. | • Plays active inhibition games like musical chairs and freeze dance.<br>• Learns to inhibit safety-related behaviors like touching a hot stove and street safety. | • Able to direct attention to objects and activities for longer periods of time.<br>• Responds to adult cues and redirections back to 'pay attention' when needed. | • Talks about own feelings and connects simple behaviors with emotions.<br>• Plays along with other children, directing play and accepting play ideas. |
| **EARLY LEARNER (5-12 YEARS)** | • Able to follow a planned out set of steps to meet an end goal.<br>• Plays fast moving games and games requiring strategy and planning ahead. | • Developing time estimation and a sense of how long tasks will take.<br>• Beginning skills to manage leisure time and required tasks. | • Able to independently start and complete tasks that take between 30-60 minutes. | • Able to organize and sequence stories.<br>• Can follow simple checklists.<br>• Gathers materials for familiar routines, often with adult assistance and reminders. | • Identifies and defines problems to many simple social and academic tasks.<br>• Emerging skills to brainstorm and break apart problems to identify solutions. | • Participates in organized social activities like sports, clubs, and activities where unpredictable events occur.<br>• Often uses adult support to dynamically adjust. | • Independent with puzzles, logic games, and coordinated group activities.<br>• Able to collect information and apply it to new settings. | • Learns to control tantrums and frustrations without adult comfort. | • Follows safety rules and most social norms for behavior.<br>• Behavior maintains when teachers or adults are not around. | • Able to save money for desired objects.<br>• Developing note taking, reminders, and planning tools to help sustain attentional control. | • Able to complete activities like journaling to reflect on own behavior.<br>• Checks own work for simple mistakes. |
| **TEEN (13-18 YEARS)** | • Able to independently plan out the steps of homework or important projects to meet an end goal.<br>• Works in a group of peers to plan social activities and events. | • Estimates how long it takes to complete tasks and adjusts working speeds to fit.<br>• Understands and works to avoid the consequences of ineffective time management. | • Able to independently start tasks that take between 60-90 minutes. | • Follows complex school schedules combines with home routines.<br>• Able to use systems for organizing schoolwork and activities. | • Independently identifies problems at home, school, and with friends.<br>• Able to sort out many conflicts and make decisions about complex problems independently. | • Able to manage many unpredictable changes to schedules and routines, but may sometimes need adult support to identify strategies to dynamically adjust. | • Manages complex tasks requiring integration and application of new information, demonstrating advanced working memory through independent multi-step projects and assignments. | • Greater understanding of others' emotions, including empathy and a desire for social change.<br>• May experience 'adult feelings' but not have experience yet in how to manage them. | • Greater risk-taking behaviors.<br>• May begin to test some adult safety behaviors and social norms.<br>• May engage in self-talk to help manage impulses. | • Able to save money for desired objects as well as creates and executives plans to earn money for desired items.<br>• Beginning mindfulness of distractions, but may need adult support to maintain. | • Able to monitor performance and adjust/improve.<br>• Uses tools to monitor behavior.<br>• May recruit adult feedback or need reminders from coaches, parents, friends, teachers, |

Used with permission from Chris Hanson, lifeskillsadvocate.com

# CONTEXT OF EF

Executive function development is highly situated, dynamic, and continuously shaped by context

- Environment
- Social
- Personal, Cultural, and Experiential Factors

Executive function skills thus need to be developed in real-world settings and situations.

# EARLY CHILDHOOD

Infancy (0-2 years): Rudiments of EF, such as focused attention and simple inhibitory control (e.g., delaying eating a treat), are visible within the first year of life.



Toddlerhood (2-4 years): Children show rapid improvements in working memory and the ability to follow simple instructions. By age three, they begin to succeed at simple conflict tasks but often struggle to integrate multiple rules simultaneously.

Preschool Transition (3-5 years): This period marks a "first leap" in development. Around age four, most children gain the cognitive flexibility to switch between different rules, such as sorting cards by color and then by shape in the Dimensional Change Card Sort (DCCS) task.

# MIDDLE CHILDHOOD

Significant refinement occurs during the school years as tasks become more complex and environmental demands increase (ages 6-12).



Core Skills Consolidation: Performance on inhibitory control and working memory tasks shows large improvements from ages five to eight, followed by more gradual refinements.

Linear Growth: Working memory capacity generally follows a linear developmental trajectory from age 4 to 14, while cognitive flexibility continues to mature until early adolescence.

Emergent Metacognition: Children begin to develop the ability to monitor their own thinking, check for mistakes, and adjust their strategies based on feedback.

# ADOLESCENCE

Refinement of Complex EFs: Skills like planning, prioritizing, and organization develop primarily in late childhood and adolescence.



Neural Maturation: This period involves significant adjustments in the prefrontal cortex (PFC), including synaptic pruning and increased myelination, which lead to more efficient and localized brain activity.

Goal Mastery: Older adolescents learn to develop and maintain multiple plans at once and establish long-term future goals.

# ADOLESCENT EXECUTIVE DYSFUNCTION

In daily life, typical adolescent EF looks like the ability to establish long-term goals, save money for desired items, and handle unpredictable changes in routines with minimal support.

However, when executive function deficits (EFDs) are present, they often "mask" an adolescent's true potential.

- These individuals may appear disorganized, forgetful, and lacking in initiative
- Because they struggle to start tasks or prioritize assignments, they are frequently misunderstood by adults as being lazy, unmotivated, or procrastinating
- In high school, these deficits are strongly associated with lower GPA and academic disengagement.

Additionally, the adolescent brain's socioemotional network (linked to the limbic system) matures before the control network is fully developed. This can lead to a "gap" where motivation for social consequences or peer approval can override academic goals or impulse control, resulting in increased risk-taking behavior

# EXECUTIVE DYSFUNCTION IN SCHOOL

EFDs in the school environment can be cognitive or affective in nature.

Cognitive deficits often manifest as academic difficulties, while affective deficits are often viewed as behavioral problems.



# COGNITIVE DEFICITS OF EF

- Disorganization
- Lack of initiation
- Appear to be forgetful
- Off-task behavior
  - Requires frequent prompts and cues
  - Require visual reminders
- Working memory
  - Difficulty with note taking
  - Mental math
- Completion of large projects
- Appear to be lazy
  - Procrastinators
- Difficulty with time management
- No long-term planning
- Difficulty meeting deadlines

# AFFECTIVE DEFICITS (BEHAVIORAL)

- Struggle with resisting temptation
- Impulsive: do not think before they act
- No filter
- Extreme emotional lability
- Difficulty with emotional regulation
- Do not handle change well
- Blurting out answers in class
- Cannot wait their turn
- Start answering questions before the entire question is asked
- Often lose things
- Low frustration tolerance
- Lazy, unmotivated, forgetful
- Missing assignments
- Defiant
- Socially inappropriate
- Poor choice making (do not learn from past mistakes)

# ADULT MISUNDERSTANDING

One of the most pervasive aspects of EFDs in school is how they are perceived by adults.

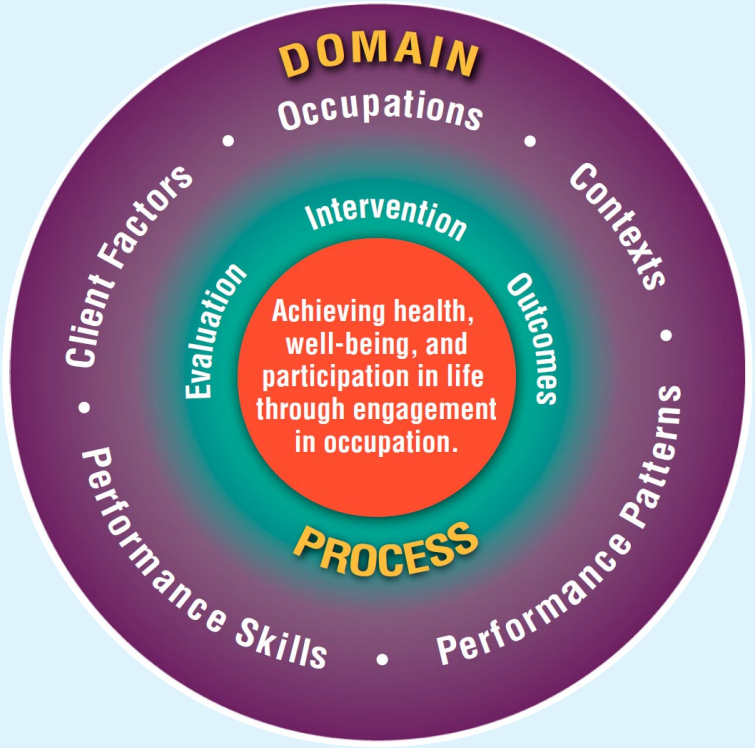
- Labeling and Misinterpretation: Teachers and parents often misunderstand EFD symptoms as laziness, a lack of motivation, or willful misbehavior. They may assume the child has voluntary control over these behaviors and is "doing it on purpose".

- Academic and Mental Health Impact: If unrecognized, these deficits lead to a maladaptive cycle of failure, reduced self-efficacy, and a lower GPA. This places students at high risk for school refusal, academic disengagement, and secondary mental health issues like depression and anxiety.

- Students with executive function deficits in school look like a disconnect between a student's potential and their actual performance, characterized by disorganization, forgetfulness, and a constant need for prompts and cues to navigate the standard school routine.

(Cramm et al 2013, Otero et al, 2014)

# OT PRACTICE FRAMEWORK




The OTPF4 categorizes Executive Functions under as a component of Client Factors specifically located under higher-level cognitive functions within the subcategory of specific mental functions.

Executive functions are grouped together with other high-order process such as judgment, concept formation, metacognition, cognitive flexibility, insight, and praxis.

Executive functions are intimately connected to complex goal-directed behaviors across all life domains

The OTPF-4 also identifies self-regulation as a specific focus for intervention, stating that these approaches can be used to address executive functioning to support engagement in meaningful occupation

# EF WITHIN THE CONTEXT OF OT

In the larger context of OT, the focus shifts from viewing EF as a set of isolated brain functions to viewing it as **functional cognition** or **executive occupational performance**.

- Contemporary OT practice emphasizes a **"top-down," occupation-based perspective**
- EF is inextricably linked with **self-regulation** (the ability to monitor and modulate cognition and behavior)
- Assessment tools for EF don't look at **occupational performance.** Traditional paper tests are parent questionnaires (*eg.,* BRIEF-2) lacks occupational-based contexts (Gomez, et al, 2021).
- Despite its importance, there is **no single, universally accepted definition of EF** within the OT profession.

(Cramm et al, 2013)

# EF AND SENSORY PROCESSING

EF and sensory processing (SP) are interrelated cognitive and neurobiological systems that act in tandem to support purposeful, goal-directed behavior. This interaction is viewed as a dynamic relationship where sensory input provides the foundation for action, while executive functions provide the top-down control to regulate responses to those stimuli (Romero-Ayuso et al, 2020).

- Research indicates a strong positive relationship between sensory processing difficulties and executive function deficiencies.
- Typical responses to sensory experiences are associated with typical executive abilities, whereas increased sensory reactivity (hypersensitivity) is linked to decreased executive abilities, increased impulsivity, and reduced on-task behavior.
- Specific Predictors: Sensory processing factors have been found to be predictive of emotional, cognitive, and global regulation aspects of EF. For example, a child's ability to plan and generate ideas within a sensory context is significantly correlated with their overall executive regulation.
- Difficulties in modulating auditory and tactile stimuli are particularly vital indicators of a child's ability to maintain attention, emotional self-regulation, and adaptability.
- Both interoceptive awareness and executive functioning activate similar regions of the brain, notably the anterior cingulate cortex, inferring a neurobiological link between emotional awareness and emotional control.
- Practitioners often misattribute executive dysfunction to sensory or motor factors. For example, a child who struggles to start a task may be viewed as having a sensory integrative praxis issue when the root may be an executive impairment in initiation.
- OTs use sensory strategies as preparatory measures to support EF. By reducing sensory demands (e.g., using noise-canceling headphones for a child agitated by noise), therapists can help a child improve their effortful control and focus their EF resources on task completion.

# HOW CAN OT ADDRESS EF?

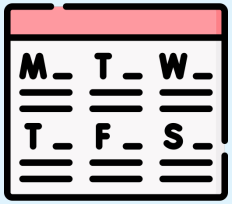
- Occupational Profile
- Cognitive Orientation to daily Occupational Performance
- External Supports



Checklists



Visual Timers




Day Planners

- Task Modification: “Chunk" complex tasks into smaller, manageable steps or simplify instructions to match a student’s capacity (Cramm et al, 2013).

# HOW CAN OT ADDRESS EF?

- Environmental modifications such as preferential seating, reducing sensory distractions (like noise or clutter), and adapting social demands to improve focus and participation

- Strategies such as using noise-canceling headphones, tactile fidgets, or inflatable cushions meet underlying sensory needs, which frees up cognitive resources for EF tasks (Diamant and Smet, 2024).






- Programs such as The Alert Program ("How Does Your Engine Run?") and Zones of Regulation help students monitor and modulate their arousal levels to facilitate better emotional and impulse control (Josman and Meyer, 2019).

Effective intervention requires interprofessional collaboration and family-centered coaching. OTs work with parents and teachers to reframe a child's struggles from "willful misbehavior" to an occupational performance problem resulting from EF deficits (Engel-Yeger et al, 2024).

# REFERENCES


Akyurek, G., Aygun Gurbuz, D., &Ece Irmak, D. (2024). Comparison of the executive functions, occupational performance and perceived occupational proficiency in children with neurodevelopmental disorder. Journal of Occupational Therapy, Schools, & Early Intervention, 17(2), 348-365. https://doi.org/10.1080/19411243.2023.2203417

American Occupational Therapy Association. (2020). Occupational therapy practice framework: Domain and process (4th ed.). American Journal of Occupational Therapy, 74(Suppl. 2), 7412410010. https://doi.org/10.5014/ajot.2020.74S2001

Best, J. R., &Miller, P. H. (2010). A developmental perspective on executive function. Child Development, 81(6), 1641–1660. https://doi.org/10.1111/j.1467-8624.2010.01499.x

Bishop, C., Brown, T., &Yu, M.-L. (2023). The relationship between interoceptive awareness and executive function in school-age children. British Journal of Occupational Therapy, 86(2), 116–129. https://doi.org/10.1177/03080226221128184

Bausela Herreras, E. (2024). Comparative study of the development of executive functions in children: Transition from the first cycle to the second cycle of early childhood education. Brain Sciences, 14(12), 1273. https://doi.org/10.3390/brainsci14121273

Brown, T., Swayn, E., Lyons, C., Chu, E., &Taylor, J. (2021). The relationship between children's sensory processing and executive functioning: An explanatory study. Korean Journal of Occupational Therapy, 29(1), 129-145. https://doi.org/10.14519/kjot.2021.29.1.10

Cramm, H., Krupa, T., Missiuna, C., Lysaght, R. M., &Parker, K. C. H. (2013). Broadening the occupational therapy toolkit: An executive functioning lens for occupational therapy with children and youth. American Journal of Occupational Therapy, 67(6), e139–e147. http://dx.doi.org/10.5014/ajot.2013.008607

Cramm, H. A., Krupa, T. M., Missiuna, C. A., Lysaght, R. M., &Parker, K. H. (2013). Executive functioning: A scoping review of the occupational therapy literature. Canadian Journal of Occupational Therapy, 80(3), 131–140. https://doi.org/10.1177/0008417413496060

Cramm, H., Krupa, T., Missiuna, C., Lysaght, R., &Parker, K. C. H. (2016). The expanding relevance of executive functioning in occupational therapy: Is it on your radar? Australian Occupational Therapy Journal, 63(3), 214–217. https://doi.org/10.1111/1440-1630.12244

Diamant, R. B., &Smet, N. (2024). Relationships between sensory processing, temperament characteristics for effortful control, and executive function in school-age children. The Open Journal of Occupational Therapy, 12(1), 1-14. https://doi.org/10.15453/2168-6408.2164

Doebel, S. (2020). Rethinking executive function and its development. Perspectives on Psychological Science, 15(4), 942–956. https://doi.org/10.1177/1745691620904771

# REFERENCES


Engel-Yeger, B., & Mevorach Shimoni, M. (2024). The contribution of atypical sensory processing to executive dysfunctions, anxiety and quality of life of children with ADHD. Occupational Therapy in Mental Health, 40(2), 103-122. https://doi.org/10.1080/0164212X.2023.2220975

Ferguson, H. J., Brunsdon, V., & Bradford, E. (2021). The developmental trajectory of executive function from adolescence to adulthood. Scientific Reports, 11, Article 442. https://doi.org/10.1038/s41598-020-80866-1

Fogel, Y. (2025). The feasibility and effectiveness of dynamic testing with prompts for adolescents with executive function deficits. Hong Kong Journal of Occupational Therapy. Advance online publication. https://doi.org/10.1177/15691861241285324

Fogel, Y., Rosenblum, S., & Josman, N. (2020). Environmental factors and daily functioning levels among adolescents with executive function deficits. British Journal of Occupational Therapy, 83(2), 88–97. https://doi.org/10.1177/0308022619876557

Fogel, Y., Rosenblum, S., & Josman, N. (2021). Participation patterns of adolescents with and without executive function deficits: Parents' perspectives. Journal of Occupational Therapy, Schools, & Early Intervention, 14(3), 325-342. https://doi.org/10.1080/19411243.2020.1862728

Fogel, Y., Rosenblum, S., & Josman, N. (2021). Functional individualized therapy for teenagers with executive deficits: A pilot study. Annals of International Occupational Therapy, 4(2), e104–e117. https://doi.org/10.3928/24761222-20201111-01

Gomez, I. N. B., Palomo, S. A. M., Vicuña, A. M. U., Bustamante, J. A. D., Eborde, J. M. E., Regala, K. A., Ruiz, G. M. M., & Sanchez, A. L. G. (2021). Performance-based executive function instruments used by occupational therapists for children: A systematic review of measurement properties. Occupational Therapy International, 2021, Article ID 6008442. https://doi.org/10.1155/2021/6008442

Hammud, G., Avital-Magen, A., Schusheim, G., Barzuza, I., & Engel-Yeger, B. (2023). How self-regulation and executive functions deficits affect quality of life of children/adolescents with emotional regulation disorders. Children, 10(10), 1622. https://doi.org/10.3390/children10101622

Heaps, A. (2025). How does the literature conceptualise executive functions in occupational therapy? British Journal of Occupational Therapy, 88(10), 600–613. https://doi.org/10.1177/03080226251321341

Ianni, L., Mazer, B., Thomas, A., & Snider, L. (2021). The role of occupational therapy with children with attention deficit hyperactivity disorder (ADHD): A Canadian national survey. Journal of Occupational Therapy, Schools, & Early Intervention, 14(2), 162-183. https://doi.org/10.1080/19411243.2020.1822259

Ibbotson, P. (2023). The development of executive function: Mechanisms of change and functional pressures. Journal of Cognition and Development, 24(2), 172-190. https://doi.org/10.1080/15248372.2022.2160719

Josman, N., & Meyer, S. (2019). Conceptualisation and use of executive functions in paediatrics: A scoping review of occupational therapy literature. Australian Occupational Therapy Journal, 66(1), 77–90. https://doi.org/10.1111/1440-1630.12525

# REFERENCES


Koşkulu-Sancar, S., van de Weijer-Bergsma, E., Mulder, H., & Blom, E. (2023). Examining the role of parents and teachers in executive function development in early and middle childhood: A systematic review. Developmental Review, 67, 101063. https://doi.org/10.1016/j.dr.2022.101063

López-de-la-Fuente, M. J., Berdejo, V., Madrona-Velasco, S., Gonzalo-Ciria, L., Lasso-Olayo, L., & López-de-la-Fuente, C. (2024). Assessment of executive functions in school considering motor and sociodemographic factors: A joint vision for school-based occupational therapists and school staff. Education Sciences, 14, 191. https://doi.org/10.3390/educsci14020191

Lynch, H., et al. (2023). Evidence for implementing multitiered approaches in school-based occupational therapy: A systematic review. American Journal of Occupational Therapy, 77(1), 7701205110. https://doi.org/10.5014/ajot.2023.050110

Madieu, E., Gagné-Trudel, S., Therriault, P. Y., & Cantin, N. (2023). Effectiveness of CO-OP approach for children with neurodevelopmental disorders: a systematic review. Archives of Rehabilitation Research and Clinical Translation, 5(2), 100260.

Mann, D. P., Snover, R., Boyd, J. R., List, A. J., Kuhn, A. J., Devereaux, B. N., Chenoweth, S. M., & Middaugh, G. L. (2015). Executive functioning: Relationship with high school student role performance. The Open Journal of Occupational Therapy, 3(4), Article 2. https://doi.org/10.15453/2168-6408.1153

Mousavi, E., Akbarfahimi, N., Moein, S., & Vahedi, M. (2023). A study of the relationship between executive function and school function in children with cerebral palsy. Journal of Occupational Therapy, Schools, & Early Intervention, 16(2), 160-172. https://doi.org/10.1080/19411243.2022.2027840

Munakata, Y., & Michaelson, L. E. (2021). Executive functions in social context: Implications for conceptualizing, measuring, and supporting developmental trajectories. Annual Review of Developmental Psychology, 3, 139-163.

Murthi, K., & Patten, K. (2023). Improving executive function using the engineering design process for autistic adolescents. American Journal of Occupational Therapy, 77(2), 7702347010. https://doi.org/10.5014/ajot.2023.050010

Niebaum, J. C., & Munakata, Y. (2023). Why do executive functions improve academic achievement? Journal of Cognition and Development, 24(2), 241–259. https://doi.org/10.1080/15248372.2022.2160723

Onnivello, S., Lanfranchi, S., et al. (2022). Executive function and adaptive behaviours in children and adolescents with Down syndrome. Journal of Intellectual Disability Research, 66(1-2), 32–49. https://doi.org/10.1111/jir.12897

Otero, T. M., Barker, L. A., & Naglieri, J. A. (2014). Executive function treatment and intervention in schools. Applied Neuropsychology: Child, 3(3), 205-214. https://doi.org/10.1080/21622965.2014.897903

Philpott-Robinson, K., Blackwell, D., Regan, C., Leonard, C., Haracz, K., Lane, A. E., & Wales, K. (2025). Conflicting definitions of self-regulation in occupational therapy: A scoping review. Physical & Occupational Therapy In Pediatrics, 45(3), 318-357. https://doi.org/10.1080/01942638.2024.2434468

# REFERENCES


Raymond-Tolan, L., Arcidiacono, T., Panzarino, C., & Vazquez, A. (2026). The impact and experience of directly teaching about executive functions (EF) to 2nd-grade students on their understanding and performance of EF skills. Journal of Occupational Therapy, Schools, & Early Intervention, 19(1), 103-115. https://doi.org/10.1080/19411243.2025.2455619

Romero-Ayuso, D., Toledano-González, A., Segura-Fragoso, A., Triviño-Juárez, J. M., & Rodríguez-Martínez, M. C. (2020). Assessment of sensory processing and executive functions at the school: Development, reliability, and validity of EPYFEI-Escolar. Frontiers in Pediatrics, 8, 275. https://doi.org/10.3389/fped.2020.00275

Sadozai, A. K., Sun, C., Demetriou, E. A., Lampit, A., Munro, M., Perry, N., Boulton, K. A., & Guastella, A. J. (2024). Executive function in children with neurodevelopmental conditions: A systematic review and meta-analysis. Nature Human Behaviour. Advance online publication. https://doi.org/10.1038/s41562-024-02000-9

Skuthan, A., Stav, W. B., McVey, G., Martinez, J., Hunter, M., Diroll, E., & Flanagan, M. (2026). An occupation-based review of assessments used in pediatric occupational therapy practice. The Open Journal of Occupational Therapy, 14(1), 1-10. https://doi.org/10.15453/2168-6408.2403

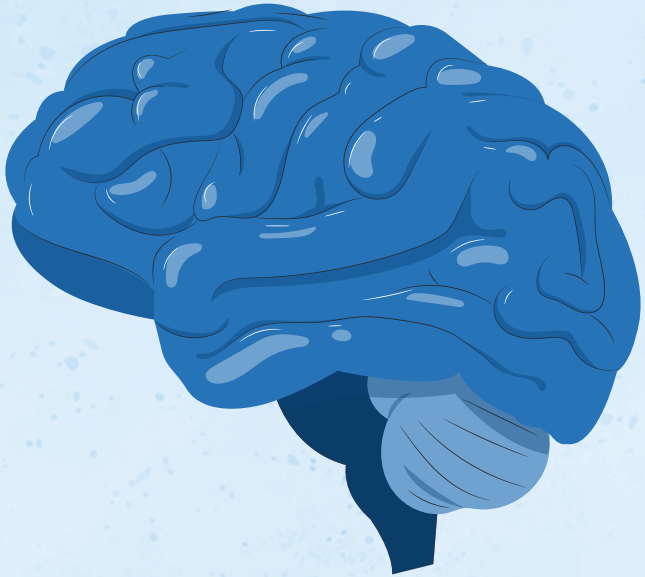
Sullivan, A. C., Vas, A. K., & Johnson, W. L. (2026). Transition to adulthood: Executive functions and independent living skills in autistic young adults. Occupational Therapy In Health Care, 40(1), 154–175. https://doi.org/10.1080/07380577.2024.2441230

Tamm, L., Hamik, E., Yeung, T. S., Zoromski, A. K., Mara, C. A., & Duncan, A. (2024). Achieving independence and mastery in school: A school-based executive function group intervention for autistic middle schoolers. Journal of Autism and Developmental Disorders. Advance online publication. https://doi.org/10.1007/s10803-023-06164-7

Tanis, K. R., & Erb, J. (2023). Executive functioning in the schools: Perspectives from occupational therapists. Journal of Occupational Therapy, Schools, & Early Intervention, 16(3), 330-345. https://doi.org/10.1080/19411243.2022.2084206

Werchan, D. M., Brandes-Aitken, A., Ku, S., & Blair, C. (2024). Naturalistic patterns of sustained attention across early childhood: Developmental profiles and longitudinal associations with executive functions. Developmental Psychology. Advance online publication. https://dx.doi.org/10.1037/dev0001786

# THANKS!



CREDITS: This presentation template was created by **Slidesgo**, and includes icons by **Flaticon**, infographics & images by **Freepik** and illustrations by **Storyset**

**Please keep this slide for attribution**