

What is executive functioning and why is it important for activities of daily living?

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Spina Bifida and the Brain



What is a neuropsychologist?

- Explain behavioral and cognitive changes resulting from central nervous system conditions
- Part of the Spina Bifida Clinic or Specialty referral

What information is gained from an evaluation?

- Strengths
- Weaknesses
- Knowledge on needed supports

Important factors to consider

- Lesion location
- Brain differences
- Complications

What do we typically consider with a diagnosis of Spina Bifida?

Motor Skills



MOTOR SKILLS

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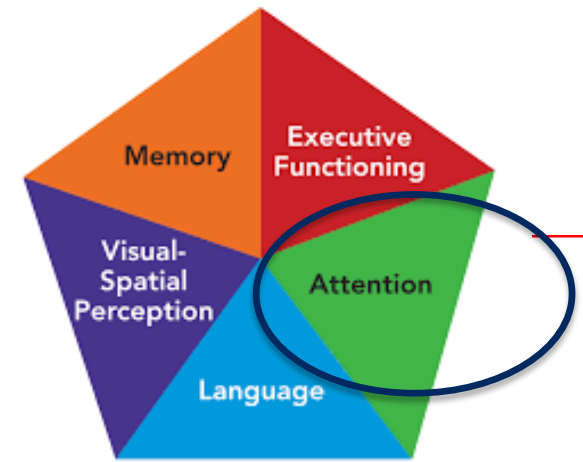
- **Strengths:** Motor learning and adaptation.
- **Weaknesses:** Motor control and visuomotor tracking.
- **Areas of Growth:** Grasp and control of catheters used in bladder and bowel self-management. Handwriting which impacts education and maintenance of health-related information. Completing physical therapy homework. Mobility and attending appointments without parent support. Handwriting affecting education and maintenance of health-related information

Academics



- **Strengths:** Word decoding and learning and accessing math facts.
- **Weaknesses:** Reading comprehension and math problem solving and speed
- **Areas of Growth:** Reading and comprehending educational health information and visit notes. Calculating change in medications, or the volume needed for flushing the MACE or bladder. Monitoring time and catheter supplies. Managing financial responsibilities.

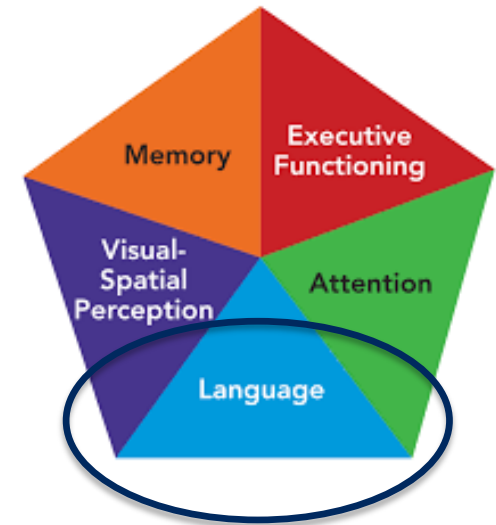
Attention



- **Strengths:** Sustained attention.
- **Weaknesses:** Focused attention, such as number detection.
- **Areas of growth:** Focusing during clinic visits, especially when instructions are provided. Focusing and following instructions at school. Easily distracted during tasks and following reminders before tasks are completed. Attending to salient environmental information (i.e., doorbells, fire alarms).

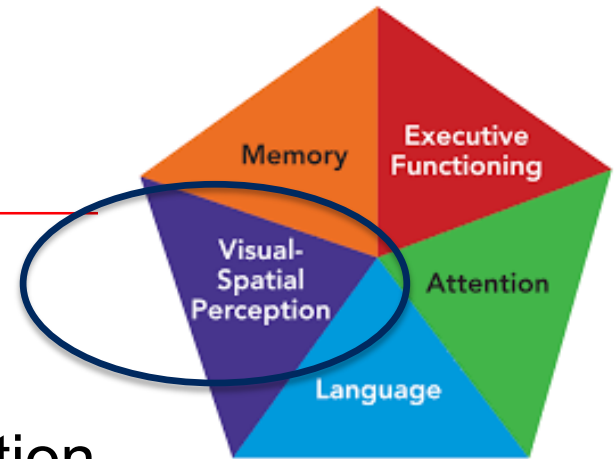
What else can we consider?

Language



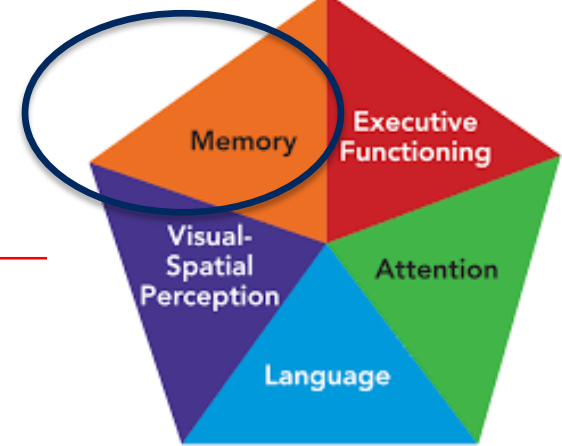
- **Strengths:** Vocabulary and grammar
- **Weaknesses:** Making Inferences, using context (pragmatics), understanding of complex information, and abstract verbal reasoning
- **Areas of growth:** Communicating medical history as well as signs and symptoms for health status. Understanding instructions provided during medical visits. Integrating non-verbal signs with verbal speech.

Visual-Spatial Perception



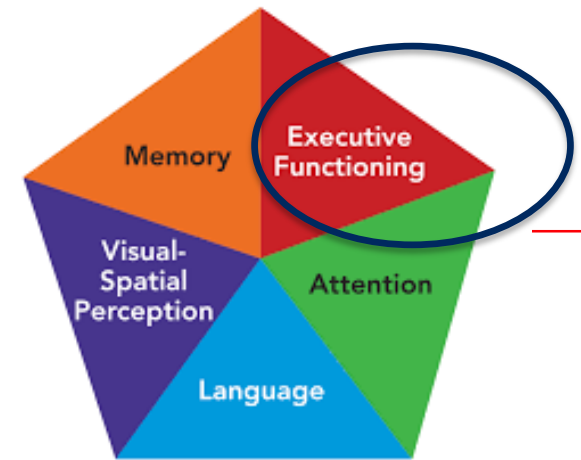
- **Strengths:** Face and object perception
- **Weaknesses:** Coordination, such as spatial relations and mental rotations, and perceptual reasoning
- **Areas of growth:** Catheterization of urethra or surgical channel (especially when they're not able to fully visualize it). Reading maps or reversing their course to return to offices after diagnostic studies.

Memory



- **Strengths:** Retrospective memory, such as memory of people, words, and events encountered or experienced in the past.
- **Weaknesses:** Prospective memory, such as memory for intentions.
- **Areas of growth:** Remembering to self catheterization and adhering bowel management procedures and skin check regimens. Remembering multistep tasks, information needs to be broken into smaller sections and related to previously learning information. Remembering health visit information and to take scheduled medications.

Executive Functioning



- **Strengths:** Organization
- **Weaknesses:** Self-regulation, planning, starting activities, inhibition, and self-monitoring.
- **Areas of growth:** Focusing during clinic visits, especially when instructions are provided. Focusing and following instructions at school. Easily distracted during tasks and following reminders before tasks are completed. Attending to salient environmental information (i.e., doorbells, fire alarms).

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12

Reasons to Teach Executive Functioning Skills Explicitly



www.thepathway2success.com



EF skills are
shaped
(not innate)



They are life
skills



They build
independence



EF skills
impact social
skills



Strong EF skills
support
academics



EF skills enhance
problem-solving
abilities



They are a
component of
SEL (self-
management)



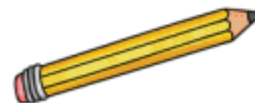
Interventions
support
struggling kids



Research
supports
teaching EF skills



Proactively
teaching EF
skills supports
all learners



Learning tough
skills requires
practice



EF skills teach
positive study
habits

Clipart by Sarah Pecorino & Kate Hadfield

How to support activities of daily living?

Motor



MOTOR SKILLS

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Intervention: Occupational Therapy in Motor Function

Description: Therapy sessions involve fine motor activities such as arts and crafts, finger plays, small manipulatives, drawing, cutting, and assembly. Physical therapy for gross motor development, orientation and mobility, and travel training. Complete similar activities at home to practice the skills with objects available at home (e.g., puzzles, coloring, measuring food while cooking).

Frequency: Recommended for a minimum of one individual 30-minute session and one group 30- minute session per week for one school year. Recommended two to three days of the week.

Goals: Improve fine motor and visual integration skills. Promote skills needed for self catheterization and care for surgically created channels. Work to build strength and hand dominance. Development muscles needed for independent mobility.

Gandy et al., 2022

Reading



Intervention: Developmental Strategies

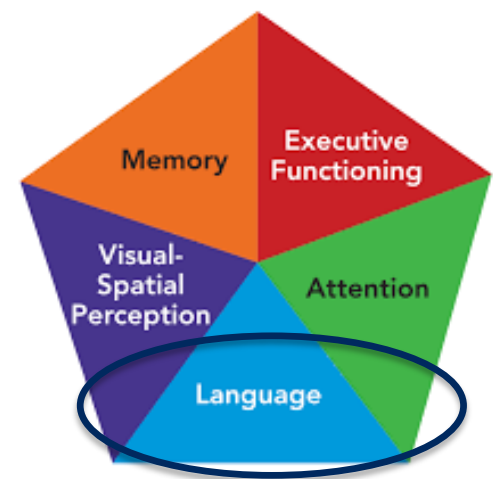
Description: Involves repetitive use of flash cards to improve word recognition, repeat and speaking techniques, teaching phonics, sorting words, reading comprehension strategies, and following along while another person reads aloud.

Frequency: Recommended daily.

Goals: Improves reading comprehension for educational and health information and instructions for routine self-management.

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Language



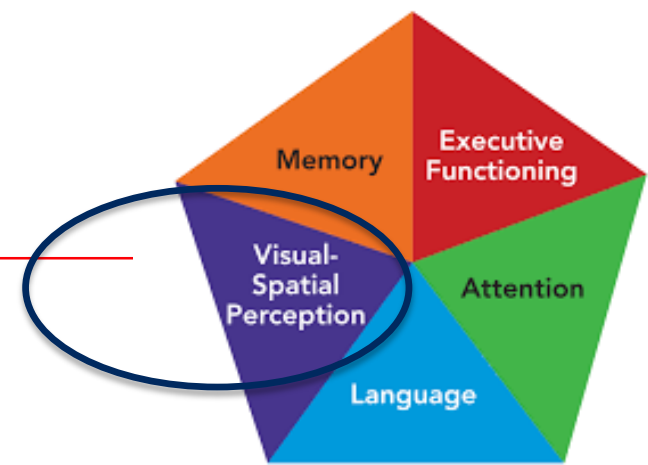
Intervention: Speech Therapy

Description: Involves language interventions to help stimulate language development, modeling correct sounds and syllables, providing strategies for developing language skills at home.

Frequency: Recommended at least once a week when speech therapy is completed by a license speech therapist. Strategies for developing language skills at home should be conducted daily.

Goals: Improves language and non-verbal functioning.

Visual-Spatial Perception



Intervention: Mirror Training

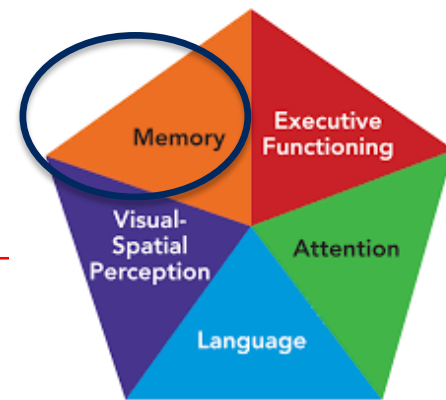
Description: Involves using a magnification mirror to assist in identifying the urethra for proper self-catherization.

Frequency: Recommended daily.

Goals: Improves visual-motor integration. Aids in self catherization procedures and skills.

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Memory



Intervention: Home-Based Memory

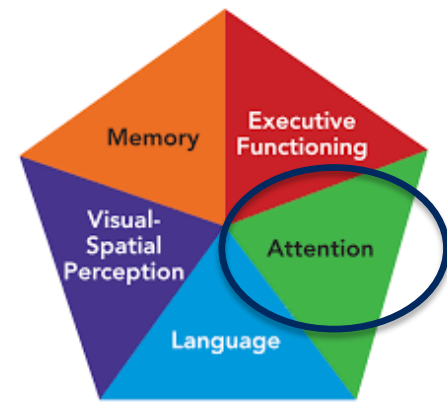
Description: Training Involves overt cumulative rehearsal of information, such as reciting a sequence of numbers. This training can occur at home with the assistance of a parent or caregiver. Rehearsal of daily routines (catheterization procedures, proper fitting of orthotics): Parents repeat the steps verbally as they complete them, then ask the child to say the next step. The child can then repeat all steps in order. Subsequently, the child can then repeat the steps while they complete the task. Make a phone recording of the steps necessary for different routines to play back when needed.

Frequency: Recommended for 10-minute sessions, five times a week, for three months. Recommended daily. www.rememberthemilk.com

Goals: Improve memory span and increase working memory. Promote prospective memory for daily care and self-management.

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Attention



Intervention: Medication, Environmental Support

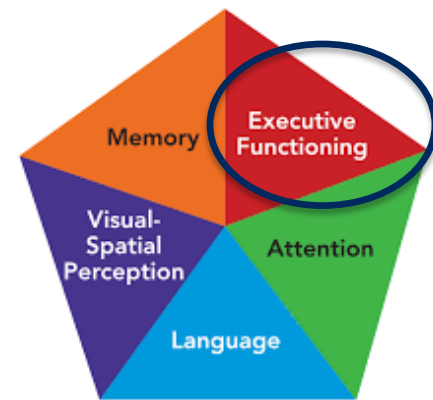
Description: Medication to support attention. Environmental support by eliminating additional environmental stimuli and distractions during tasks. Use calming self-statements, promote success by using small steps, and take period breaks during long tasks.

Frequency: Recommended daily.

Goals: Improve focus and attention in the classroom and during household chores. Aid in attending to routine skin checks and reminders for self-management. Improve attention during clinic visits when explaining health-related information.

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Executive Functioning



Intervention: Visual Schedules & Daily Check-Ins

Description: A visual illustration of daily activities that are placed in an area that the individual encounters on a regular basis (i.e., bathroom mirror, coat closet door). Brief, daily meetings to review goals and tasks of the day and problem solve any barriers for achievement, and check in about completed tasks from previous day. Environmental support by having adults or technology provide environmental cues to remember to complete tasks.

Frequency: Recommended daily. www.do2learn.com

Goals: Aid in creating daily routines and habitual behavior. Support learning of the steps in order, to remove the visual aid once memorized. Improve adherence to daily self-care regimens.

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EXECUTIVE FUNCTIONING

Strategies for Supporting Executive Functioning Needs



Have homework
written down in
the same spot
every day



Explicitly teach
executive
functioning &
study skills



Give an extra
3-5 minutes to
organize before
transitions



Schedule a
weekly
organization
time



Create routines
and practice
them often



Incorporate
movement
during
instruction



Create an end-of-
the-day checklist
to remember
materials



Provide brain
breaks during
and after
instruction



Clearly explain
academic & social
expectations



Keep an extra
set of books at
home & in the
classroom



Use countdowns
& time checks
during work
periods



Have
students set
up homework
binders

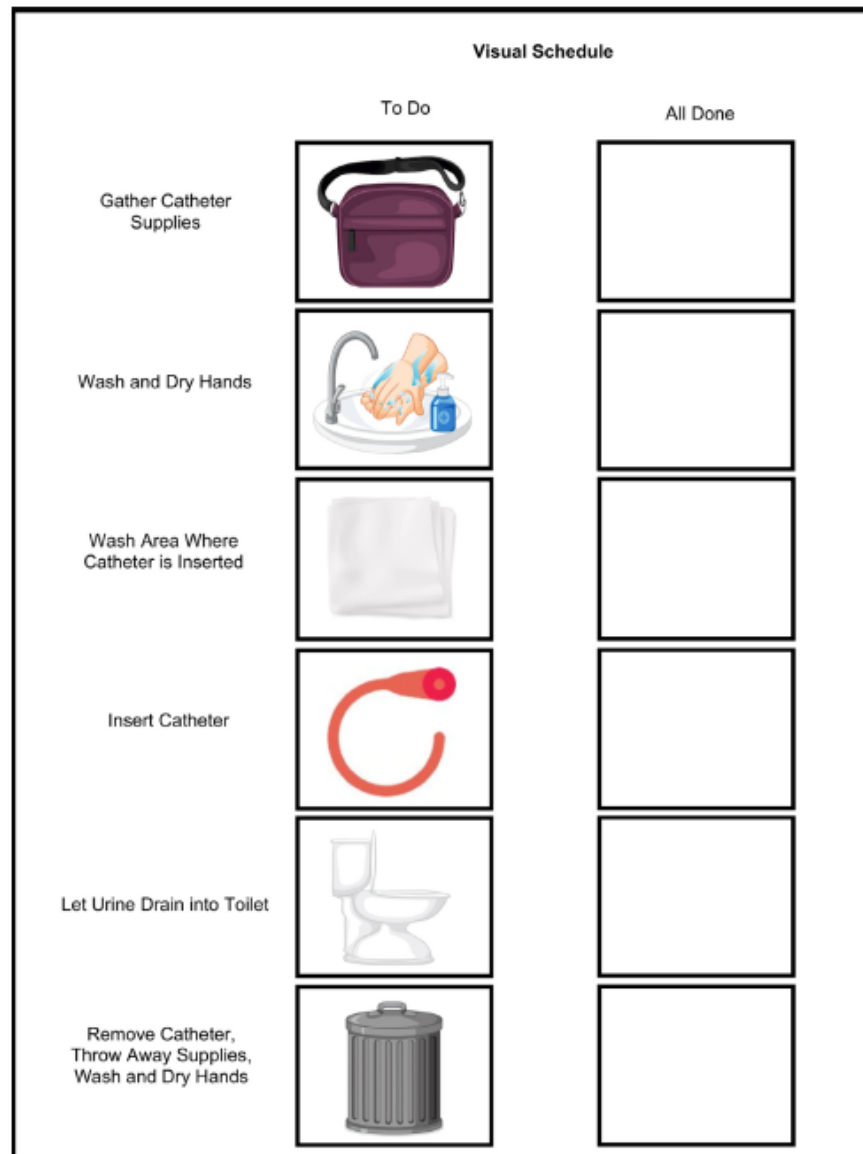


Figure 1. Visual Schedule to Promote Bladder Self-Management. Footnote: This figure has been designed using assets from Freepik.com.

Resources

Steps to Independence: Teaching Everyday Skills to Children with Special Needs (4th edition) by Bruce L. Baker and Alan J. Brightman.

Kid Confidence: Help Your Child Make Friends, Build Resilience, and Develop Real Self-Esteem, by Eileen Kennedy-Moore, PhD

Smart but Scattered Teens: The "Executive Skills" Program for Helping Teens Reach Their Potential by Richard Guare Ph.D., Peg Dawson Ed.D. and Colin Guare

Where's My Stuff? The Ultimate Teen Organizing Guide by Samantha Moss and Lesley Schwartz

The Work-Smart Academic Planner: Write it Down, Get it Done by Richard Guare Ph.D., Peg Dawson Ed.D.

Take Home Messages

- Request a neuropsychological evaluation to assess strengths and weaknesses
- Executive functioning strategies help with other cognitive areas
- Work with your youth on what strategies work for them
- Start with one and build / add others
- Practice them regularly