

Work Smarter Not Harder: Executive Functioning Approaches to Concussion Management

Carey Bellino, MA, CCC-SLP

Alina Carter, MS, CCC-SLP

3rd Annual Concussion Diagnosis and Management Conference
September 20, 2019

Disclosures

Alina Carter and Carey Bellino are
full-time employees of Emerson Hospital

Presentation Goals

- Define goal-directed components of executive functioning skills.
- Demonstrate executive functioning treatment approaches for the concussion population.
- Identify executive functioning profiles as rehab professionals and its impact on patient care.
- Describe the role of speech language pathologists in identifying and treating executive functioning deficits.

The Cookie Problem

- Please refer to “The Cookie Problem” worksheet
- Solve the following:
 - Who wore which color and who ate which cookie?



Executive Functions

- Integrative cognitive processes that determine goal-directed and purposeful behavior. (Kennedy et al., 2008)



Why focus on Executive Functioning?

- Among the most common and disabling aspects of cognitive impairment following traumatic brain injury (McDonald et al., 2002)
- Frontal lobe exhibit an organizing capacity for cognitive functions
- Cerebellum may play a role in executive functioning (Schmahmann, 2006)
- Executive functioning is associated with life outcomes such as vocational and academic success and social skills
- Disorders of executive functioning are heterogeneous and require multi-faceted intervention

12 Tenants of Executive Functioning

Response Inhibition

- The capacity to think before you act or speak



Guare, R. (2013)

12 Tenants of Executive Functioning

Emotional Control

- Managing one's behavior in order to reach the desired outcome
- May present as an excessive display of emotion (disinhibited)
- This is highly dependent on self-awareness skills

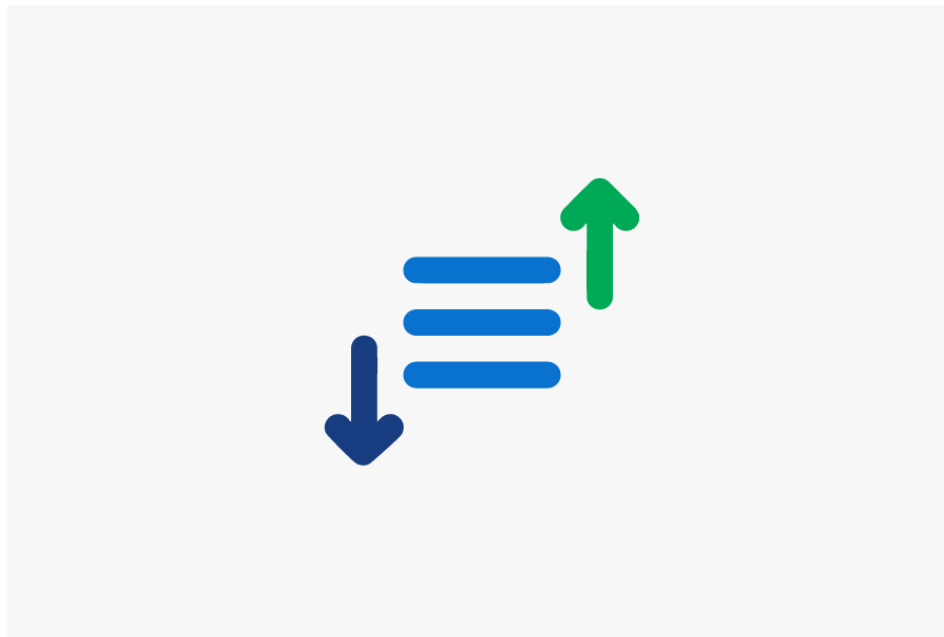


Guare, R. (2013)

12 Tenants of Executive Functioning

Prioritizing

- The ability to determine a specific order of items or tasks according to their relative importance and value levels.



Guare, R. (2013)

12 Tenants of Executive Functioning

Task Initiation

- The ability to begin projects in an efficient or timely fashion

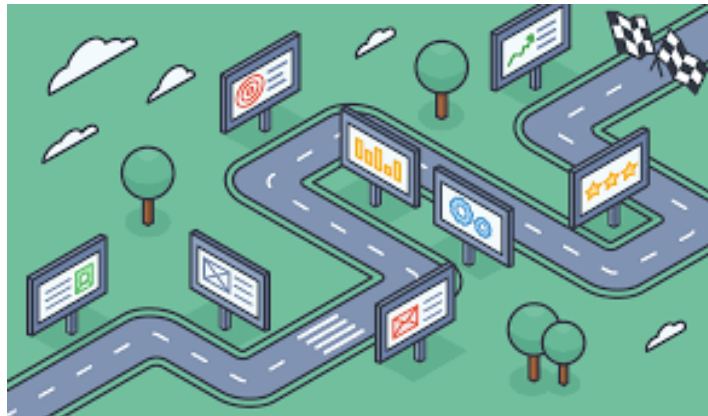


Guare, R. (2013)

12 Tenants of Executive Functioning

Planning

- The ability to create a roadmap to reach desired goal
- The ability to prepare for various setbacks or difficulties in carrying out the plan
- Identify relevant and irrelevant details
- Break tasks into manageable and time sensitive parts



Guare, R. (2013)

12 Tenants of Executive Functioning

Organization

- The ability to create and maintain systems to keep track of information and materials

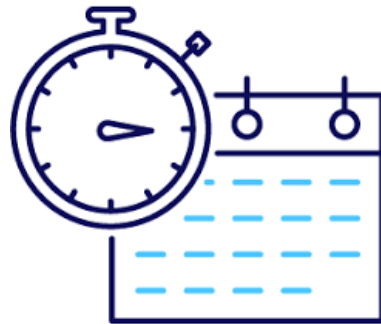


Guare, R. (2013)

12 Tenants of Executive Functioning

Time Management

- Sense that time is important
- Estimate how much time one has
- Allocate time
- Staying within time limits and deadlines



Guare, R. (2013)

12 Tenants of Executive Functioning

Goal-Directed Persistence

- The ability to set a goal and follow through with the completion of that goal
- Impacted by one's ability to manage distractions and competing interest



Guare, R. (2013)

12 Tenants of Executive Functioning

Flexibility

- Capacity to revise plans in the face of obstacles, setback, new information or mistakes
- Adaptability to changing conditions

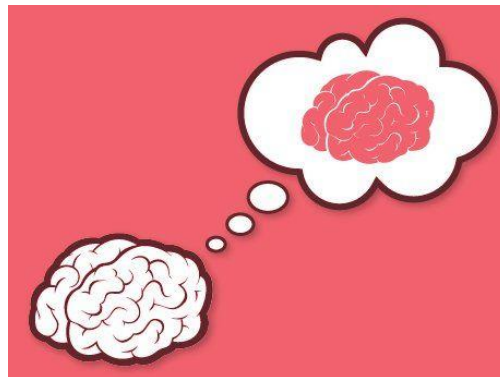


Guare, R. (2013)

12 Tenants of Executive Functioning

Metacognition

- The ability to stand back and take a birds-eye view of oneself in a situation
- Awareness and observation of self-problem solving
- Includes: self-monitoring, self-evaluation, and self-correction



Guare, R. (2013)

12 Tenants of Executive Functioning

Stress Tolerance

- The ability to thrive in stressful situations
- The ability to cope with uncertainty, change, and performance demands



Guare, R. (2013)

12 Tenants of Executive Functioning

Self-Regulation

- Loss or decreased ability to manage one's emotions.
- May cause a person to feel more extreme or rapid changing emotional (highs and lows).
- Awareness of the problem, internalized system to reflect upon responses, and develop better management strategies.



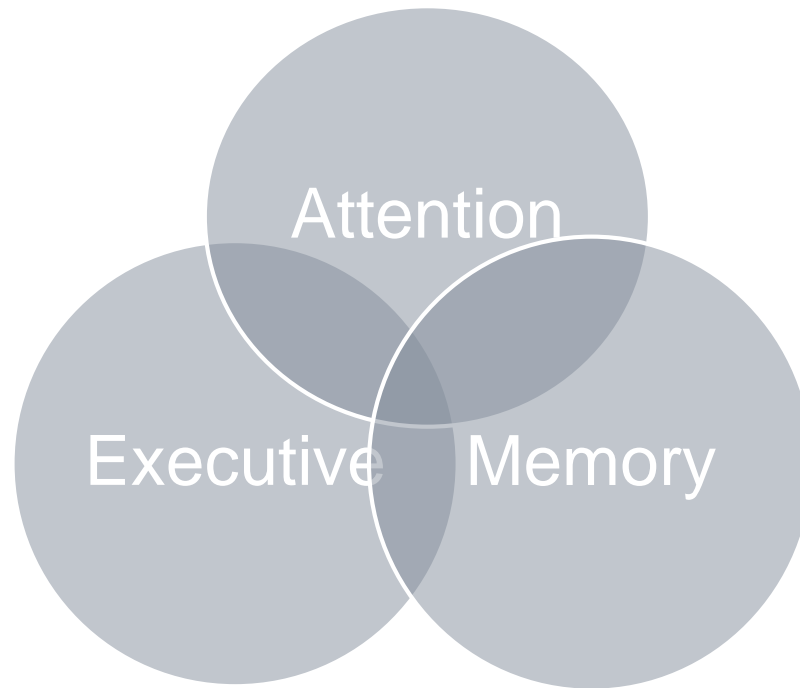
Guare, R. (2013)

12 Tenants of Executive Functioning

- Response Inhibition
- Emotional Control
- Planning
- Prioritizing
- Task Initiation
- Organization
- Time Management
- Goal-Directed Persistence
- Flexibility
- Metacognition
- Stress Tolerance
- Self-Regulation

Dawson, P. & Guare, R. (2010)

Cognitive Domains



Diagnostic Assessment

Standardized Assessments including but not limited to:

- Functional Assessment of Verbal Reasoning and Executive Strategies (FAVRES)
- Behavioural Assessment of the Dysexecutive Syndrome (BADS)
- Cognitive Linguistic Quick Test (CLQT)
- Repeatable Battery for the Assessment of Neuropsychological Status (RBANS)

Informal Diagnostic Measures

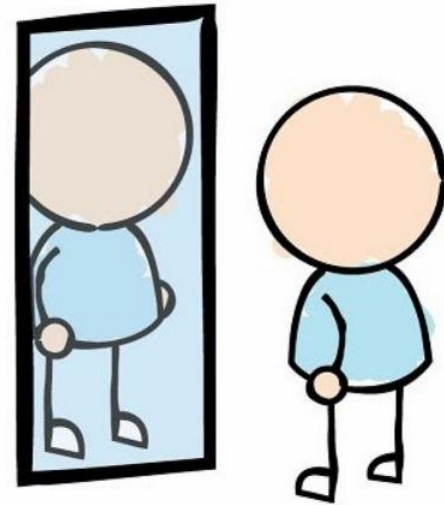
- Approaches to formal assessment tools (e.g. WJIV)
- Therapy schedule and use of an external memory aid
- Deductive Reasoning Skills
- Sequencing Tasks
- Reading/Writing Tasks

Testing Does Not Provide the Whole Picture

- Controlled environment:
 - Quiet
 - Clutter-Free
 - 1:1
 - Clear Test Instructions
 - Mono-tasking
 - Clinician is a skilled communication partner
- Limitations:
 - Not representative of patient's day to day environmental demands
 - Standardized assessments are highly structured

Professional Self-Reflection

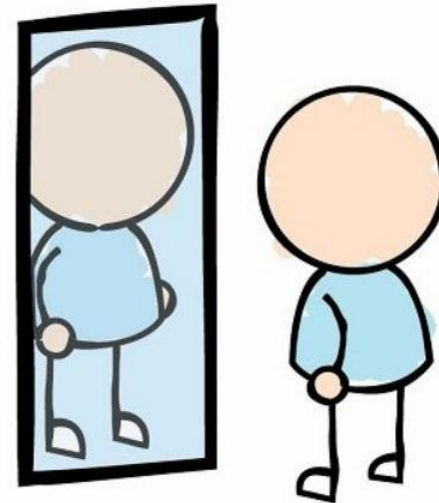
- Please complete the “Executive Functioning Questionnaire” by Dawson, P. & Guare, R. (2010)
- Please complete the “Executive Functioning Profile”



Professional Self-Reflection

Discussion

- Break into small groups and discuss the process of reflecting upon your own executive functioning skills.



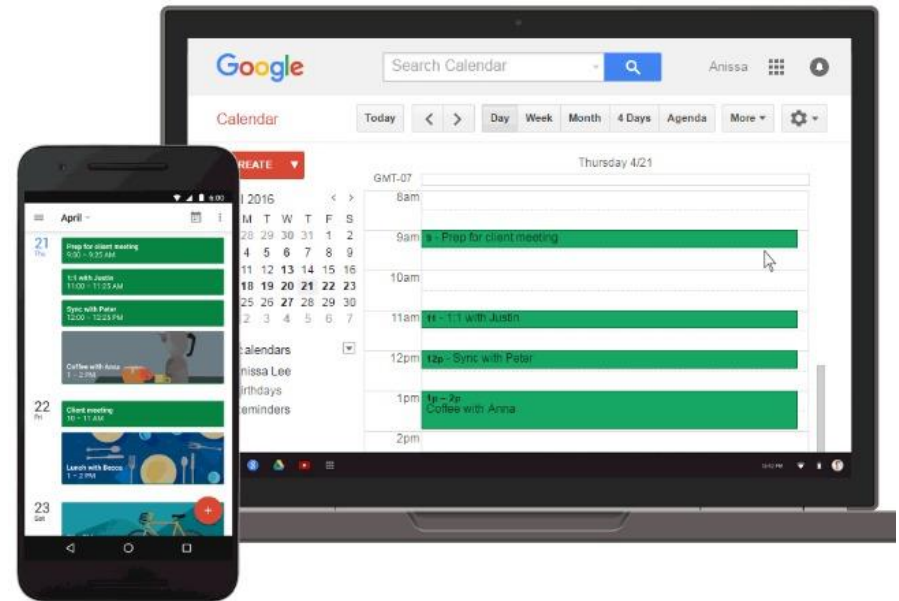
Intervention

Metacognitive Strategy Instruction

- Identifying realistic goals
- Establishing priorities and time frames
- Weighing pros and cons of solutions
- Selecting and gathering necessary materials
- Carrying out step by step instructions
- Monitoring outcomes
- Modifying steps as necessary
- Consider age of patient

(Kennedy et al, 2008)

Treatment Options for Executive Functioning: Planner System



Treatment Options for Executive Functioning: Planner System

Explicit instruction to patient:

- Response Inhibition
- Task Initiation
- Planning/Prioritizing
- Organization
- Time Management
- Goal-Directed Persistence
- Flexibility
- Metacognition

Clinician Benefit:

- Session Organization
- Task Organization
- Goal Management
- Goal Tracking
- Generalization to home programming

Treatment Options for Executive Functioning: Planner System

Golden Rules

- Take your planner with you always.
- Use only one calendar system.
- Commit to having one time reserved to schedule for the week ahead.
- Review planner regularly throughout the day.
- Check off completed tasks at the end of each day.

Treatment Options for Executive Functioning: Planner System

Paper Considerations

- Does it have a Monthly/Weekly layout
- Does it fit into your bag/purse?
- Does it have a simple design?
- Does it have specific dates?
- Does it have specific times?



Treatment Options for Executive Functioning: Planner System

Framework of Week

Create a list with the patient of monthly, weekly, and daily routines:

Monthly

Bill Pay

Call Cousin

Weekly

Take Out Trash

Grocery Shopping

Daily

PT Exercises

Call Mom

Treatment Options for Executive Functioning: Planner System

Master To-Do List

Create a list with the patient of tasks for the upcoming week using the following questions:

1. What do I need to do in the house?
2. What do I need to do out of the house?
3. What phone call or emails do I need to take care of this week?

Treatment Options for Executive Functioning: Planner System

Priority Levels

MD – Must Do (Go to the neurologist.)

SD – Should Do (Shop for groceries.)

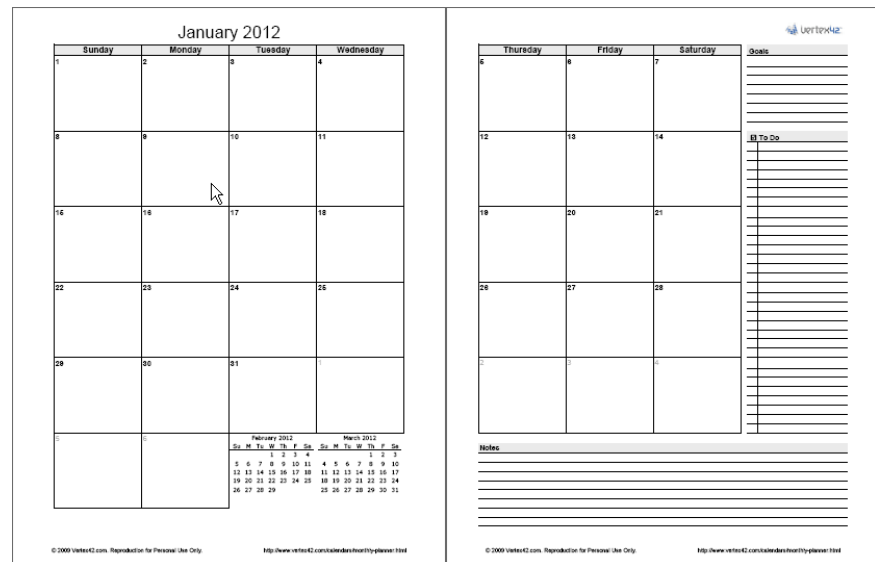
CD – Could Do (Vacuum living room carpet.)

“What is the *consequence* if this does not get done today?”

Treatment Options for Executive Functioning: Planner System

Monthly Page

- Provides birds eye view of your month
- Add only important dates
 - Weddings
 - Funerals
 - Vacations
 - Project Deadlines
 - Family Visiting



Treatment Options for Executive Functioning: Planner System

Daily Page

- Provides list of daily to-dos, appointments, and memories.
- Identify the time you would like to complete the task.
- Identify individual task vs. long term goal.
- Enter tasks systematically

TIME + VERB + TASK + PRIORITY LEVEL

Friday - April 1, 2016

9:00 A
10:00
11:00
12:00
1:00
2:00
3:00
4:00
5:00
6:00
7:00
8:00

Copyright 2015 Handy Forms LLC. All Rights Reserved

Treatment Options for Executive Functioning: Planner System

Sample Entries:

(Time + Verb + Task + Priority)

- 9am Take out the trash MD
- 11:30am Leave for SLP appointment MD
- 2pm Meal prep for Monday and Tuesday SD
- 4pm Call Michael CD

Treatment Options for Executive Functioning: Planner System

Reviewing Planner System:

3 Symbol Review

✓ = done

→ = moved

⊗ = no longer applicable

Your Turn to Practice!

Identify your routines and to-dos and schedule activities into the planner pages. Remember the scheduling formula:

Time+Verb+Task+Priority



Treatment Options for Executive Functioning: Organizational Strategies

- Organized physical space may reduce executive functioning load (Sohlberg and Mateer, 2001)
- Collaborative with family, caregivers, and care team
- Task specific routine → generalized strategy use
- Examples of organizational systems:
 - Use of checklists
 - Developing a centralized, home-base for essential objects
 - Labeling
 - Sorting and filing
 - Consolidating notebooks/calendars

Treatment Options for Executive Functioning: Organizational Strategies



Sort
Purge
Arrange
Maintain

Treatment Options for Executive Functioning: Organizational Strategies

Explicit instruction to patient:

- Response Inhibition
- Task Initiation
- Planning/Prioritizing
- Organization
- Time Management
- Goal-Directed Persistence
- Flexibility
- Stress Tolerance
- Self-Regulation
- Metacognition

Clinician Benefit:

- Stress Tolerance
- Metacognition
- Session Organization
- Task Organization
- Goal Management
- Goal Tracking
- Generalization to home programming

Treatment Options for Executive Functioning: Organizational Strategies



SORT

- ORGANIZE MATERIALS INTO 3 PILES.
- PLACE 3 NOTECARDS OUT WITH THE FOLLOWING LABELS (“KEEP,” “FILE,” AND “THROW AWAY”).
- SET A SPECIFIC TIME TO WORK ON THIS PROJECT. FOR EXAMPLE: “I WILL SIT FOR 45 MINUTES TO SORT THROUGH PAPERWORK.”
- SET A TIMER IN YOUR HOUSE TO REMIND YOU TO TAKE A BREAK/STOP AFTER THE DESIGNATED TIME.

KEEP

FILE

THROW AWAY

Treatment Options for Executive Functioning: Organizational Strategies



Purge

- DISPOSE OF THE “THROW AWAY” PILE *IMMEDIATELY!*
- PUT IT INTO THE WASTEBASKET, RECYCLING, OR DONATE IT TO GOOD WILL.

Treatment Options for Executive Functioning: Organizational Strategies



Arrange

- DESIGNATE A SPECIFIC TIME IN YOUR PLANNER *THAT WEEK* TO FILE MATERIAL IN YOUR “FILE” PILES
- ARRANGE A TIME IN YOUR PLANNER TO ORGANIZE MATERIALS LEFT IN THE “KEEP” PILE.

Treatment Options for Executive Functioning: Organizational Strategies



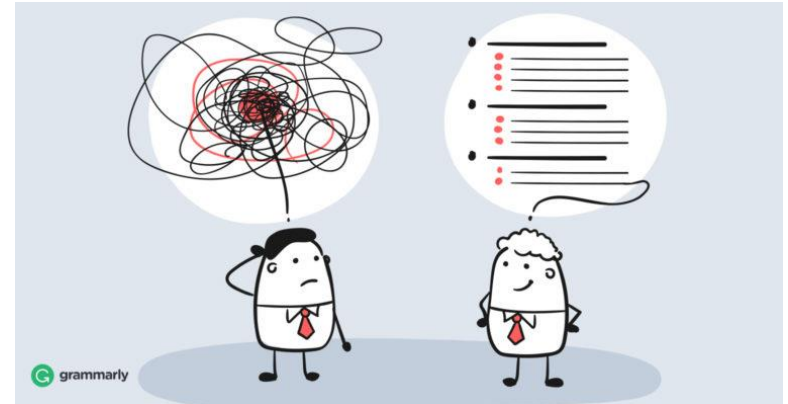
Maintain

- KEEP UP YOUR ORGANIZATION!
- SPEND TIME EACH WEEK TO KEEP CLUTTER UNDER CONTROL.
- GRADUALLY WORK ON PILES OF CLUTTER (45 MINUTES AT A TIME)
- AVOID CREATING NEW CLUTTER

Treatment Options for Executive Functioning: Organizational Strategies

Functional applications

- What are ways you can utilize SPAM in your professional life?



Treatment Options for Executive Functioning: Goal Attainment Scaling

GAS

- 5 Point Scale
- Individualized Criterion-Referenced Measure
- Patient rates Current Level of Importance
- Patient Involved Throughout

GAS 5-Point Rating Scale	
Score	Predicted Attainment
-2	Much less than expected outcome
-1	Less than expected outcome
0	Expected outcome after intervention
+1	Greater than expected outcome
+2	Much greater than expected outcome

Treatment Options for Executive Functioning: Goal Attainment Scaling

Development of GAS goals

- Developed in 1968 (Kiresuk and Sherman) to evaluate mental health problems
- 1969 The National Institute of Mental Health provided funding to develop, implement, and disseminate.
- Currently used to evaluate service delivery in rehabilitation, education, and medical fields.

Treatment Options for Executive Functioning: Goal Attainment Scaling

GAS

- Explicit instruction to patient: Clinician Benefit:
 - Task Initiation
 - Planning/Prioritizing
 - Organization
 - Time Management
 - Goal-Directed Persistence
 - Metacognition
 - Session Organization
 - Task Organization
 - Goal Management
 - Goal Tracking
 - Generalization to home programming

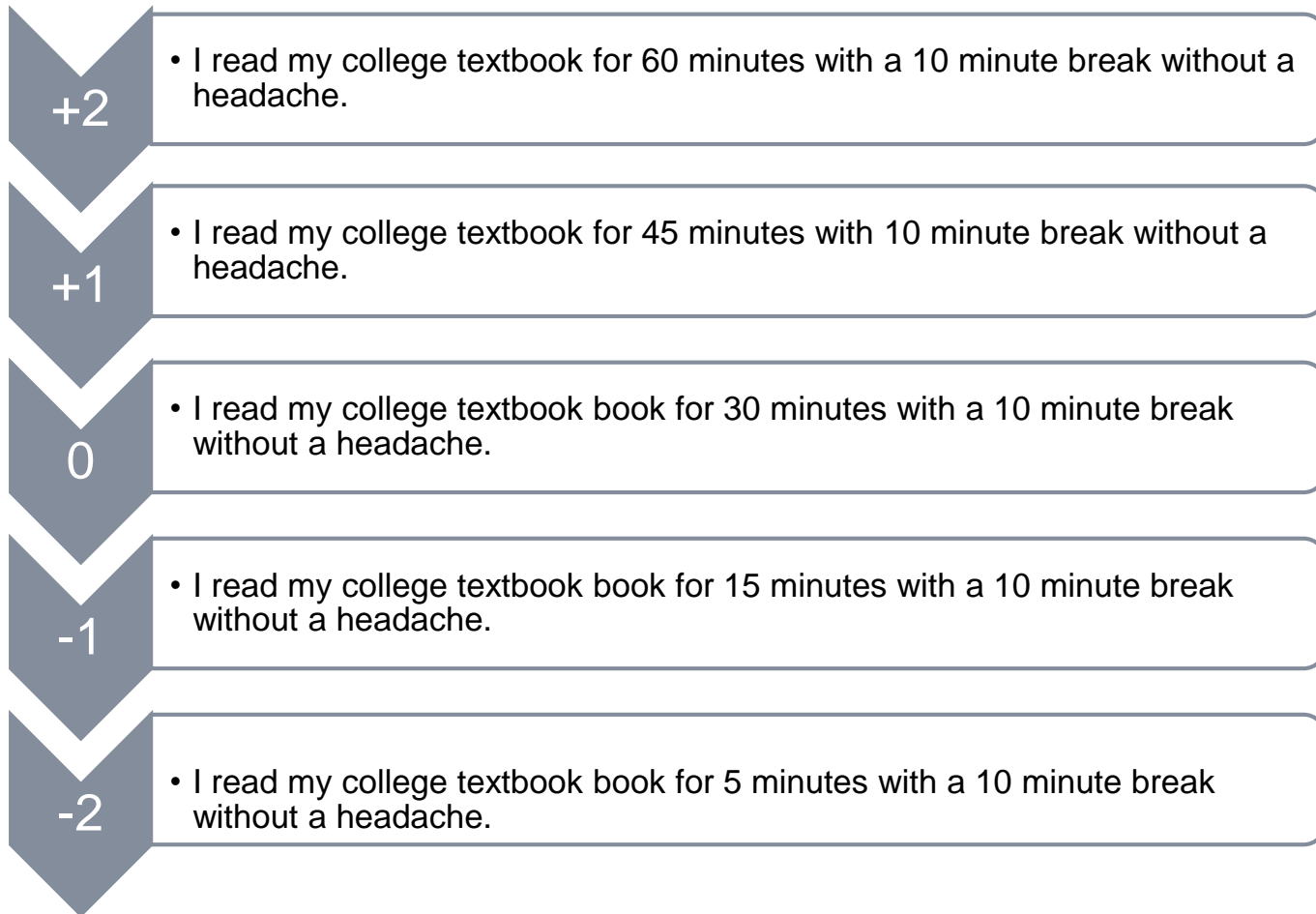
Treatment Options for Executive Functioning: Goal Attainment Scaling

GAS



Dept. of Veterans' Affairs

Treatment Options for Executive Functioning: Goal Attainment Scaling



Treatment Options for Executive Functioning: Goal Attainment Scaling

Your turn! Pick a professional goal and see if you can scale your goal up and down.

A vertical scale for goal attainment scaling. On the left, there are five downward-pointing chevrons, each containing a number: +2, +1, 0, -1, and -2. To the right of each chevron is a horizontal rounded rectangle, creating five rows for writing a goal and its corresponding scale.

Conclusion

- Explicit training of executive functioning skills prepares individuals with concussion to regain a sense of control in their personal and professional lives.
- Developing systematic methods for everyday tasks can improve professional efficiency and effectiveness.



Final Thoughts



Discussion Questions

- What executive functioning systems do you currently teach in your practice?
- What systems do we as clinicians need to work on?
- How have you modified your systems over the years?

References

- Bowie, M., Buckley, T., Baker, M., Patel, K., Hall, E., & Ketcham, C. (2017). The Value of Speech-Language Pathologists in Concussion Management. *Current Research: Concussion*,04(01). doi:10.1055/s-0037-1603645
- Dawson, P. & Guare, R. (2010). *Executive Skills in Children and Adolescents: A Practical Guide to Assessment and Intervention, 2nd Ed.* New York: The Guilford Press.
- Guare, R. (2013) Presentation: *Smart but Scattered: Executive Dysfunction at Home & School.*
- Hardin, K., Kelly, J. (2019). The role of speech-language pathology in an interdisciplinary care model for persistent symptomatology of mild traumatic brain injury. *Seminars in Speech and Language*, 40:1.
- Hartley, L. (1995). *Cognitive-Communicative abilities following brain injury.* Atlanta, Georgia: Thomson.
- Howell, D., Osternig, L., van Donkelaar, P., Mayr, U., Chou, L. (2013). Effects of concussion on attention and executive function in adolescents. *Medicine & Science in Sport & Exercise.* Doi: 10.1249/MSS.0b013e3182814595
- Kennedy, M. R., Coelho, C., Turkstra, L., Ylvisaker, M., Sohlberg, M. M., Yorkston, K., . . . Kan, P. (2008). Intervention for executive functions after traumatic brain injury: A systematic review, meta-analysis and clinical recommendations. *Neuropsychological Rehabilitation*,18(3), 257-299. doi:10.1080/09602010701748644
- Kiresuk, T. J., Smith, A., & Cardillo, J. E. (Eds.). (1994). *Goal attainment scaling: Applications, theory, and measurement.* Hillsdale, NJ, US: Lawrence Erlbaum Associates, Inc.

References Continued

Macdonald, S. (2017). Introducing the model of cognitive-communication competence: A model to guide evidence-based communication interventions after brain injury. *Brain Injury*, 31(13-14), 1760-1780. doi:10.1080/02699052.2017.1379613

McDonald, B., Flashman, L., Saykin, A. (2002). Executive dysfunction following traumatic brain injury: Neural substrates and treatment strategies. *NeuroRehabilitation*, 17: 333-344.

Roebbers, C. M. (2017). Executive function and metacognition: Towards a unifying framework of cognitive self-regulation. *Developmental Review*, 45, 31-51. doi:10.1016/j.dr.2017.04.001

Salvatore, A. and Sirmon Fjordbak, B. (2011). Concussion Management: The Speech-Language Pathologist's Role. *Journal of Medical Speech-Language Pathology*, 19 (1), 1-12.

Schmahmann, J.D. (2006). Cognition, emotion and the cerebellum. *Brain*. 129: 290-292.

Tornås, S., Løvstad, M., Solbakk, A., Evans, J., Endestad, T., Hol, P. K., . . . Stubberud, J. (2016). Rehabilitation of Executive Functions in Patients with Chronic Acquired Brain Injury with Goal Management Training, External Cuing, and Emotional Regulation: A Randomized Controlled Trial. *Journal of the International Neuropsychological Society*, 22(04), 436-452. doi:10.1017/s1355617715001344