Executive Skills after Brain Injury in Children and Teens

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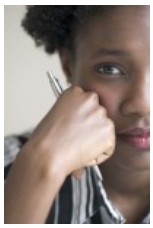
Your frontal lobes in school – what happens to executive skills after brain injury in students?



Executive skills after brain injury can be impaired and affect a student's learning.

Tom, 13, isn't buckled up when his friend loses control of his car, and his head slams into the dashboard during the crash. Sierra, 10, is kicked in the face by a horse while visiting a stable. While having a fun day of sledding, Taylor, 16, runs headfirst into a tree. All three of these children sustain traumatic brain injuries that affect their frontal lobes.

Sitting behind the forehead, the frontal lobes are often injured during a traumatic brain injury (TBI). They play an important role in directing and regulating our thoughts and actions. They are responsible for allowing us to carry out complex mental functions such as paying attention, planning, organizing, problem solving, controlling behavior, setting goals, and self-evaluating. Known as "executive functions" or "executive skills, " these high level executive skills after brain injury can affect a student's cognition, emotions, and behavior.

Fortunately, the right interventions to support executive skills after brain injury can help students with TBI function better in school and at home.

Executive skills after brain injury – what are they?

Impairments in executive skills after brain injury can show up in the classroom and at home for children and teens with brain injury. Here is a list of these skills and examples of each.

Initiation – Allie sits at her desk doing nothing while everyone else has begun the assignment. Sam takes so long to decide which game to play his free time is over.

Planning/Prioritizing – Miguel waits until the last minute to begin his school projects and when he does start, he first does the tasks he enjoys instead of the most important ones.

Organization – Taylor, who was very organized before his accident, now comes to class without the right materials and chronically loses his belongings.

Problem Solving – Madison cannot solve problems of many kinds, and she refuses to consider suggestions from others.

Sustained Attention – Diana is easily distracted and once interrupted cannot get back on task. Marcus starts projects with enthusiasm but quickly loses interest.

Impulse Control – Tom now blurts out irrelevant or random comments in class, and he cannot wait to hear all the instructions before beginning an assignment.

Goal-Oriented Behavior – Jared can no longer create short- or long-term goals. He desperately wants to be part of the baseball team but does not follow through with practicing.

Self-Evaluation – Tameka can no longer identify successful classroom behaviors. Neither can she correctly estimate the time it will take to complete a task well.

Children and teens with frontal lobe injuries may have impaired functioning in some or all of these areas. As they grow older, these impairments may worsen. As they face increased academic, cognitive, behavioral, and social demands, their deficits become more noticeable.

These impairments can have a far-reaching impact on students' overall performance. Even if they are able to learn to read, do math problems, and master job-related skills in the classroom, those skills will be of little use

outside of school unless they can apply that information to unique situations. To be successful in the real world, students also need to be able to solve problems, manage their own behaviors, plan, and achieve goals.

Helping students with executive skill impairments

Concentration can be affected by TBI. For most children, normal maturing of their brain and ongoing interactions with parents, teachers, and other adults help develop their executive skills. But children with frontal lobe injury may need closer direction to improve executive skills after brain injury. Once specific areas needing improvement are identified, teachers and parents can make adjustments in the classroom and at home, teach specific skills, and give children better opportunities to evaluate and improve their own executive performance.

For example, Miguel has weak planning and prioritizing skills, so he can use step-by-step instructions to make these skills conscious and deliberate. At school, teachers can walk him through various schoolwork tasks, using as many cues as needed. At home, his parents can have him help plan activities such as a party or family trip.

Diana has difficulty paying attention, so her teachers can break her assignments into smaller pieces and give her focusing cues until tasks are complete. At home, her parents can provide a specific area for homework, free of distractions, to help her stay on task. Taylor, who now struggles to stay organized, can benefit from a daily morning session with his teacher to review the day's schedule and gather materials for each class. At home, Taylor's parents can create a checklist of chores, including the steps required for each one, to help him complete them successfully.

Specifically teaching executive skills after brain injury and making adjustments in the home and classroom setting can help address areas that are weak. The eventual goal is for the child's own executive skills to become strong enough so that the external supports can fade away.

Strategies for better executive skills

Having a frontal lobe injury often means that children can find it difficult to judge and evaluate their own performance. Fortunately, they benefit from learning how to do this through "metacognitive strategies," or easy-to-follow procedures that help them understand their own cognitive (thinking) processes. These procedures have several steps:

- identify a goal
- plan how to reach it, and
- keep track of the process.

Along the way, children ask themselves questions such as, "Am I following the plan" or "How am I doing?" to give themselves feedback to keep improving. At first, teachers and parents model procedures for them and offer cues for using them. By practicing on everyday tasks with adult supervision, children with frontal lobe injury find that procedures become automatic, and eventually they can work on their own. By using metacognitive strategies regularly, children can practice setting goals, planning, predicting, organizing, problem solving, self-monitoring, and self-evaluating.

About the author

As a special educator, Dr. Janet Tyler has not only worked directly with students with TBI, but she also trained educators to serve those students. For 23 years, she directed an innovative statewide program in Kansas that provided training and consultation to educators serving students with TBI and their families. She is now in private practice providing educational consultation and training services to school districts, lawyers, medical personnel, and parents of children with TBI. Dr. Tyler can be reached at jtyler@kstbi.org or www.kstbi.org