

7 Executive Function Deficits Tied to ADHD

by Russell Barkley, Ph.D. , ADDitude Editors

There's a lot of confusion around "executive function" — and how it relates to ADHD. Is ADHD an executive function disorder? Is every executive function disorder also ADHD? The answers hinge on what we mean by "executive functions" — and how they relate to self-regulation.

Traditionally, the term "executive functioning" has been used extensively in neuropsychology, clinical psychology, and psychiatry. In recent years, however, it's spread into the broader field of general psychology and into education, where it's often incorporated into teaching strategies and classroom accommodations.

Broadly speaking, executive function refers to the cognitive or mental abilities that people need to actively pursue goals. In other words, it's about how we behave toward our future goals and what mental abilities we need to accomplish them.

The term is very closely related to self-regulation — executive functions are things you do to yourself, in order to change your behavior. By employing your executive functions effectively, you're hoping to change your future for the better.

Executive function is judged by the strength of these seven skills:

1. **Self-awareness:** Simply put, this is self-directed attention.
2. **Inhibition:** Also known as self-restraint.
3. **Non-Verbal Working Memory:** The ability to hold things in your mind. Essentially, visual imagery — how well you can picture things mentally.
4. **Verbal Working Memory:** Self-speech, or internal speech. Most people think of this as their "inner monologue."
5. **Emotional Self-Regulation:** The ability to take the previous four executive functions and use them to manipulate your own emotional state. This means learning to use words, images, and your own self-awareness to process and alter how we feel about things.
6. **Self-motivation:** How well you can motivate yourself to complete a task when there is no immediate external consequence.
7. **Planning and Problem Solving:** Experts sometimes like to think of this as "self-play" — how we play with information in our minds to come up with new ways of doing

something. By taking things apart and recombining them in different ways, we're planning solutions to our problems.

Does this list sound familiar? It should. Anyone who exhibits the classic symptoms of ADHD will have difficulty with all or most of these seven executive functions. Problems with inhibition in an ADHDer lead to impulsive actions, for example. Problems with emotional regulation lead to inappropriate outbursts.

Essentially, ADHD is an executive function deficit disorder (EFDD). The umbrella term "ADHD" is simply another way of referring to these issues.

These seven executive functions develop over time, in generally chronological order. Self-awareness starts to develop around age 2, and by age 30, planning and problem solving should be fully developed in a neurotypical person. ADHDers are generally about 30 to 40 percent behind their peers in transitioning from one executive function to the next. Therefore, it makes sense for ADHDers to have trouble dealing with age-appropriate situations — they're thinking and acting in ways that are like much younger people.

Awareness of these executive functions can help parents set up an early detection system for ADHD, helping them to seek a professional evaluation and accommodations *before* a child begins to struggle in school. Then, with proper accommodations and treatment, ADHDers can learn to use what they know and strengthen these executive functions over time.
