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ADHD And Executive Control: Intervention Strategies For Parents And Teachers

By Adam Cox

Psychologists, schools, and families have come a long way in their collective understanding of

attention-deficit disorder over the past decade. Most of us now understand that to think of ADHD as merely a problem with distraction, or excess energy, is to grossly simplify what is a complex neuropsychological syndrome.

Extensive research has revealed the extraordinary impact of ADHD on the lives of children. Perhaps the most important contribution of scientific research, from a diagnostic perspective, is that inattention and hyperactivity are symptomatic of executive control impairment, or what is sometimes termed "executive dysfunction." This brief article is intended to summarize the relationship between ADHD and executive control, and to highlight the ways in which parents and teachers can assist students whose learning potential is adversely affected by executive dysfunction.

What are Executive Functions? Psychologists and related neuroscientists refer to executive functions to describe a unique set of mental functions performed by the prefrontal lobes of the cerebral cortex, in conjunction with subcortical regions of the brain (limbic system). It is only within the last decade that executive functions have come to be fully appreciated for their impact on cognitive and emotional functioning, and more specifically, cognitive inhibition and initiation, self-regulation, and motor output. In general, executive functions are a constellation of related, yet distinct abilities that provide for intentional, goal-directed action, including planning and organization. Executive functions orchestrate numerous aspects of thought and action.

Operational Definitions: Please note that executive functions have been described by various researchers using different terms. Although the different vocabularies occasionally lead to confusion, the actual observations of researchers have generally been similar. To better understand how important executive control is, consider the following list of executive functions (Barkley, 1988; McCloskey, 2001):

- Orchestrating short-term or working memory resources
- Organizing the storage of information in long-term memory
- Facilitating retrieval of information from long-term memory
- Managing and regulating speed of information processing
- Inhibiting unwanted behavioral responses
- Directing and

sustaining attention while screening out interference · Interrupting distractions to return to attentional priority · Regulating social behavior including empathy and social sensitivity · Facilitating self-awareness · Applying hindsight and foresight in processing information · Modifying performance based on feedback

As the above list makes clear, executive functions have a tremendous impact on our capacity to learn new information, perform what we already know, and adapt to new environments and challenges. The development of attentional control, future-oriented intentional problem-solving, and self-regulation of emotion starts in infancy and continues through preschool and school-age years.

However, the demand for executive functions is limited until the upper elementary grades and, most notably, the middle school years (Holmes, 1987). As children make the adjustment from learning specific academic skills (e.g., reading writing, calculating) to applying these skills for learning content areas (e.g., literary analysis, report writing, algebra) the demand for executive control increases

dramatically. As children enter middle school, they must also contend with significantly less organizational support than they had in elementary school.

The following model has been suggested (Gioia et.al, 2001) as a guide for understanding how executive function deficits may affect children and adolescents in school:

Executive Function Domains, Definitions, and Associated Behavioral Dysfunction

SKILL: Initiate Definition: Beginning a task or activity
Dysfunction: Has trouble getting started on homework or chores

SKILL: Inhibit Definition: Not acting on an impulse or appropriately stopping one's own activity at the proper time
Dysfunction: Has trouble "putting the brakes" on behavior; acts without thinking

SKILL: Shift Definition: Freely moving from one situation, activity, or aspect of a problem to another as the situation demands
Dysfunction: Gets stuck on a topic or tends to perseverate

SKILL: Plan Definition: Anticipating future events, setting goals, and developing appropriate steps ahead of time to carry out an associated task or action
Dysfunction: Starts assignments at the last minute; does not think ahead about possible problems

SKILL: Organize Definition: Establishing or maintaining order in an activity or place; carrying out a task in a systematic manner
Dysfunction: Has a scattered, disorganized approach to solving a problem; is easily overwhelmed by large tasks or assignments

SKILL: Self-monitor Definition: Checking on one's own actions during, or shortly after finishing, the task or activity to assure appropriate attainment of goal
Dysfunction: Does not check work for mistakes; is unaware of own behavior and its impact on others

SKILL: Emotional control Definition: Modulating/controlling one's own emotional response appropriate

to the situation or stressor Dysfunction: Is too easily upset, explosive; small events trigger big emotional response

SKILL: Working memory Definition: Holding information in mind for the purpose of completing a specific and related task Dysfunction: Has trouble remembering things, even for a few minutes; when sent to get something, forgets what he or she is supposed to get

ADHD and Learning Disorders

By definition, all children experiencing ADHD have executive control deficits. Of particular importance to parents and teachers is the critical link between executive control and ADHD.

Effective working memory is essential to concentration. Most individuals diagnosed with ADHD have a problem retaining information in working memory due to inattentiveness or impairment in blocking environmental interference. When working memory is impaired, newly learned information is not fully encoded, and is thus unavailable for retrieval later on. All of the executive control deficits indicated above have been observed in people diagnosed with ADHD. Neither ADHD, or disorders of executive function, come in "cookie cutter" forms. Rather, the expression of these syndromes is somewhat unique in each individual. Thus the basic rule in assessing these problems is to detect patterns of

dysfunction.

Of particular importance in assessing attentional problems is a child's tonic level or general state of alertness. When children are understimulated relative to their own threshold for attention, learning and performance will be impaired.

Intervention

Executive control intervention comes in two primary forms: environmental adaptation and psychostimulant medication. Stimulants may provide relief by correcting the underlying neuropsychological deficit in behavioral inhibition. This means that for some individuals, medication makes it possible to block the interference of information competing for a child's attention so that attention is focused on appropriate priorities.

>From a behavioral perspective, teachers and parents can assist those with executive dysfunction by acting as surrogate executive controls. This means providing an appropriate level of stimulation while reinforcing directives, goals, and related forms of future-oriented planning, organizing, and thinking.

Acting as a surrogate also involves helping a child to understand the meaningful links between performance and outcome; clarifying for children the consequences of not initiating an action, or not inhibiting various types of environmental interference. Parents and teachers working together can expect to measurably improve a child's self-awareness by setting the stage for repeated rehearsal, and actively using reinforcement techniques; (as always, reinforcement is most effective when applied immediately and consistently).

Unfortunately, it is not reasonable to expect intervention benefits to carry over to new places or dramatically new tasks. Everyone involved in helping those with executive control problems should recognize that related learning challenges and/or behavioral problems are not due to a poor attitude. Inattention is not defiant or lazy behavior.

Ideally, the "dysexecutive" child will be placed in a learning environment where she or he will receive the type of compensatory instruction that the syndrome requires. Such placement is clearly a challenge in these days of stretched budgets. However, as parents, teachers and mental health professionals, we owe children our energy and advocacy for thoughtful and fair treatment. Our scientific sophistication in understanding the syndrome of ADHD has grown so remarkably that we can no longer dismiss the syndrome's symptoms as nuisance behavior that a child will outgrow. The learning challenges of ADHD often extend well into the college years. The good news is that we can make a difference by working in a strategic and cooperative manner. Let's challenge ourselves to make the commitment to helping that this difficult syndrome requires.

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Understanding ADHD

By News Canada

(NC)—The behavioural disorder Attention Deficit Hyperactivity Disorder (ADHD) has been recognized and treated since 1902. However, it is only in the last 20 years or so that research has demonstrated that it is a neurobiological disorder with far-reaching impact on children.

Originally it was believed that ADHD was a condition that children would eventually outgrow. We now understand that ADHD is not caused by poor parenting, poor teachers or schools, or family problems, but due to chemical differences in the brain. It is not surprising, therefore that as many as 60 per cent

of children diagnosed with ADHD will continue to have symptoms into adulthood if not properly treated.

Despite increased awareness and identification of the disorder, many children are not provided with optimal treatment that provides continuous symptom relief. It is important to remember that ADHD is a disorder requiring treatment, not a set of behaviours requiring controls. Sub-optimal treatment can have serious consequences for children such as a lack of friends, accidental death, injury, sexually transmitted diseases, substance abuse, criminal activity, and causing marital difficulties for their parents.

Research indicates the greatest improvement in symptoms is seen with a combination of counselling and medical treatment. For many children and their families, ADHD diagnosis provides a welcome explanation for their difficulties and leads to appropriate treatment.

All medications currently approved to treat ADHD belong to a class called stimulants. A number of new investigational ADHD treatments offer great promise and in the future Canadians will have more choice in ADHD treatment.

For more information on ADHD it's important to speak with your doctor.

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Understanding ADHD

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ADHD Beyond The Classroom

ADHD The Easy Way

The Buy Impulse

Take Control of Alcohol

Battle At Sea

Help Your Child Succeed In School

Time Management Secrets



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