

The Impact of Stress on Cognition and Behavior in Students with LD & ADHD, and Other Special Needs: What to Know and What to Do.

(To be used as supplement to Dr. Schultz's presentation)

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Abstract: Because of their neurocognitive vulnerabilities and their history of frustrating experiences in school, stress can take a front seat to learning in the lives of students with Learning Disabilities. Because many students don't understand the nature of their LD, they attribute their difficulties to a lack of ability or even a lack of intelligence. As a result, they have frequent encounters with tasks over which they feel they have little control. The chronic stress that comes from fear of inevitable failure with no means of escape results in changes in the brain that have a deleterious effect on memory and learning. As a result, many students have a reduced capacity to cope with rapidly changing and increasingly complex social, academic and behavioral expectations of school. All too often, reactions to stress are misread as the behavior of an unmotivated, oppositional, defiant or inattentive child. Far too many students with LD are misdiagnosed and inappropriately treated when they act up, act out or "act in" as a way to keep stress at bay. This article describes this debilitating cycle of fear, stress and failure and offers suggestions about how to break it.

Stress is created when unexpected situations threaten a person's safety. Even the possibility of danger causes emotional and physiological changes that help us cope with a real or perceived threat. When an adult or child can't escape a stressor, they exhibit the behavior that any organism exhibits when threatened—they flee, they freeze or they fight. This built-in set of defenses figures prominently in the lives of students with learning disabilities. I believe that it's the missing piece of a puzzle that explains why so many children can't find success in school despite massive amounts of costly intervention by some very talented professionals.

We know that some stress is normal and even healthy. It signals the body to do something to reduce the stressor; to make the problem go away or to get away from the problem. If we were not equipped with the exquisite mechanisms involved in the stress response, we would not survive as a species. Our cave-dwelling ancestors, when faced with a hungry sabre-toothed tiger ready to pounce, had three choices: they could either run, or hide, or try to kill the huge carnivorous cat. When a person reacts in a way that conquers the stress, they regain a state of equilibrium or balance. When individuals are confronted with too much stress, however, their brains and bodies may find it difficult to respond in an adaptive way. No

matter how hard they try, they find they have, as Martha and the Vandellas sang: “Nowhere to run, baby, nowhere to hide.” It is in those instances that stress begins to take its toll.

Stress occurs when a child finds herself in a situation that makes it difficult for her to cope effectively. Both negative and positive events may result in stress. For example, we all know children who have disintegrated into tears when faced with a difficult math test, and those who have fallen apart at their own birthday party. Dr. Karen DeBord (1996) reminds us that in children, “reactions to stress vary with the child’s stage of development, ability to cope, the length of time the stressor continues, intensity of the stressor, and the degree of support from family, friends and community.”

This article takes the position that at every developmental stage, children with learning disabilities are more vulnerable to the effects of stress than their classmates, and that there are more sources of stress for these students. Why is this important? Because the impact of stress on brain function results in changes in brain chemistry, and, if unabated, in brain anatomy, that actually impairs memory and learning.

What does stress look like in children?

We can see evidence of stress in children by both their emotional and their physiological responses. When children experience stress, they may be cautious or fearful, may have heightened sensitivity to teacher’s requests or to environmental factors. They may appear tense or “wired,” angry, selfish or greedy, or irritable or restless. It is not insignificant that many of these same symptoms are seen in children who have been (mis?) diagnosed as having attention deficit-hyperactivity disorder (ADHD).

Children who are under a great deal of stress may act out in ways that negatively impact their relationships with other children or adults. They may be aggressive or withdraw from activities that they previously enjoyed. They may distrust other people or develop feelings that people are “out to get them,” or they don’t feel loved despite all that parents do with them and for them. These behaviors or attitudes can increase social isolation, which in turn increases stress.

Some of the physical symptoms of stress in children may include bed-wetting, frequent trips to the bathroom, thumb sucking, nail-biting, sleep disorders, eating disorders, changes in behavior, emotional lability, low self esteem and depression (Rubenzer, 1988). Like adults under stress, they may also experience chronic or recurrent somatic symptoms such as back pain, tense muscles, headaches, stomachache, and bowel and bladder incontinence. Some children may develop ulcers or tics that are stress-related. They may have low energy levels and tire easily. Some children experience an increase in allergic symptoms, such as skin rashes or breathing difficulties. Some older children who are under significant amounts of stress engage in high-risk behaviors such as using drugs or drinking, often in a misguided attempt to reduce the stressful feelings.

Stress is also known to have a negative impact on cognitive performance. Children who are under excessive stress may find it difficult to attend to stimuli (such as problems on tests, the meaning of a reading passage, or the voice of a teacher). They may seem restless or distracted. They may find it hard

to concentrate or make decisions. They may become anxious, worrying excessively about their performance or scared that yet again, they may look like and feel like a failure—a loser.

What makes this situation particularly troubling is that children with LD are often unable to label stress or even put a developmentally appropriate name on this feeling. They usually can't see a relationship between their behaviors or symptoms and this thing we adults call stress. School-aged children, especially those with language-based learning disabilities, are often unable to explain the feelings they have to adults. As a consequence, teachers and parents may take these behaviors at "face value," reacting to them in a way that actually increases the stress and makes the problem worse for the child. Pediatricians, therapists, teachers and parents need to be aware of these symptoms, and understand that they may be maladaptive reactions to stress.

The Relationship Between Stress and Learning Disabilities

Children with learning disabilities are not only susceptible to stress in the way that all children are vulnerable, but they have additional reasons to experience stress, and fewer skills to cope with it. DeBord (1996) points out that when successful children can anticipate a stressful event, they can often effectively block it as a stressor. Children with learning disabilities may have difficulty anticipating or predicting stressful events, since they often have poor metacognitive or executive functioning skills. As a result of their inability to predict what lies ahead, they are "blind-sided" by stress-inducing events or requests that seem to come out of nowhere. This serves to intensify their reaction to these stressors, which makes them even more difficult to cope with.

Children with learning disabilities are thrown out of balance more often than other children, and they have a harder time bouncing back. DeBord makes the interesting observation that successful children cope with stressful events in a variety of ways; by ignoring or minimizing the nature of the problem, by changing the subject, by simply telling themselves not to worry about it, or by doing something else. When we see these same responses in children with learning disabilities, we may not "read" them as coping skills which the child employs to avoid the toxicity of stressful events (e.g. reading a page--or heaven forbid, a book--or correcting a page of spelling errors). Too often when a child pulls away from a task, gets involved in something fun or silly, makes a joke about it, destroys a work paper, or says the work is not important to him, we misread these actions as oppositional behavior or as symptoms of inattention, or we assume that the child is being uncooperative or lacks motivation. While there are certainly times when a child exhibits these behaviors for just these reasons, unless we consider that they may represent the child's adaptive reaction to stress, we may miss something very important – and as a result, react inappropriately. Rick Lavoie eloquently discusses this phenomenon in his book, *The Motivation Breakthrough: 6 Secrets to Turning On the Tuned-Out Child*.

We know that stress affects performance in students with learning disabilities. Sometimes stress is a positive force that helps them get ready to compete or perform with skill. At other times, when stress is chronic, excessive or traumatizing, it has a deleterious effect on their behavior. In a study of 82 adolescents with learning disabilities and behavior disorders, Sue Swanson and Carol Howell of Georgia

State University (1996) found that there was a significant positive relationship between test anxiety (a reaction to stress) and cognitive interference. In another study (Fisher, et.al. 1996) that examined the relationship between anxiety and problem-solving skills in children with learning disabilities, the investigators found that boys with LD reported higher levels of anxiety than did boys in a control group, and that the anxiety escalated over the course of the problem solving task. If we look at the biological impact of stress on cognition, we can understand why this is such an important issue.

A Neurobiological Connection: The impact of stress on learning and memory

Among a host of intricate neurobiological processes that are triggered by stressful events, threats to physical or psychological well-being trigger the production of cortisol. Irregular cortisol fluctuations are known to be related to extreme behavioral and learning problems. Cortisol inhibits the production of memory enhancing proteins in the amygdala. Prolonged exposure to cortisol created by repeated exposure to stressful events can actually damage brain cells in the hippocampus, with a corresponding decrease in cognitive abilities. What might be called “good stress” gets us ready to do battle; “bad stress” can be neurotoxic.

In an article that examines the impact of traumatic stress on children, Bruce Perry, M.D., Ph.D. and Ronnie Pollard, M.D., (1996) write: “If stress is severe, unpredictable, prolonged or chronic, the compensatory mechanisms can become over-activated, or fatigued and incapable of restoring the previous state of equilibrium or homeostasis.” As a result, they say, the physiological system reorganizes its basal patterns of equilibrium. This means that repeated exposure to stress results in a new, but less effective means of coping with the stressful event. In other words, with each new exposure to a stressor that can’t be overcome, *the human brain actually gets worse at dealing with it*. In extreme instances, the child develops what these authors call cognitive “freezing.” Animals that can’t use a “fight or flight” response to escape prey (like the opossum, for example) “play dead” to escape notice. Might this be the cognitive and behavioral shutting down that we see so often in students with learning disabilities who can’t get away from the work they are required to do? Perry and Pollard point out that this freezing is often labeled as oppositional-defiant behavior when it is seen in children, and is too often reacted to with strong directives to “Do this or I will...” In this scenario, increased demands are perceived by the child as increase threats, and as a result the child becomes even more anxious.

While it may be a stretch to liken the act of reading to a predatory tiger, and while these investigators focused mainly on the impact of traumatic stress, they conclude that stress that is “unpredictable, prolonged or chronic” can have a deleterious impact on brain function, a physiological reaction that takes its toll on learning and memory. We can easily understand how this issue of homeostasis, stress and adaptation applies to a child with learning disabilities. The child who is bombarded relentlessly with events (such as reading, writing or arithmetic) that are in reality *or in her perception* not within her ability to control or master (and from which she can seldom escape), finds herself buffeted about in a “perfect storm” that places her under chronic, brain-altering and debilitating stress.

The Impact of Inclusion, High Stakes Testing and “The Myth of Normalcy”

A factor that exacerbates this maladaptive reaction to the stress created by the daily challenges faced by the student with learning disabilities is the trend toward so called “inclusive” educational programs. Designed to rectify the problem of the segregation and mis-education of students with severe special needs, this movement has resulted in the return of hundreds of thousands of students with learning disabilities into “regular” education classrooms.

While the inclusion movement has resulted in significant positive changes in the way schools view and treat children with disabilities, this has been done at substantial cost to the futures of many students with learning disabilities. Why? Because so many of these children have been reintegrated into classroom in which teachers have insufficient training, time, assistance or resources to adequately address the need for intensive, specialized instruction necessary of academic success of students with learning disabilities. If you doubt this, just ask them—but not in public.

Further, the inclusion movement has brought with it what I refer to as the “promulgation of the myth of normalcy.” When a student with special needs who has been segregated from the “typical” population of children is integrated into a regular education classroom, parents and the child often get the impression that the child is “finally normal.” This understandable desire on the part of parents to have things be “all right” with the child and the hope associated with the return to the regular classroom are fueled by comments from pro-inclusion administrators or teachers who tell the parents that “now your child won’t be segregated from the other kids...he’ll be just like them.” This is a myth, because that child is *not* just like the other kids. The learning disabled child has a neurologically based condition that makes learning more difficult, and that requires and benefits from intensive specialized instructional techniques that are hard to come by in the regular education classroom. The inclusion movement has unwittingly created a situation in which a child and his family are made to feel that he’s supposed to be able to do it just like the other kids—and you know *what*? He *can’t*.

Add to this situation the increased emphasis on what is termed “high stakes” academic testing - state mandated exams that can effectively keep a child from disabilities from graduating from high school - the level of stress has never in recent history been higher for students with learning disabilities. This increased stress affects not only students with learning disabilities, but also their teachers (who are very worried about these kids) and their families. Research (Dyson, 1996) has shown us that even under normal conditions, stress levels in the families of learning disabled children are higher than in other families. Contemporary educational practices which compound inadequate instructional opportunity with high stakes testing raise stress levels to new highs for these children and their families.

Helping Students with Learning Disabilities get a Sense of Control: Reducing Stress and Building Self Esteem

While the debilitating impact of chronic stress on the cognitive and emotional lives of student with LD is a rather daunting prospect, we have reason to be hopeful; this process can be interrupted and the effects mitigated. Dr. Eric Kandel, Nobel Laureate and Professor of Neuroscience at Columbia University

wrote in the journal *Neuron* (September, 2008) that “Behaviors and thoughts that relate to hope, love and happiness can also change the brain—just as fear, stress and anxiety can change it. It’s completely symmetrical.”

Perry and Pollard suggest that in order to ameliorate the detrimental effects of acute traumatic stress, (in their words “alter or modify memories of trauma”) “therapeutic interventions must activate those portions of the brain that have been altered by the trauma.” In this vein, in their discussion of test anxiety in students with learning disabilities, Swanson and Howell (1996) commented that “structured, non-threatening instruction might mediate the deleterious effects of cognitive interference on test performance.” Unfortunately, the likelihood that a highly specialized approaches to instruction, such as the Orton-Gillingham-based approach, is seldom delivered with sufficient intensity or integrity in inclusive environments. As a result, a hit-or-miss approach to special education misses the mark. Would a physician even consider that a half-dose of insulin could keep a diabetic child healthy? Many of us who work with children with LD repeatedly see this improper “dosing” of appropriate and effective educational interventions. To deprive a student with a brain-based disability interventions that have been shown by abundant research to enhance academic success is not only a shame—it verges on *malpractice*. And as we see, the effects of inappropriate or insufficient intervention are not benign.

While Perry and Pollard did not specifically discuss the plight of students with learning disabilities, their work has implications for the design of interventions to reduce the rather persistent onslaught of stressful events that these students face. Unless steps are taken to reduce or control the level of stress created by the demands placed on these students, and unless they are given adequate help to develop the coping skills needed to handle these demands, the self-concepts and educational and vocational futures of all but the most resilient children will suffer.

When students are taught about their own condition, and when they are shown that specific strategies can actually change their trajectory, they improve. They feel better about themselves, and they develop the confidence that comes from competence. The important issue here is how to help students with learning disabilities develop the coping skills that they need to be successful. Some suggestions can be found in the next section.

Ways to Help Students with Learning Disabilities Recognize, Reduce and Manage Stress

Teachers must be sensitive to the possibility that stress plays a role in a student’s academic performance. They must be prepared to manipulate and adjust the stressor by modifying the classroom environment and the curriculum. Modifying the curriculum may initially require what I call “setting a competence anchor.” This technique involves repeatedly taking the child back to a level at which he/she feels comfortable and in control; the level at which the student feels a sense of mastery. This is not unlike the therapeutic intervention used with individuals with post-traumatic stress.

Warning! Simply guiding a child back to a level of mastery may cause him or her to react that “this is baby stuff.” The child should be helped to understand that this is done to help him start from a position of strength, and build up necessary skills. A reluctant student might find this approach more acceptable

if a teacher explains that this is the same approach that an athletic coach might take (e.g., finding out how a young athlete shoots or dribbles before jumping into a game.) Keeping this approach confidential or having the child join others who need the same strategy may help this intervention become more palatable. The important thing is to increase the level of task complexity at a rate that challenges the student without overwhelming him.

While praise is very important, teachers and parents need to understand that if a child lets you praise him or her, they are tacitly also giving you the right to criticize them. For this reason, many kids may not seem to be able to accept praise, even when it's given sincerely and honestly. However, if teachers regularly ask students to self-evaluate, they will be less likely to worry about adult judgment. For example, when a student completes some measure of work, instead of automatically saying "Great job!" a teacher should often ask, "How do *you* think you did on that?"

Initially, a child may be surprised and wary of this question, as it's not one that's typically asked in schools. He can answer in a couple of ways. He might say, "I think it stinks." The teacher might first reflect on the child's appraisal, and in so doing, model a more appropriate choice of words, such as "You're not very happy with this," or "You feel you could have done better." If the teacher agrees that the work is inferior, she might say "You know what? I'd have to agree that you've done better work." This reference to previous accomplishments uses the student's own work, rather than the teacher's subjective appraisal or a comparison to other kids as the standard for performance. In this example, the teacher's reaction has the effect of honoring the student's self-appraisal as well as keeping in view a clear (and reachable) standard for better performance. Students quickly begin to trust this kind of honest interchange. Of course, they could say "My work always stinks!" or "I'm lousy in math," This is a good time for a teacher to pull a sample of better work from the student's portfolio as hard evidence of the student's capabilities.

On the other hand, if the teacher believes that the work is in fact, acceptable (that is, compares with or is better than previous work that that student has done, or that it meets some other performance standard), he or she might then say "You know what, Jake? I'm surprised you feel that way, because I think this is as good as or better than other work you've done," or "I think you're being a bit too hard on yourself, Jake...I've been teaching for a long time, and I think this is pretty decent work." In this way, the teacher disagrees with an inaccurate negative self-appraisal in a way that makes it hard for the student to disagree. Of course, the kid may persist in berating his work by saying something like, "Yeah, you're just saying that to make me feel good—you know it stinks." It's at this point that the teacher cashes in on his history of giving honest judgments. "I do want you to feel good, but you know me well enough to know that I'd tell you your work stunk if it really did."

In Conclusion

If a teacher has a positive relationship with a student, the student will be able to take more risks and worry less about the reaction of the teacher. If the teacher values the student's strengths and provides many opportunities for the child to use his or her skills, it will be easier for the student to venture into "risky" territory with reduced levels of stress. Students with learning disabilities clearly have to work

harder than other students, but they also have to work “smarter” to achieve success. By reducing stress in the classroom, and by teaching kids how to better understand the nature of their learning disability and how get through the rough spots, students with learning disabilities will have a better chance of reaching their full potential—and they’ll enjoy school a whole lot more.

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Author’s Note: The ideas expressed in this article are expanded upon in Dr. Schultz’s book: *Nowhere to Hide: Why Kids with ADHD and LD Hate School and What We Can Do About It*. Published IN 2011 by Jossey-Bass. ISBN #978-0-470-9028-1

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