The Fallout from Fight-or-Flight

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Scientists have known for a long time that fear and high levels of stress cause a fight-or-flight response. More recently, researchers discovered that shame triggers this same fight-or-flight response in both children and adults. This is in contrast to other negative emotions like sadness that don't trigger it. This fight-or-flight response is our bodies' automatic protective reaction that mobilizes us to fight or flee when we think we are in danger. In a fight-or-flight response our brains automatically initiate a cascade of neurotransmitters and stress hormones that affect almost every system of our bodies. Blood pressure and heart rate go up. We become more vigilant, on edge and sensitive to incoming stimuli that can warn us of danger. Changes occur in our vision, hearing, motor control, attention, memory, and intellectual function that contribute to our ability to protect ourselves.

The fight-or-flight response can

be triggered whether the threat is real or one that is imagined or anticipated. It's our perception or anticipation of threat or danger that mobilizes our fight-or-flight response. Neuroscientist Robert M. Sapolsky describes it this way in his book, *Why Zebras Don't Get Ulcers*.

When we activate the [fight-or-flight] stress response out of fear of something that turns out to be real, we congratulate ourselves.... But when we get into a physiological uproar and activate the stress-response for no reason at all, or over something we cannot do anything about, we call it things like "anxiety," "neurosis," "paranoia," or "needless hostility," Thus, the stress-response can be mobilized not only in response to physical or psychological insults, but also in expectation of them.[1]

Researchers have found that this automatic fight-or-flight response to a perceived threat interferes with learning and executive function skills like attention, working memory, planning and self-control. The fight-or-flight response to shame, fear, or high levels of stress is more likely to be triggered when people have no control over or ability to change their situation, when they "[can't] succeed despite their best efforts."[2] This puts students who believe they cannot succeed at a great disadvantage. When children experience stress, shame, or fear in school, their academic difficulties are compounded by their fight-or-flight responses. This helps explain why it's so damaging to demand that children learn to read or perform at a more advanced level of a subject like math before they have the foundation they need to learn it successfully.

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When children feel there's nothing they can do to get better grades and succeed in school, they are not only at risk for experiencing the fear, shame, and toxic stress that can interfere with learning. Lack of control in a situation also puts students and teachers at risk for developing what researcher and psychologist Martin Seligman calls, "learned helplessness," a defeated "giving-up reaction; the quitting response that follows from the belief that whatever you do doesn't matter."[3] In classrooms where students and teachers have little control over what happens to them and few opportunities for autonomous decision making, they are both at risk for learned helplessness.

I've learned a lot about how the fight-or-flight response interferes with attention and learning from my clients who have a condition called sensory modulation disorder.[4] These children and adults have an over-reactive fight-or-flight response that can be triggered by ordinary sensations like touch or sound. A child with sensory modulation disorder can be thrown into fight-or-flight by a fire alarm going off or the feeling of their own clothing. Although those of us with more typical nervous systems are not so easily triggered by a touch or sound, once we react with a fight-or-flight response, the negative impact on our learning, attention, self-control, and other executive functions is the same.

During a fight-or-flight response we filter incoming information for its survival value, paying attention to the things that are potential threats and ignoring other aspects of the situation. This distortion of attention means that when we recall the event, we have a stronger, more detailed memory of the threatening aspects of the situation. So a child whose fight-or-flight response is triggered in school will have difficulty remembering the lesson but will probably have a vivid memory of what triggered her fight-or-flight response.

Fight-or-flight has a devastating effect on motivation in school.

Fear of making a mistake can increase the odds of making one.

The anxious, stomach churning fear feels awful. In this state what we want most in the world is to not be where we are, to not be doing what we are doing, and to not feel what we are feeling. When we experience the fight-or-flight of fear, shame, or high levels of stress repeatedly in the same situation, the feeling becomes associated with those circumstances. Whether it's in math, history, or gym class we are motivated to avoid those classes and those subject areas to avoid the feelings associated with them.

In fight-or-flight, changes occur in our vision and hearing that help us pick up signals of danger in our environment. Ordinarily we can attend to and understand someone who is speaking to us because we are able to selectively filter for speech sounds and filter out extraneous sounds. This is why we can carry on a conversation in a noisy crowded restaurant. Changes in our hearing during a fight-or-flight response reduce our capacity to selectively filter for speech sounds. Instead our hearing becomes sensitized to the non-speech sounds around us that could signal danger. So children in fight-or-flight are less able to hear what the teacher is saying and they are involuntarily alerted to the sounds behind and beside them such as the scraping of a chair or the rustle of papers. At this same time, changes in the visual system reduce children's capacity to focus their eyes on things that are near such as a book or work sheet.

Our normal patterns of movement and our executive function skills change during the fight-or-flight response which could more accurately be called a fight-or-flight-or-freeze response. We may become frozen and unable to act or impulsive and hyperactive. In a freeze state, which is more common in shame, we are constricted and rooted to the spot. In a fight-or-flight state the opposite occurs, our self-control diminishes and we become impulsively biased toward action – prepared to fight or flee to protect ourselves from danger.

This lack of self-control and bias toward fighting or fleeing gets many children into trouble from school yard fights to verbally abusing others. It can get adults into trouble too. When I gave a talk about the fight-or-flight response to a group of jail inmates participating in a restorative justice program, one man raised his hand and told us his story of going into a flight response.

I shouldn't be in here now. I had just gotten out of jail and was stopped at a stop light. A police car came up behind me with lights and siren going. I hadn't done anything wrong. I just panicked and took off. That's why I'm in here.

It's hard for children who are in fight-or-flight to sit still in class when they are on high alert and their brains are telling them fight or flee. However, one form of flight does not involve movement. It is a flight into day dreaming or inattention. Many of the children in my clinical practice are diagnosed with attention deficit or hyperactivity disorder because under stress they go into active flight or the passive flight of inattention.

Fight-or-flight impairs fine motor skills and the ability to perform complex motor acts. When I evaluate a child's handwriting, I get handwriting samples from both home and school. If her handwriting is much better when she is at home and feeling safe, I know that her fight-or- flight response is contributing to her poor handwriting in school. We may see the same deterioration in sports performance when a child's fight-or-flight response is triggered.

During a fight-or-flight response, blood is shunted out of the stomach and intestines and into the large muscles where it can be used to fight or flee. This shunting of blood can produce problems with digestion and stomach aches.

In a fight-or-flight stress response our executive function skills are diminished and our thinking becomes less flexible so we are less able to solve problems, plan, organize, and be creative. High levels of stress, fear, and shame also cut us off from our higher intellectual abilities and impair memory. People who have a fear of public speaking experience the debilitating effects of

fight-or-flight on intellectual function and memory when their minds go blank in front of an audience.

Fear of making a mistake can increase the odds of making one. And the higher the stakes in a situation, the more likely it is to trigger our fight-or-flight response. Children who are experiencing high degrees of shame, stress or fear are less able to organize, plan, solve problems, and perform on tests.

Children who experience long term incessant criticism, fear or shame suffer from what scientists call chronic stress which is the frequent triggering of the fight-or-flight response over a prolonged period of time. Studies on the effects of chronic stress show that it impairs self-regulation and executive functions, such as impulse control, working memory, attention, organization and planning. These effects can last well into adulthood. Research shows that poverty produces chronic stress. This helps explain why studies over the last 20 years consistently find that family income is one of the strongest predictors of students' test scores.

Another long term effect of shame, fear and stress is the result of how our memories work. When strong emotions accompany an experience, either positive or negative, we store the emotions in our memory along with the events. When we remember the experience, we re-experience some of the emotions associated with it. This is why recalling pleasant memories can make us feel better and remembering unpleasant experiences can make us feel worse. At work or at home, without knowing what triggered it, we may experience a sudden mood shift when a memory of a humiliating or frightening experience intrudes on our thoughts.

The potential long term debilitating effects of this connection between remembered events and emotions are seen most vividly in people who have post-traumatic stress disorder. They re-experience some of the emotions each time they remember the traumatic event or encounter a similar situation.

This same trick of memory is at work in the classroom. Consider the long term implications of this for children who experience fear, high levels of stress, or shame in school. If a child experiences fight-or-flight while learning math or reading, she may re-experience some degree of it whenever she reads or uses math throughout her school years and into adulthood. In this way, the negative effects of school-related stress, fear, and shame can continue to haunt her, interfering with her use of math on the job or her comprehension and recall of employment related reading. ✦

References

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