

THE STRAINED BRAIN

THE 'JUST RIGHT' RULE OF AN EQUILIBRIUM

By **FRANÇOIS BOGACZ**
editor@leaderonomics.com

STRESS at work is an issue that most organisations publicly swear to address with vigour and determination.

But what is stress, actually? Let's start from the biological definition of stress: "an organism's response to a disruption of its physical or psychological equilibrium".

The disruption can be danger, loss of control, the inability to predict the future, or an acute physical or social pain.

The response is a cascade of physical reactions designed to protect you from the disruption, using different hormones that include cortisol (**see box**).

However, moderate stress is actually good for the brain. Like many other organs, it is mobilised to restore equilibrium, which means it becomes more focused.

Let us take the example of the prefrontal cortex (PFC), the "CEO" lodged in the anterior part of your brain which manages all big decisions, thoughts and plans. Apart from cortisol, two other chemicals may arouse the PFC in a situation of stress.

The first one is called noradrenaline and it triggers the flight or fight response in our nervous system – no surprise if it starts to flow in a situation of stress.

The second one, called dopamine, is released when you anticipate a reward. It might look counter-intuitive to link reward to stress, but if for instance you are about to make an important presentation in front of your board, you will often feel a mix of anxiety of failure and motivation to succeed.

The critical thing about the flow of those three fuels in our brain, as shown in **Figure 1**, is that their impact on the capacities of the PFC follows an inverted U-curve.

When the flow is too little – during times you are bored or fatigued, i.e. fuel-depleted – your PFC has very little effectiveness. When the flow is high enough, the PFC reaches its peak of effectiveness.

However, if the flow continues increasing and gets too high, the stress becomes too much and the PFC shuts down.

This makes you lose your self-control, your focus and your capacity of reappraisal. You revert to your habits,

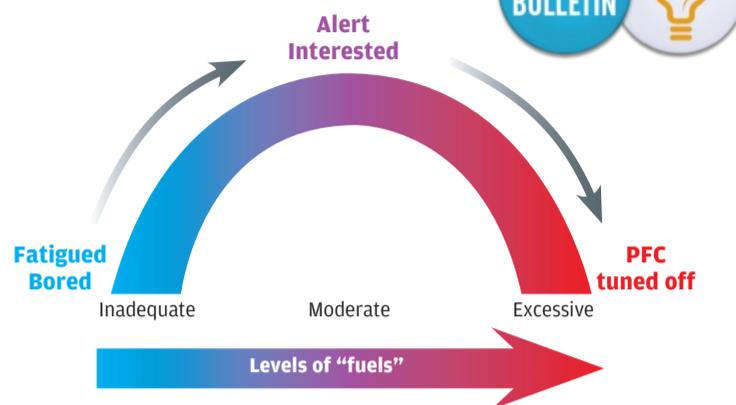


Figure 1: The inverted U-curve of the prefrontal cortex (PFC)

impulses and emotions.

We all know it: if we feel too much stress before a presentation, we sweat, we have a dry throat, we can't find our words, etc.

With such a reduced perception of control of the situation, more stress comes into our brain and body, causing an even lower perception of control. This is the perfect recipe for failure if we do not break the downward spiral.

If such situations become chronic, things get uglier, because the immune system is inactive for too long.

As a result, our bodies become more sensitive to external attacks, interpreting this vulnerability as a stressor, which in turn reinforces the downward spiral.

When facing uncertainty and difficult challenges at work, our bodies naturally develop the stress responses as described above. With a positive consequence, this causes a better arousal of the PFC.

However, any additional pressure in such a situation will push you down the slope of the inverted U-curve.

What you need is the exact opposite of pressure – help and support, which allows you to feel that you are in control.

What does a good coach whisper in the ear of his team player when he or she is under too much stress and has made too many errors?

Does he inflict more pain, threaten, and do other things that

heighten stress? No.

Instead, he helps the person change his or her perspective by using positive words. He emphasises past successes, leverages reformulation, reappraisal, positive visualisation, etc.

Unfortunately, few managers have been trained to act that way. Many believe that it is good to apply significant psychological pressure on their people and to add to their already full plates with more projects and objectives.

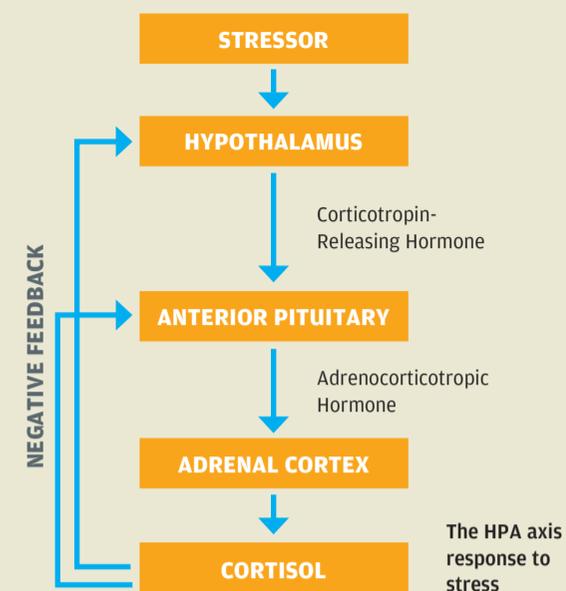
They increase complexity rather than decrease it, and at times throw the whole organisation into a downward stress spiral – or down the cliff, to use the good old lemmings' metaphor.

In their perspective, globalisation dictates the game, and stress is normal, because there is uncertainty everywhere and struggles for everyone.

Unfortunately, in situations of uncertainty, we do not need more complexity, but less, in order to succeed.

I invite all my readers to read a book by Gerd Gigerenzer called *Risk-savvy: How to Make Good Decisions* to learn more about how to better face uncertainty.

Paraphrasing that great book, I think that we will all benefit from being more "stress-savvy" by building on this new knowledge to create upward spirals in our organisations. I hope that this article has modestly contributed to this goal.



PHYSIOLOGICAL RESPONSE TO STRESS

IN the HPA acronym, the H designates the hypothalamus, a key component of the limbic system, and the emotional subsystem in our brain.

The P designates the anterior pituitary, a gland at the base of the brain and the A designates the adrenal cortex, located in the kidneys.

In response to a stressor, the HPA axis generates different hormones and reactions in a cascade.

First, the hypothalamus releases a hormone called CRH (corticotropin-releasing hormone), which stimulates the anterior pituitary. The anterior pituitary, in turn, releases the adrenocorticotropic hormone, which stimulates the adrenal cortex.

This last region in the process releases cortisol.

This increased production of cortisol allows our body to adapt itself to stress.

It triggers generation of additional sugar in the body, in order to give more fuel to the brain, and it mobilises our body in order to survive, which includes shutting down some subsystems that are not essential to survival, such as the immune system.

The last stage of the HPA activation is that the cortisol produced in the adrenal cortex sends a feedback signal to inhibit the original activity of both the hypothalamus and the anterior pituitary gland, in order to stop the stress response.

By doing that, our body tells the brain: "It's okay, equilibrium has been restored, so please calm down".



■ **François Bogacz** is a facilitator and mediator, specialised in the application of neuropsychology to leadership, diversity and conflict resolution. He helps individuals and organisations maximise their potential by understanding the human brain at the emotional, social and cognitive levels.