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A Sandpapered Brain

Learning to Reset Our Over-stressed Brain

Have you ever reflected on something you did, that you now think, “Why on earth did I react like that?” Maybe you lost your temper with one of your students or perhaps it was something in your personal world. Whatever it was, later, when you have time to reflect and consider your behaviour, you realise you totally over-reacted. By the way, I am totally there with you on this. Knowing the neuroscience behind why this happens, doesn’t mean you are immune to regretful moments in your life, believe me!

However, when you think back over the day or week preceding that moment, sometimes you can’t find a clear reason for your behaviour. There isn’t one big thing that has sent you into a negative space. You think and think, but can’t come up with why you reacted that way.

I propose it was a case of the sandpapered brain. This is a concept I have been introducing to my talks around the country. My job is to train and support hundreds of people around Aotearoa who are working with children, youth and adults who have experienced trauma. I have worked for over fifteen years around how we can best identify and intervene when trauma has been part of someone’s life. It is therefore quite astounding to me, that it was only about 12 months ago that I developed a training around the concept of self-carer and looking after yourself!

Obviously, a half or full day training is going to allow more scope to explain the concept. This article will just introduce the idea, and hopefully get you thinking about yourself, and how to reset yourself more purposefully, and maybe a bit earlier. This will help you avoid several of those moments where you react inappropriately. It will also increase your health, energy levels and will allow you to be more future thinking and innovative in your work.

Firstly, we need to unpack a little bit of information around the stress response, which is effectively the fight or flight response.

The stress response is all-important and aimed at continuing our survival on this planet. It is present from birth such as when a baby cries, kicks their legs or their little heart races. It is one of the main reasons we still exist as a human race. However, what we need to understand is that it was formed to activate for very short periods of time. The stress response would be activated, we would escape the threat, and then we would calm back down again. Short, sharp bursts of activation of the system that would keep us alive in reaction to that specific threat. What happens now, in our modern environment, is that we can be surrounded by 'threats' for hours, days, months or even years. The stress response has not yet adapted to cope with activation for longer periods of time. This is a large part of why we now face so many adverse effects from stress, due to the over-activation of the stress response. It is important to keep in mind that short, tolerable levels of activation of the stress response are not bad for us. It is the long-term activation that is having the negative effect.

Another important factor to understand is that the brain and body react to every stressor as if it is going to kill us. We activate the fight or flight response when we see a dangerous lion approaching, which is obvious and useful. However, this exact same stress response is activated when we observe (or even just imagine) a threat such as an angry boss, an overdue project, an upcoming exam or a bill we are unsure we can pay. The brain does not categorise threats into those that can kill us and those that can't. Any threat activates the response in our body aimed at keeping us alive! So that bill sitting on the kitchen table can activate our survival, fight/flight response the same way as if we felt an earthquake approaching.

When we activate the stress response, the body is mobilizing those systems that will keep us alive. Some of the observable changes may include eyes dilating (in order to allow us to better see the predator coming from our peripheral areas); dry mouth and nausea (associated with the body recruiting the energy from these systems into the more essential 'survival' response); energy transfer to the major muscles in legs and arms (to facilitate the fight or flight behaviour); heart racing; bowel & bladder release and temperature changes amongst many other alterations in the body.


In the brain, the very generalised summary of what is happening, is that the energy is being utilised by the lower parts of the brain, the survival areas. These survival areas identify and react to threats, and they control heart rate, breathing, etc. So as these lower areas require more energy, the higher areas lose the energy to operate. As a reminder: This is a simplified overview. It is essentially correct, but there is a lot more to it than just simple energy transfer.

The higher, cognitive areas of our brain are the areas that allow us to be logical, abstract, empathetic, etc. They are the areas that mean we can consider, decide and override any inappropriate impulses, such as the ones we talked about at the beginning of the article. As these lose energy, they are unable to operate effectively. A good example of this is when you are a bit nervous (activating the stress response) and you can't remember some simple piece of information like someone's name, or the item you came to buy in the supermarket!

Are you starting to get the picture? The more our body utilises energy for survival, the less energy we have available for the non-survival tasks. Both the brain and the body alter. However, the most important aspect for this article, is to understand how incredibly negative this affect can have on the cortical areas of the brain. Small activations of stress can limit our ability to hold a list in our heads, remember a fact from the past, predict toward the future, or it may simply mean we can't remember where we left our keys yesterday!

So, what is this sandpapered brain? Those threats I was talking about, they can be tiny and almost unnoticeable. Each one, however, is like a sandpaper. Imagine touching the back of your hand. It wouldn't hurt currently. But if you sandpapered the back of your hand, each touch, even of the same pressure, would hurt more and more, the more sandpapering you administered. This is what we need to understand happens for us as humans living in a complicated, busy world. Each small activation of the stress response works like a sandpaper, increasing the reactivity in the brain to the next event. Kids running late for school, people cutting you off on the drive to work, too many emails in your inbox, no coffee in the staffroom. All of these can accumulate to mean you are in quite a high state of stress without you really noticing. So then, when that smaller event happens (like that pressure on your hand that would not have hurt initially), you now lose the plot because you have a sandpapered brain. That is why, when you think back over to the reason you reacted so crazily, you often can't think of why. The reason is because there were lots of smaller activations, some you might not have even considered threats. But your brain did, and so it reacted, just slightly, but the culmination resulted in the behaviour you displayed.

The important thing about learning about the sandpapered brain, is to be aware of these small sandpapers. Be kind to yourself. Help yourself reset by something that makes you feel relaxed such as a cup of tea, a quick walk, listening to some music, talking to a colleague. Resetting yourself after a few sandpapers could protect you from continuing down that negative spiral towards that inappropriate response you identified at the beginning of the article.

As I said, this is such a brief summary of this topic. But hopefully it will help you consider yourself a bit: be kind to yourself and identify sandpapers for what they are. On the flip side, with your new knowledge, is to increase forgiveness and understanding of those around you too! 

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Kathryn is an expert in using neuroscience and physiology to assist us to better regulate ourselves. She is committed to helping teachers and parents to work better with children, youth, colleagues and clients. Kathryn runs sessions around this subject, supporting teachers to understand different ways to assist children to get better at staying calm.

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