

INTRODUCTION

By Margot Neuman

Mindfulness meditation is not new. In fact, it has been practiced for thousands of years and has withstood the test of time. Therefore it is not the “latest and greatest new therapy,” but has been benefitting humanity throughout the ages. It has become mainstream today due to all the science showing it to be a powerful tool for coping with stress and trauma. Using modern technology such as Magnetic Resonance Imaging (MRI), Functional Magnetic Resonance Imaging (fMRI), and brain scans, it has been demonstrated as a technique that has profound and positive effects on every part of the body, and especially the brain.

Traumatic memories are stored in a different part of the brain than coherent thoughts and memories, and they are stored as pictures, not as concepts and words. As a result, traditional talk therapy alone is not sufficient in working with trauma. Because of this, many therapists and clinicians today feel that alternative therapies such as meditation, yoga, equine-assisted psychotherapy, etc., should be in the frontlines of treatment of trauma and post-traumatic stress.

How Trauma Impacts the Brain

Trauma affects the stress-hormone system, which has a profound effect on the entire nervous system. Traumatic memories are fragmented and stored in the nonverbal, non-conscious regions of the brain, and are

not in the prefrontal part of the brain which is responsible for thinking and reasoning. Therefore, when one suffers from post-traumatic stress, memories of the event are not coherent. Past and present are confused, and one experiences highly-charged flashbacks. In addition, there are weaker neural connections between the right and left lobes of the prefrontal cortex.

The left side is the conceptual, thinking part of the brain, and trauma is stored as pictures in the right side of the brain, as well as the amygdala, the “fight or flight” area of the brain. This can generate **hyper-arousal**, where the nervous system is in over-drive, given to hyper-vigilance and states of rage, anxiety, and panic. On the other hand, as a reaction to traumatizing circumstances that overwhelm any ability to respond or escape, the brain’s limbic system sends a message to freeze or “shut down.” This is **hypo-arousal**: one dissociates from one’s feelings—sometimes even blocking out the actual event, unable to remember it—becoming numb, flat, and deadened.

According to Adrienne Taren, a researcher studying mindfulness at University of Pittsburgh:

Trauma researchers have looked inside the brains of people who have suffered serious emotional trauma....During [brain] scanning, the images [of past traumatic events] actually showed dissociation happens in the brains of those with PTSD. When they remember a trau-

matic event, the left frontal cortex shuts down ...But the areas of the right hemisphere, associated with emotional states and autonomic arousal, lit up. This suggests that when people relive their traumatic experiences, the frontal lobes become impaired, and as a result, they have trouble thinking and speaking....Coherent narratives about the past require both left and right hemispheres to be fully online.

Trauma can change the normal functioning of the brain, creating a psycho-physical conflict that's not easily resolved:

PTSD is not just an emotional response to troubling events; it's the expression of a persistent deregulation of body and brain chemistryTrauma creates chaos in our brain....The emotional, primitive part of the brain interprets messages that there's danger or safety. It knows nothing about reasoning or cognitive functions. It deals with feelings, emotions and reactions.... Usually in our body, emotions and thoughts are all connected. Trauma separates these from one another. Trauma freezes thinking...[One is unable] to distinguish a real threat from a false threat....This is accompanied by the release of hormones...to prime the body for an emergency. This causes the "fight-flight" response... oxygen

bound for the brain is diverted into muscles; or it may produce a 'freeze' mode, and one becomes paralyzed.... Since trauma is situated in these sub-cortical areas of the brain, we need to do things that change the way people regulate these core functions—which cannot be done by words or language alone.

How Mindfulness Impacts the Brain

Researchers at Massachusetts General Hospital found that the gray matter density of the frontal cortex, the part of the brain that manages higher cognitive functions, was significantly increased in meditators. Scientists have also found that the region of the brain most associated with emotional reactivity, fear, and trauma, the amygdala, can decrease in grey matter in those who meditate. Hence the brain activity that generates anxiety and aggression lowers, while the activities of discernment, judgment, and reflection expand. Grey matter is the part of the brain that holds most of the actual brain cells; it is thought that its increased density may reflect an increase in connectivity between the cells. In simple terms, brain scans and neuroimaging have concluded that the parts of the brain associated with compassion, self-awareness, and higher intellectual functioning grew, and the parts of the brain associated with stress and anxiety shrank. These changes begin to appear after only eight weeks of regular mindfulness practice of 20–45 minutes daily.

Scientists previously thought that sometime, shortly after age twenty-five or thirty, the brain was finished with growth and development, and from then on, the brain became progressively impaired by age and injury, and it was all downhill from there. It is true that the cortex atrophies with age; however, in studies on the brains of meditators, the cortex was measured at the same thickness of non-meditators twenty years younger.

When we are being “mindful,” we are bringing focused, non-judgmental awareness to our experience. This attention changes the structure and functions of our physical brain. Over time, mindfulness meditation practice builds more connections between the areas of the brain, slows down the reactivity, and increases the sense of the body as a whole. The functional connectivity between the regions of the brain changes. The connection between the amygdala (*fight/flight*) and the rest of the brain gets weaker, while the connections between the thinking and reasoning part of the brain get stronger. Our more primal kind of knee-jerk reactions become weaker than our more thoughtful responses. Taren:

The picture we have is that mindfulness practice increases one’s ability to recruit higher order, pre-frontal cortex regions in order to down-regulate lower-order brain activity.... Lots of activities can boost the size of various

parts of the pre-frontal cortex, video games, for example, but it's the disconnection of our mind from its 'stress center' that seems to give rise to a range of physical as well as mental health benefits....I'm definitely not saying mindfulness can cure HIV or prevent heart disease. But we do see a reduction in biomarkers of stress and inflammation...all of which are associated with disease.

How does Mindfulness Meditation Work with Stress and Strong Emotions?

We have all had the experience of being absorbed in some kind of task, a hobby, a book, a cross word puzzle, etc. At such times, there is no anxiety, no hope or fear about the past or future. One is simply content and at peace. The mind likes to be focused—we learn how to make that focus stable and strong with the practice of mindfulness.

Meditation is the very simple practice of observing the workings of our thoughts without judgment, analysis, or after-thought. One places one's attention on the breathing, and when a thought distracts us and takes us away from the present moment, we very simply return to the breathing without comment. There is no attempt to stop thoughts. The technique involves noticing that we've been distracted, acknowledging the thought, and then letting it go by returning our attention to breathing. Many thoughts and feelings are persistent, so each time they arise and take us away, that

many times we return to breathing. Each time we return to the breath, we are strengthening the mind. Each time we engage, follow, and dwell on a thought, we strengthen the habit of allowing thoughts to escalate into emotional conflicts, thus weakening the mind.

Mindfulness meditation is based on the assertion that our underlying, natural mind is strong, stable, cheerful, compassionate, and in possession of great insight and wisdom. Those qualities are present within us at all times, yet we don't seem to experience them because our minds are cluttered with constant distracted thinking and emotions. We see everything through the filters of our preconceptions, judgments, and opinions. When we look out at the world, we only see the inside of our own heads. Meditation is a means for getting our confusion out of the way. How?

Think of a beautiful, crystal jar of water, absolutely clear and pure, with a layer of sand lying motionless on the bottom. The sand is all our thoughts and emotions, and the crystal clear water is our natural, inherent state of mind which is not disturbed by confusion. But what happens if I shake up the jar? The water becomes cloudy and murky. Has the water been ruined? Can it ever return to its original state? Yes, of course. How is that accomplished? By letting the water settle on its own—we do nothing. Well, what happens if, in our impatience for stillness and clarity, we remove the lid and try to push the sand down? It stirs it up more. So this is a precise statement of what we do (or

don't do, one could say) in meditation. If we do anything at all, it's to return our minds to the anchor of the present moment, our breathing. We just let the mind settle to its natural state.

Mindfulness is a Powerful Psychological Tool

It should be stressed that the practice of meditation is *not* itself religious. It can be completely stripped of religious trappings and used as a powerful psychological tool. It offers us a way to objectively examine what's going on inside ourselves, illuminating both the causes of our confusion and the great positive potential we have as human beings.

All of the scientific studies have been done using secular (non-religious) research models. In addition to sitting meditation, other mindfulness practices include walking, yoga, simple stretching exercises, and intently listening, to name a few examples. None of these activities are inherently religious, but they can be used to good effect in working with stress and trauma.

While meditation is not by itself a religious act, it can serve to deepen insight into one's chosen faith. Most spiritual and wisdom traditions have taught some form of meditation. Many people use prayer instead of the breath as the object of meditation and the anchor to the present moment. The technique then becomes keeping one's attention focused on the content and meaning of the prayer, and when the mind wanders into thinking about something else, one gently returns to the prayer.

Mindfulness of the breath can still be used as a valuable addendum to this kind of practice. Because we breathe in the present moment—and not in the past or the future—the breath can be a strong support to meditation, a very organic method for staying anchored in now. It can provide good training in how to work through mental distractions and inner struggles, helping prayer become more immediate, focused, and potent. Developing in this way, one can use all forms of prayer to strengthen the mind and dis-empower negative habitual thoughts and patterns.

We advise the readers of this book to take their time with it, trying out and exploring the many methods it presents as they go along. It is experiential engagement with these instructions that will bring results.

For military veterans of any stripe, developing mindfulness is a tool for working with disturbing emotions, cognitive dissonance, and deep anxiety. It gives the nervous system a way to recalibrate and re-pattern its responses, as well as new ways to grow. Once we begin to examine our minds and lives, we may also see new ways to live them, finding further courage and inspiration for life beyond the military.

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