

Mind And Body  
**FULLNESS**



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# Mind and Body Fullness

Mindfulness is the most talked about modality in medicine today. From the cover of Time Magazine to long articles in the *New York Times Newspaper*, Mindfulness virtues are being lauded as stress-reducing and even life saving. With apps and remote communities and trips to India, everyone is turning a 3rd eye towards Mindfulness. Neuroscientists are telling us that mindfulness can grow new brain cells and help improve our "body mapping", movement and activities of daily living. There is also evidence that Mindfulness Meditation (no cushion required) can even boost the amount of enzymes that heal our chromosomes as they replicate and keep us feeling and acting younger.

That's a lot of talk. But how does it work?

## What is **MINDFULNESS**?

There are a lot of definitions of what mindfulness is, but a common definition that most Neuroscientists would agree with is simply: paying attention, on purpose, in the moment, without judgment. Some would add an intention of compassion and curiosity is also involved. But mental body constructs are less effective than an experience. So let me walk you through an experience to help your mind get full of your body.

*Body mapping is the way we understand how our body parts interact with the world. For instance, our ribs can be mapped as a basket with 24 bones expanding out and folding in with breath and movement or they can be mapped as a cage, held rigid and blocking flow of movement, fluids and even energy. Because the workload of movement or loading is not evenly distributed throughout our body segments, parts of us are overused and begin to break down. Then we say we have a "bad" shoulder or knee or back. What we have is a valiant body part that has been taking too much of the workload because other body parts are not properly mapped in the brain for functional use.*

*The part of the brain that "maps" fingers is much larger on the left side of a violinist's brain than on the right side. That is because the violinist must use more discrete and sensitive touch when she "fingers" the strings with her left hand than when she simply slides the bow back and forth over the strings with her right hand.*

*The better our body-maps, the more fluid, solid and safe our movements.*

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## Take 5 Minutes And Try This MINDFUL MEDITATION

Sit comfortably with your shoes and socks off. Before you close your eyes, have these instructions in your brain: I will sense my right foot. I will sense where it ends and where it begins. Then do that with your left foot. Sense where it begins and where it ends. Now close your eyes and do those two things. When you are quite familiar with where your right foot begins and ends, and where your left foot begins and ends, open your eyes again and read on.

### Pause

Now, even as your eyes are open and you are reading these words, you can reference your feet and sense where they begin and end.

Now close your eyes again and just check to make sure that you sensed correctly as you were reading, and this time notice which direction your big toe is facing on the right foot and which direction your big toe is facing on the left foot. Go ahead and close your eyes and notice where your right foot begins and ends and which way your big toe is facing and then do the same on your left.

### Pause

Make sure you are closing your eyes and really sensing your feet and your big toe. If you need to, close your eyes again and make certain you are doing this.

Now, this time when you close your eyes, notice if one foot is in front of the other. Is the left toe in front of the right, or the right in front of the left?

### Pause

Ok. Once again, close your eyes and sense if you are resting on the inside border or the outside border of your right foot.

And now, close your eyes and sense the same thing for your left foot. Are you resting more on the outside border or inside border of your left foot?

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## Pause

Lastly, close your eyes again, and sense which foot is heavier on the ground. Which foot has more weight through it?

## Pause

Now, bring into your awareness both feet. Sense which one has more weight through it, which one is more forward, which one is more turned out and which one is more rolled to the outside. AND does one foot feel bigger than the other?

Even though you are sitting, you are standing through each foot very differently. You have become mindful of your feet and the brain-mapping of your feet has changed.

Now stand and walk and see if your altered brain-maps have changed the way you use your feet in function.

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You see how you paid attention, on purpose, in the moment, without judgment, with a sense of curiosity? Say you did have a preconceived idea that one foot position was better than another, but you explored what actually was taking place instead of what you thought "should" be happening. So you would have been showing yourself compassion.

*If you had been in **judgment** of yourself in this little exploration, you might have said something like, "Oh, my right foot is too turned out. I wonder if that is bad. Is it bad that my left foot is too turned in?" Or, "My weight should be even on my feet to have good posture. I have such bad posture. I bet this is why. My feet aren't even."*

Mindful Meditation doesn't have to include a mantra or a cushion. You can mindfully meditate on your foot position or your foot's characteristics (size, shape, etc.) or the way you use your feet. You can even Mindfully Meditate on a raisin.<sup>2</sup>

That which is observed is changed. Mindfulness is about observing with an open mind and full awareness and interest in what is happening at this moment. Sometimes we can also call this being "present".

"Presence" is a particular subset of Mindfulness. Without it, Mindfulness is impossible to achieve.

## THE HEISENBERG THEORY

*In physics, the observer effect simply states that observing a situation or phenomenon necessarily changes it. This is best demonstrated by the double-slit experiment where, when observed – even with just cameras being monitored in another room, not even a set of human eyes – electrons acted as particles, but when not being observed, they acted as waves.*

So the more present we are, the more Mindful we are. In Cortical Field Re-Education (CFR) we use our body to get "present". Our mind can be in the future strategizing survival, success or revenge; our emotions can time-travel backwards, idealizing or vilifying the past. But our bodies can only be in this present moment . . . Now.

Mindfulness Meditation has actually been researched quite extensively. Different meditations have been used in studies with the results listed below. The most common programs are MBSR (Mindfulness Based Stress Reduction) and CBSR (Cognitive Based Stress Reduction). However there are many others as referenced in the studies.

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Mindfulness has been correlated with:

a "Left Shift." A left shift is the ability of the left prefrontal 1 cortex to calm the right amygdala (arousal node) influencing emotional resilience and ameliorating stress.<sup>2,3,4</sup>

Eudinomia (vs. hedonia) which is correlated with increased telomere length.<sup>5</sup> Eudinomia is a life view that involves purpose, meaning and connection (equanimity). Hedonia is a life view that involves seeking bodily pleasure not attached to anything other than the thrill of the somatic experience.

- Increased activation of positive emotional circuitry.<sup>6</sup>
- Increased grey matter density.<sup>7</sup>
- Increased cortical thickness.<sup>8</sup>
- Increased anti-body titers.<sup>9</sup>
- Increased gamma band activity. Gamma band activity (25-40 Hz) are thought to
- be involved with our sense of conscious awareness.<sup>10</sup>

All of the other benefits of mindfulness meditation discussed in Epel's work (see End Note #4) are included in CFR:

- enhanced alertness
- increased attention-related responsiveness
- increased present moment re-perceiving ("I am feeling depressed." vs. "I am a depressed person.") This reorienting allows for more objectivity and choice in coping strategies for emotional distress which elicits (1) perception of control or (2) acceptance and emotional regulation resulting in psychological thriving.
- more likelihood of Challenge appraisal vs. Threat appraisal with stressors
- anabolic vs catabolic neurohormonal response
- emotional regulation
- more robust Emotional Salience Network (Insula, Anterior Cingulate Cortex, Temporal Lobe) processing every physical/emotional sensation from pain to feelings of love and disgust. Also theorized by Craig to be the "seat of consciousness."<sup>11</sup>

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When muscular contractions, energetic blocks, and compensating patterns release, new choices in movement, belief and behavior become possible, as well as systemic alterations in the immune system, cardiovascular system and genomic components by the global recalibration of the Autonomic Nervous System and the HPA via Stephen Porges's Polyvagal Theory.

Cortical Field Re-education (CFR), is a system of healing through mindfulness learning that increases attention and heightens perception.<sup>12</sup>

Unlike the more well-know technique of MBSR (Mindfulness Based Stress Reduction), CFR mindfulness program not only increases the perceptual net for early detection of stress and its catabolic output like all mindfulness programs, but it also includes biomechanical exploration activating the sensory/motor cortex resolving orthopedic dysfunction. This obviously has a direct impact on musculoskeletal issues that also contributed to stress. With CFR's specialized application of Mindfulness, you literally change your brain to change your pain.

*The take-home point is that the neural circuit of social interaction and social engagement is the same neural circuit that supports health, growth and restoration. It is not two disorders, or two diseases, or two disciplines. It's not an internal medicine on one side and a psychology and psychiatry on another side -- it's an integrated physiology that is not only regulating health, growth and restoration, but it's an integrated physiology that fosters and supports social interaction to create safety for the individual. . . . safety is the critical feature here. If our nervous system detects safety, then it's no longer defensive.*

*When it's no longer defensive, then those circuits support health, growth and restoration. It's a hierarchy, and the most important thing to our nervous system is that we are safe. When we're safe, magical things occur. They occur on multiple levels -- not merely in terms of social relations, but also in accessibility of certain areas of the brain, certain areas of feeling pleasure - being expansive, being creative, and being very positive as well.*

Stephen Porges is a Psychiatry Professor at the University of North Carolina and the author of The Polyvagal Theory. Prior to being at UNC, he was Director of the Brain-Body Center in the Department of Psychiatry at the University of Illinois in Chicago.

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1. Richard J. Davidson et al., "Alterations in Brain and Immune Function Produced By mindfulness Meditation," *Psychosomatic Medicine* 65 (2003): 564-70.
2. Daniel Goleman, *Focus: The Hidden Driver of Excellence* (New York: HarperCollins, 2013).
3. Davidson, et al. 2003.
4. Epel, E.S., et al, "Can Meditation Slow Rate of Cellular Aging? Cognitive Stress, Mindfulness, and Telomeres," *Ann N Y Acad Sci* 2009 Aug; 1172:34-53.
5. Epel, et al. 2009.
6. Lutz, A., Brefczynski-Lewis, J., Johnstone, T., Davidson, R. "Regulation of the neural circuitry of Emotion by Compassion Meditation: Effects of Meditative Expertise." *PLoS ONE*. March 2008 | Volume 3 | Issue 3 | e1897.
7. Britta K. Hölzel et al., "Mindfulness Practice Leads to Increases in Regional Brain Gray Matter Density," *Psychiatry Research: Neuroimaging* 191 (2011): 36-43.
8. Sara W. Lazar, et al, "Mediation Experience is Associated with Increased Cortical Thickness," *Neuroreport* 16 (17), (2005): 1893-1897.
9. Davidson et al. 2003.
10. Aviva Berkovich-Ohana et al., "Mindfulness-Induced Changes in Gamma Band Activity," *Clinical Neurophysiology* 123, no. 4 (April 2012): 700-10.
11. A.D. Craig "How Do you Feel — Now? the Anterior Insula and Human Awareness," *Nature Reviews Neuroscience* 10, no1 (January 2009): 59-70.