

Finding Joy: The Science of Happiness, by Patty de Llosa by Patty de Llosa

Photograph by Frank McKenna

We long to find more joy in our daily pursuits even though life has taught us it's not so easy. New discoveries in neuroscience offer insight into how we can develop a brighter state of heart and mind.

The First Step on the path to finding happiness is to open the mind to alternative ways of thinking about life. While much of our focus in the West has been toward comfort and the acquisition of worldly goods, in Eastern countries your status as a human being traditionally comes first. So instead of being greeted by "What are you up to these days?" or "How's it going with your to-do list?" you may be asked in Muslim countries, "How is your haal?"¹ When someone inquires about your haal, they are literally asking, "How is your heart doing right now, as you take this very breath?" They want to know whether you are feeling happy or sad, or any of a wide range of emotions. And in India you will be greeted by namaste, which translates into "I salute the God in you"—the part of you that represents the divine.

The Second Step begins by recognizing the importance of our attention. In the chapter on attention from his two-volume work, *The Principles of Psychology*, William James remarks that the ability to voluntarily bring back a wandering attention again and again is the very root of judgment, character, and will. And in a recent Harvard study by Matthew Killingsworth and Daniel Gilbert, more than two-thousand adults were asked what they were thinking about during their day-to-day activities. It turns out that forty-seven percent of the time their minds were not focused on what they were doing. Even more striking was that they reported feeling less happy when their minds were wandering.²

Those who have learned how to focus their attention on the present moment are good athletes, good listeners, good thinkers, and good workers at anything they do because this gathering of the attention connects mind, heart and body in a balanced, harmonious state of awareness, of readiness to act or to be present. As Jon Kabat-Zinn has pointed out, "in Asian languages, the word for 'mind' and the word for 'heart' are the same...You could think of mindfulness as wise and affectionate attention."

The Third Step on this new path is to uncover our habitual ways of thinking and acting, which often stand in the way of happiness. Charles Duhigg, a Pulitzer Prize-winning reporter, insists in his book *The Power Of Habit* that almost all we do is driven by habit. One successful way to study the is through the Alexander Technique, a method of re-educating the body and brain developed in the 1890s by Frederick Matthias Alexander that can relieve stress and chronic pain, improve poor posture and faulty breathing, and

help sufferers of neuro-muscular disorders.

While ferreting out our habits is essential, it's just as important to avoid self-attack when we notice them, as in "there I go again being bad." Which leads to the Fourth Step: non-judgmental thinking or non-critical awareness. Neuroscientists tell us why we should give up the habit of criticizing ourselves: Because every experience, every thought, every feeling, and every physical sensation activates thousands of neurons at the same moment, repetition strengthens the connection between them until they form a neural network or ingrained habit. That's how mental states become neural traits.

Wendy Suzuki, Professor of Neural Science and Psychology at New York University and author of *Healthy Brain, Happy Life: A Personal Program to Activate Your Brain and Do Everything Better*, details how our inner critic works against us: "If I remember an incident in which I failed in some way and immediately add the thought that I was stupid or inadequate—in other words, attack myself at the moment I remember the incident—I'm connecting two formerly unrelated mind events and their respective neuronal activity. What's bad about this is that I'm emphasizing or demonizing my failure out of proportion to its real effect and making that connection, that negative self-attack, part of the memory of the incident. But if I could bring a modicum of reasoning or self-forgiveness to it, acknowledging that I'm human, or forgot, or didn't know enough, or was unprepared to make the right decision, or whatever is appropriate, over time my new thinking will affect the neural structure of my brain, synapse by synapse.

While such small automated self-attacks may seem unimportant, Rick Hanson explains in his book *Buddha's Brain* that, "Because of all the ways your brain changes its structure, your experience matters beyond its momentary, subjective impact. It makes enduring changes in the physical tissues of your brain, which affect your wellbeing, functioning, and relationships. Based on science, this is a fundamental reason for being kind to yourself, cultivating wholesome experiences, and taking them in."³

In Search of Rumi's Field

Perhaps Rumi said it best: "Out beyond ideas of wrong-doing and right doing, there is a field. I'll meet you there." We all need to find that field beyond guilt and responsibility, beyond sin and redemption, where there's rest for the busy mind, always arguing, elaborating, affirming, condemning, criticizing; rest for the anguished heart, seeking meaning in a confused world full of conflicting demands; and rest from the insidious fear that we'll be caught out because, in spite of all our good intentions, we're sure to get it wrong again.

One path to Rumi's field is to listen to the spaces between the many words we say and hear. Or to attend to the sound of silence itself. This space between doings and achievings is non-invasive. It doesn't demand action, but provides nourishment. We could call it endless time, where we feel cared for, liberated from the sense that we must perform, get stuff done, realize a potential, serve a cause, help a friend. The fact is, endless time is always there—ready to flood in whenever we have sense enough to lay down our perceived burdens. If I can give up for a moment the problems that seem so important, so immediate, so real, then I will find myself immersed in another order of reality—the world of sound, touch, taste, smell, and unrecognized feelings. That could be where joy begins.

And while Endless Time can be like prayer or meditation, casting off the cares of the day for a private moment of quiet in the back room, the funny thing is that this wider space

can open just as easily on a crowded subway platform where a mass of humanity hurries to their next thing. I exchange a look with a fellow passenger and feel connected to these rushing lives, as full of joy and fear and investments in relationships as mine. Then the noise recedes and inner quiet floods in from a world beyond time.

Photograph by Julie Jordan Scott

The Power of Choice

That brings us to the Fifth Step, making good choices. While Rumi's field may be available to all of us, finding it is a choice we make. Will I stay in my ego-driven, hurry-up world, or will I choose to attend again and yet again to what is going on in myself and in the world, without judgment or condemnation? Can I sometimes allow love for the fractured and suffering humanity around and inside me to enter my busy field of action, as I function between heaven and earth, between extremes?

Duhigg's newest book, *Smarter Faster Better*, throws light on why some people and organizations are more productive than others. In an interview he explains that "Many people feel like they're not fulfilled and not satisfied because they feel completely overwhelmed by what they're being asked to get done every single day." He urges people to push themselves to think differently, making choices about what really matters to them, rather than reacting to the demands around them, and to contemplate more why they do what they do. "You're not happier because you turn your brain off," he says. "You're happier because you encourage yourself to think more deeply about what actually matters."⁴

This brings us to what is perhaps the biggest barrier to happiness, stress, and the Sixth Step: Learning to deal with it. Often under pressure, we tend to hurry, which speeds us away from the present moment. Neuroscientists tell us that chronic rushing feeds anxiety and heightens adrenaline levels. Over time, our brains get hooked on the stimulation of activity even as our bodies become addicted to rushing, and our minds switch to autopilot. We begin to see everything on our list as urgent—needing to be accomplished quickly—when only a few tasks have true priority. Speed, speed, speed equals pressure, pressure, pressure.

To counter our tendency to hurry, Master Alexander Technique teacher Walter Carrington told his students to repeat each time they begin an action: "I have time." Try it yourself sometime when you're in a hurry, sending yourself a message to delay action for a nano-second before jumping into the fray. The pause of saying "I have time" summons an alternative mode of the nervous system, inhibiting the temptation to rush forward under the internal command to "Do it now!" When you hold back your first impulse to go into movement by creating a critical pause during which your attention is gathered, you become present to the moment you are living. Then you can choose to respond rather than to react.

For this we need to cultivate the upper regions of our brain where greater neuroplasticity allows us to change as we learn from experience. (The lower regions have more control over our body and less capacity to change). According to Rick Hanson, the anterior cingulate cortex, which oversees attention, goals, and deliberate regulation of thought and behavior, can bring "neural coherence" to an intention so that it crystallizes, and we have an experience of coming together toward an aim. Our conscious will is then able to

influence emotional reactions and be influenced by them—key to the integration of thought and feeling.⁵

You might be surprised to what extent you can relieve your stressed-out system with a brief, non-essential walk down the hall, a peek out the window at the outer world, or even a seriously deep sigh that engages you right down to the toes. Do anything to interrupt the deadening bond that glues all your attention to what you're writing, reading, cooking, chopping, building. Truly, the body possesses wisdom that thought doesn't understand. We can practice listening to it as we expand into reality. That's where joy lives, in any present moment.

Four Keys to Well-being

Our three main neural functions—regulation, learning, and selection—can be excited or inhibited by strengthening some circuits and weakening others, based on what we value. So let's ask again, what do I value? And where is my attention focused most of the time?

Dr. Richard Davidson is a pioneer in contemplative neuroscience at the University of Wisconsin at Madison. With the cooperation of the Dalai Lama, he made MRIs of Tibetan monks in such meditative states as visualization, one-pointed concentration, and the generation of compassion. According to Davidson, "the brain can be transformed through engagement with purely mental practices derived from the world's great religious traditions....the brain, more than any other organ in our body, is the organ built to change in response to experience." He offers neurological proof that what counts ultimately is not what happens to you, but how you deal with what you've been dealt.

Davidson indicates four keys to well-being, which he says is "a skill...fundamentally no different than learning to play the cello. If one practices the skills of well-being, one will get better at it." At the Greater Good Science Center's Mindfulness & Well-being at Work conference he recently explained how each of these four keys relates to neural circuit activity, in which plasticity or changeability is involved.⁶

The First Key is Resilience. As Davidson details it, "Resilience is the rapidity with which we recover from adversity; some people recover slowly and other people recover more quickly. We know that individuals who show a more rapid recovery in certain key neural circuits have higher levels of well-being. They are protected in many ways from the adverse consequences of life's slings and arrows. Recent research that we've conducted in our lab at the University of Wisconsin-Madison—not yet published—asked whether these specific brain circuits can be altered by regular practice in simple mindfulness meditation.⁷ The answer is yes—but you need several thousand hours of practice before you see real change. Unlike the other constituents of well-being, it takes a while to improve your resilience. It's not something that is going to happen quickly—but this insight can still motivate and inspire us to keep meditating."

The Second Key, Outlook, "is in many ways the flip-side of the first one," says Davidson. "I use outlook to refer to the ability to see the positive in others, the ability to savor positive experiences, the ability to see another human being as a human being who has innate basic goodness. Even individuals who suffer from depression show activation in the brain circuit underlying outlook, but in them, it doesn't last—it's very transient...research indicates that simple practices of loving kindness⁸ and compassion meditation⁹ may alter this circuitry quite quickly, after a very, very modest dose of practice."

It's no surprise that the Third Key is Attention. Davidson refers to the Harvard study

mentioned earlier, which asked people what they were doing and whether they were happy doing it. And the Fourth Key is Generosity. When people are generous and altruistic “they actually activate circuits in the brain that are key to fostering well-being,” explains Davidson. “These circuits get activated in a way that is more enduring than the way we respond to other positive incentives, such as winning a game or earning a prize.” He sums up: “Our brains are constantly being shaped wittingly or unwittingly—most of the time unwittingly. Through the intentional shaping of our minds, we can shape our brains in ways that would enable these four fundamental constituents of well-being to be strengthened. In that way, we can take responsibility for our own minds.”

Photograph by SONGMY

Finding Balance

When I’m off balance, life isn’t so good. What’s more, the body is always moving off balance. As four-footed creatures, down near the earth, we were steady, thoughts alert for danger and centered on where the next meal was coming from. Now that we’re upright, sometimes tottering forward or reeling back, we are uncertain in body and stressed in mind about just where and how we are supposed to be. Attention must be paid both to our vehicle and to outside circumstances.

Happiness is found in equilibrium, whether through connecting thought with the rest of us, or pursuing full-bodied awareness. So we can go at changing our brain top down, with an effort at mindfulness that engages the prefrontal cortex; or in the middle, by creating positive emotions to regulate the limbic system (not so easy); or bottom up, by calming the parasympathetic nervous system with yoga, tai chi, or meditation exercises—an indirect method that is perhaps easier for many people.

What creates balance? A clear mind to see and even foresee what’s happening, and a body that’s tuned and ready to engage in either action or repose. There’s also a sense of contentment when the heart participates, so, at that point, our three inner worlds come together—mind, heart, and body. If your body or mind seems too foggy or, on the other hand, too over-vigilant, take it as a warning sign of stormy weather. Or maybe you’re just headed in the wrong direction, away from where the winds of your life want to take you. Here’s a pretty foolproof solution when mind or body is off balance and you don’t know what to do or which way to go:

1. Focus first on your feet on the ground as if they were rooted in the earth. Remind yourself that there are twenty-six bones in each foot, all seeking a right relationship with each other and the ground.
2. Then, to add more balancing power, imagine a tripod at the bottom each foot, at the center of the heel, on the pad of the big toe, and on the pad of the little toe.
3. Next, remind yourself that the earth is coming up from below to support you so you can stop holding yourself up. Just let yourself go, tuning into the sensation of the flow of gravity down from your head, through the bones, and into the feet.
4. Check whether your ankles and knees are still locked and let them go. As you do so, you may notice a slight, somewhat scary movement throughout. It’s a sign that you are

now free to move in any direction at an instant's notice. Alexander Technique teachers call it the "Standing Dance."

5. As your thoughts focus on your feet and your physical tension releases downward, you may begin to perceive an equal and opposite flow of energy coming upward, perhaps from the center of each sole—Bubbling Spring in Tai Chi, and Kidney One in acupuncture.

6. As your mind follows the movement of energy in both directions, down from the head through the bones, up from the earth toward the head, you'll begin to sense your whole three-dimensional Self, standing there between heaven and earth, like the Taoist ideal of True Man.

Breathing Into Equilibrium

The Seventh Step: Breathing more deeply helps us to center ourselves and to boost a flagging immune system. In an article in Uplift magazine, naturopathic doctor Shawna Darou that the secret is to activate the vagus nerve, "which originates in the brain as cranial nerve ten, travels down from the neck and then passes around the digestive system, liver, spleen, pancreas, heart and lungs. This nerve is a major player in the parasympathetic nervous system, which is the 'rest and digest' part (opposite to the sympathetic nervous system which is 'fight or flight.')"¹⁰

Because your heart rate speeds up a little when you breathe in, and slows down a little when you breathe out, you can test your vagal tone by noticing the difference in your heart rate between inhalation and exhalation. The bigger the difference, the higher the vagal tone, which means your body can relax faster after stress. Higher vagal tone is also associated with better mood, less anxiety, and more resilience. Slow, rhythmic, diaphragmatic breathing is a great way to tone your vagus nerve, says Dr. Darou, adding that it can also be toned through humming, speaking, washing your face with cold water, or meditation.

Perhaps it's no surprise that neuroscientists think of meditation as a royal road to happiness. Psychiatrist Norman Doidge tells us in his book *The Brain That Changes Itself* that "plastic change, caused by our experience, travels deep into the brain and even into our genes, molding them as well." He adds that "When a gene is turned on, it makes a new protein that alters the structure and function of the cell," influenced by what we do and what we think.¹¹ And Dr. Dawson Church, in *The Genie In Your Genes*, says that focusing on positive thoughts, emotions and prayers (which he calls internal epigenetic interventions) can positively affect our health. "Filling our minds with positive images of wellbeing can produce an epigenetic environment that reinforces the healing process," he affirms, assuring us that, when we meditate, we are "bulking up the portions of our brains that produce happiness."¹² ♦

1 In Arabic, Kayf haal-ik? Or, in Persian, Haal-e shomaa chetoreh?

2 Wandering mind not a happy mind, article in Harvard Gazette, 11/11/2010.

3 Rick Hanson with Richard Mendius, *Buddha's Brain: The Practical Neuroscience of Happiness, Love and Wisdom*, New Harbinger Publications, Oakland, CA, 2009, pp. 72-3.

4 Interview by Kira Newman for the Greater Good Science Center newsletter 4/18/2016 (http://greatergood.berkeley.edu/article/item/you_can_be_more_productive_without_sacrifi)

cing_happiness).

5 Buddha's Brain, pp. 99-101.

6 Clips and full-session videos from Mindfulness & Well-Being at Work conference available at http://greatergood.berkeley.edu/gg_live/mindfulness_well_being_at_work.

7 Breathing meditation, http://ggia.berkeley.edu/practice/mindful_breathing.

8 Loving-kindness meditation, Emma Seppala, Science Director of Stanford University Center for Compassion and Altruism Research and Education,

http://ggia.berkeley.edu/practice/loving_kindness_meditation.

9 Compassion meditation, Helen Weng and her colleagues at the Center for Healthy Minds (CHM) at the University of Wisconsin, Madison.
http://ggia.berkeley.edu/practice/compassion_meditation#.

10 Article by Dr. Shawna Darou in the 11/30/15 issue of Uplift magazine (<http://upliftconnect.com>).

11 Norman Doidge, The Brain That Changes Itself: Stories of Personal Triumph from the Frontiers of Brain Science, Penguin, NY, 2007, pp.91 and 220.

12 Dawson Church, The Genie in Your Genes: Epigenetic Medicine and the New Biology of Intention, Elite Books, Santa Rosa, CA 2007, pp 67-69.