

## The Self-Transforming Brain:

### What flows through your mind sculpts your brain

Neurofeedback training is an invitation to use the focus of your mind to harness the power of attention to enhance your life and your relationships with others. A revolution in science has recently revealed that the adult brain remains open to change throughout the lifespan. When we consider the mind as an embodied and relational process that regulates the flow of energy and information, we come to realize that we can actually use the mind to change the brain. The simple truth is that how we focus our attention, how we intentionally direct the flow of energy and information through our neural circuits, can directly alter the brain's activity and its structure. The key is to know the steps toward using our awareness in ways that promote well-being.

A reasonable working hypothesis is that the mind is what the brain does. You can use that ability to reduce any distress or dysfunction, increase well-being, and support spiritual practice; these are the central activities of what could be called the path of awakening, and our aim is to use brain science to help your travel far and well upon it. There is something transcendental involved with the mind, consciousness, and the path of awakening – call it God, Spirit, Buddha-nature, the Ground, or by no name at all. Whatever it is, by definition it's beyond the physical universe. Since it cannot be proven one way or another, it is important – and consistent with the spirit of science – to respect it as a possibility.

It is a remarkable fact that the people who have gone the very deepest into the mind – the sages and saints of every religious tradition – all say essentially the same thing: your fundamental nature is pure, conscious, peaceful, radiant, loving, and wise, and it is joined in mysterious ways with the ultimate underpinnings of reality, by whatever name we give That. Although your true nature may be hidden momentarily by stress and worry, anger and unfulfilled longings, it still continues to exist. Knowing this can be a great comfort. By understanding better how the brain works and changes – how it gets emotionally hijacked or settles into calm virtue; how it creates distractibility or fosters mindful attention; how it makes harmful choices or wise ones – you can take more control of your brain, and therefore your mind. This will make your development of greater well-being, lovingness, and insight easier and more fruitful, and help you go as far as you possibly can on your own path of awakening.

Most animals don't have nervous systems complex enough to allow alarms to grow into significant distress. But our vastly more developed brain is fertile ground or a harvest of suffering. Only we humans worry about the future, regret the past, and blame ourselves for the present. We get frustrated when we can't have what we want, and disappointed when what we like ends. We suffer *that* we suffer. We get upset about being in pain, angry about dying, sad about waking up sad yet another day.

This kind of suffering – which encompasses most of our unhappiness and dissatisfaction – is constructed by the brain. It is made up. Which is ironic, poignant –and supremely hopeful – according to Hanson and Mendius, authors of, *Buddha's Brain: the practical neuroscience of happiness, love and wisdom*.

Virtue, mindfulness, and wisdom are the three pillars of Buddhist practice, as well as the wellsprings of everyday well-being, psychological growth, and spiritual realization. Virtue involves regulating your actions, words, and thoughts to create benefits rather than harms for yourself and others. In your brain, virtue draws on top-down direction from the prefrontal cortex. Virtue also relies on bottom-up calming from the parasympathetic nervous system and positive emotions from the limbic system.

Mindfulness involves the skillful use of attention to both your inner and outer worlds. Since your brain learns mainly from what you attend to, mindfulness is the doorway to taking in good experiences and making them a part of yourself. We can explore ways neurofeedback can activate the brain states that promote mindfulness, including to the point of deep meditative absorption.

Wisdom is applied common sense, which you acquire in two steps. First, you come to understand what hurts and what helps – in other words, the causes of suffering and the path to its end. Then, base on this understanding, you let go of those things that hurt and strengthen those that help. As a result, over time you'll feel more connected with everything, more serene about how all things change and end, and more able to meet pleasure and pain without grasping after the one and struggling with the other.

Virtue, mindfulness, and wisdom are supported by the three fundamental functions of the brain: regulation, learning, and selection. Your brain regulates itself – and other bodily systems – through a combination of excitatory and inhibitory activity: green lights and red lights. It learns through forming new circuits and strengthening or weakening existing ones. And it selects whatever experience has taught it to value.

Each pillar of practice corresponds quite closely to one of the three fundamental neural functions. Virtue relies heavily on regulation, both to excite positive inclinations and to inhibit negative ones. Mindfulness leads to new learning – since attention shapes neural circuits – and draws upon past learning to develop a steadier and more concentrated awareness. Wisdom is a matter of making choices, such as letting go of lesser pleasures for the sake of greater ones. Consequently, developing virtue, mindfulness, and wisdom in your mind depends on improving regulation, learning and selection in your brain. Strengthening these three neural functions is what you will learn when you train with neurofeedback. Visit our website: [www.affectiveneurosciences.com](http://www.affectiveneurosciences.com) to learn more.