

The Wise Brain Bulletin

News and Tools for Happiness, Love, Effectiveness, and Wisdom
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Featured Article:

Is the Mind-Body Problem a Problem at All?

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Introduction

One could rightly ask: How can intangible thoughts affect tangible matter (i.e., the brain)? This question is at the heart of the longstanding “mind-body problem,” and related questions include: How can mind arise from matter? Is mind reducible to matter? Does matter determine mind?

These are important, non-trivial questions, and they’ve occupied philosophers for millennia – and now, neuroscientists. Increasingly, their research is suggesting that the account of dependent origination (particularly, related to the moment of “contact”) given by the Buddha long ago is profoundly insightful: based on preceding conditions, mind and matter co-arise, co-causing each other, distinct but intertwined domains, empty of independent self-nature, joined fundamentally as a whole.

In principle, there could indeed be transcendental

factors involved with the mind (and certainly as well, involved with the material universe), such as “cosmic consciousness,” God, Buddha-nature, and so forth. I am definitely not speaking against those factors here – in part because I think that the most likely case is that transcendental factors do participate in consciousness and in materiality, though I sure don’t know how to describe them very well!

But the analysis that follows does not require any transcendental influences for it to be true. If you disbelieve or simply don’t know about such influences, the argument below stands on its own. And if you do believe in transcendental factors, they must somehow be in the mix of the mental information and neural physicality discussed below.

Here we go, step by step.

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Greetings

The Bulletin offers skillful means from brain science and contemplative practice – helping you to work with your brain for the benefit of yourself and others.

The Bulletin is offered freely, and you are welcome to share it with others. Past issues are archived at www.WiseBrain.org.

Rick Hanson, PhD and Rick Mendius, MD edit the Bulletin, which is designed and laid out by Laurel Hanson. We welcome your contributions, and to subscribe, please contact Rick at drh@comcast.net.

Mind Is Information Represented in Matter

First, our thoughts, desires, feelings, personality, sense of “I,” etc., are patterns of information that are represented in the matter and energy of our nervous system. (Since $E=mc^2$, we’ll use the word “matter” alone from now on.)

In a similar way, patterns of information – say, a letter to a friend and a picture of the two of you together – are represented by the matter of your computer’s hard drive.

Just so, information is carried by wires during a phone call,

much as the Ode to Joy playing softly on a stereo was represented by modulations in a radio signal. And so on.

Matter Can Act on Information

Second, matter can act on information, as anyone knows whose hard drive has crashed . . . or who has an aging parent with a fading memory.

Information Can Be Causally Independent of Matter

Third, information can be conveyed by any suitable material medium. For example, the Ode to Joy can be represented by a written score, a radio frequency, electrical charges in an iPod . . . or by neuronal activity in your brain as you hum it from memory. In fact, the specific neural structures and processes involved in remembering the tune today will be different from those activated when you recall it tomorrow. It’s the melody that counts, not the medium which conveys it. This means that while information requires representation by matter (apart from any possible transcendental considerations), information can be causally independent – in a sense, free – of the domain of matter.

Information Can Act on Matter

Fourth, information can act on matter – and act on information itself – through the patterning of matter that represents it. Using the example of the Ode to Joy, the matter of the CD which represents it modulates radio waves, which shape the flow of electrons going to your stereo speakers, which pattern sound waves in air, which activate circuits in your brain, the patterning of which is then – finally! – translated back into the lovely information



of Beethoven's masterpiece.

Mind and Brain Co-Arise as an Integrated System

In sum, immaterial information cascades through the mind by the vehicle of linked, co-arising materiality. Even without reference to a transcendental principle, mind – consciousness – exists, it can't be reduced to matter alone, and it shapes matter through the action of the material substrate which represents it.

Information and matter in the human nervous system are interdependent and reciprocally causal (which creates opportunities to use the mind to change the brain to benefit the mind). Much as light is both waves and photons, our existence is both informational and material. The Buddhist perspectives on emptiness apply here as well: distinctions between mind and brain are relatively true and often useful, but in an absolute sense, mind and brain form one unified system, each aspect of which is empty of inherent self-nature.

Mind and World Are also One

In the same way, our bodies are not fundamentally separate from the environment. They depend on continuing exchanges of energy and matter – which are, as we know, themselves one – with the environment.

Similarly, the brain is not fundamentally separate from the rest of the body which feeds and breathes and carries and protects it.

Therefore, the brain is not separate from the world. In a deep sense, the brain and the world are one.

This means, of course, that the mind and the world are also one unified process.

The mind – including much mental activity we will never be aware of – is continually stimulated by the world, continually receives the world. And it acts upon the world in turn, including through

action plans built up from lower-level activities both inside and outside the field of awareness.

The mind and world are one. Not based on a mystical view, but the conclusion of a straightforward empirical, scientific analysis.

There are many pathways to realizing this experientially, even to the point of being liberated permanently from the illusion of self fundamentally separate from world.

The clear conviction, derived from your own reasoning, that mental activity apparently “in here” – sensing, thinking, feeling, wanting, etc. – is actually not apart from the physical movements of the world “out there,” can serve you greatly in just about all of those paths.

While the details are complex and could take centuries to unravel completely, at its essence, I believe that the mind-body problem is actually no problem at all.

Train Your Brain

This course teaches practical, down-to-earth ways to activate the brain states that promote: Steady Awareness, Wholesome Feelings, Good Intentions, Caring Heart, and Wise Action. It is taught in a 24-month cycle which you can enter at any time. Talks and materials from past class sessions are archived at www.WiseBrain.org.

The class meets on the 2nd Tuesday of every month, 7 – 9:15 pm, at the Unitarian Universalist church in Terra Linda (San Rafael), at 240 Channing Way. The atmosphere is warm, informal, and focused. The fee for each month of the program is \$40 (please contact Rick Hanson if you would like a scholarship; no one will ever be turned away for lack of funds). To register, contact Guisela Luster at drh@comcast.net or simply arrive fifteen minutes early.

Upcoming dates and topics:

- 10/11/07 – Letting Go: Releasing is profoundly important, both psychologically and spiritually; this class will cover both conventional and contemplative methods for letting go of challenging feelings, thoughts, and desires.
- 11/13/07 – From Anxiety to Security: We'll discuss how we evolved to be at least a little nervous, how that tendency gets turbo-charged by modern life and personal experiences, and how to create refuges (inside yourself and out there, in the world) in which you feel safe and strong.
- 12/11/07 – From Anger to Peace: Our main topics include healthy ways to cope with feeling wronged, the practice of non-contentiousness, and the healing power of gratitude.

Empathy

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Introduction

This article is adapted from a talk given at James Baraz's Awakening Joy class on 9/26/07 (audio posted at www.wisebrain.org/audio.html), and it considers four questions:

- What is empathy?
- How did the capacities for empathy evolve?
- What's happening in your brain when you are empathic?
- How can you help activate those brain states?

What Is Empathy?

Basic Definition

Empathy is feeling and understanding how it is for another person.

As E.M. Forster said, "Live not in separation." It is empathy that joins us together with each other.

Without empathy, we would be like ants or fish or lizards, aware of each other as bodies in space, but with no sense at all of the inner lives of each other.

Empathy Is More than Compassion and Kindness

Compassion and kindness are wonderful, but alone, they

are not enough.

It's easy to be compassionate and kind in a sort of generic way without really knowing what it is like to be another person.

It is empathy that personalizes compassion and kindness, and gives them real traction. Empathy takes courage – the courage to cast loose from the familiar moorings of your self and your known positions to enter the deep waters of the other person, to be truly moved inside, truly affected in your own core.

Further, if one cares about diversity in all its forms – in temperament and values as well as in ethnicity, gender, class, sexual orientation, and so on – empathy is at the heart of real diversity work.

What Do We Empathize with?

There is both horizontal and a vertical dimension to what we find in the other person.

Horizontally, we empathize with the full range of the other person's experience: the sensations, emotions, thoughts, and desires, and the joys and the sorrows. Unlike sympathy, empathy is not just for the painful side of life.

Vertically, we empathize with the surface layers of the other person's mind/psyche/self, and the deeper ones.

Sort of like a parfait, with present-day, adult material on top, and younger material underneath . . . with harsher, more armored feelings like anger on top, and softer feelings beneath . . . with problematic strategies on top, and universal and wholesome deep needs underneath.

You might ask yourself: To what extent do you feel

Perspectives on Self-Care

Be careful with all self-help methods (including those presented in this Bulletin), which are no substitute for working with a licensed healthcare practitioner. People vary, and what works for someone else may not be a good fit for you. When you try something, start slowly and carefully, and stop immediately if it feels bad or makes things worse.

your deeper layers are known to the important people in your life? And: To what extent do you extend yourself to reach down inside those people to find out what's there?

Two Parts of Empathy

There are two aspects to empathy.

When you are empathic, there is both a felt, bodily resonance with the state of the other person – sort of like tuning forks vibrating in harmony with each other – and a more conceptual understanding of what they could be experiencing, and why.

We sense and we infer what is happening with the other person.

These two aspects of empathy – visceral attunement and conceptual understanding – work together: The sense in your gut gives you clues about the state of the other person, and your thoughts about that person tell you where to look in your gut.

Empathy Requires Individuality

Empathy certainly has a joining quality, but it is not itself agreement or approval; for example, you can empathize with someone you wish would act very differently.

Empathy does not mean waiving your own rights or interests; knowing this can free us to be more empathic.

By feeling strong in ourselves, like a mighty oak tree with deep roots, we can let the other person's experience flow through our awareness like wind through our leaves, knowing that we can let it in and still remain standing, intact and whole.

Expressing Empathy

Usually, but not necessarily, this awareness of how it is for the other person is communicated in some way, often nonverbally and tacitly: for example, through subtle facial expressions or postures that mirror the other person's.

This expression of empathy gives the other person the sense of "feeling felt," which is profoundly important to people from infancy onward. The most horrible part of many horror movies – such as *Invasion of the Body Snatchers*, or the many zombie flicks – is imagining yourself among human-like creatures who are incapable of feeling you.

Often, the expression of empathy is all the interaction needs. It conveys the vital signal in any communication:



“Message received.” That alone often calms the other person, and helps them feel better.

And if there is still a topic on the table, even something that is upsetting, then you can get on with the business at hand in a clearer field.

How Did Empathy Evolve?

Empathy is unusual in the animal kingdom and the brain capacities that enable it, which are discussed just below, are costly to maintain: they consume a lot of oxygen and glucose – 8 to 10 times as much as your major muscles do.

So empathy must have had some major survival benefits for it to have evolved. What might those benefits have been?

Empathy seems to have evolved in two major steps.

First, among vertebrates, birds and mammals developed



pair bonding in some of their species, so that two individuals mated and raised young together. This is very different from the pattern among most fish and reptile species, who go it alone. Pair bonding increased the survival of young and was consequently selected for, but maintaining those bonds required new mental capacities.

Therefore, as the neuroscientists put it, the “computational requirements” of being a couple – a sparrow couple, a squirrel couple, a mountain lion couple, that is – drove the enlargement of the brain over millions of years. As we all know, when you are in a relationship with someone – and especially if you are raising a family together – there’s a lot you have to take into account, negotiate, arrange, anticipate, etc. No wonder brains got bigger.

It may be a source of satisfaction to some that polygamous species usually have the smallest brains . . .

Second, building on this initial jump in brain size, among primate species, the larger the social group, the bigger the brain. (And the key word here is social, since group size alone doesn’t create a big brain; if it did, cattle would be geniuses.)

In other words, the “computational requirements” of dealing with lots of individuals – the alliances, the adversaries, all the politics! – in a baboon or ape troupe pushed the evolution of the brain.

In sum: More than learning how to use tools, more than being successful at violence, more than adapting to moving out of the forest into the grasslands of Africa, it was the complexities of relationships that drove human evolution!

Homo sapiens means clever ape. We are clever to be sure, but we are clever in order to relate. It would be perhaps more accurate to call our species *Homo sociabilis*, the sociable ape.

As the great evolutionist, Charles Darwin, said: “All sentient beings developed through natural selection in such a way that pleasant sensations serve as their guide, and especially the pleasure derived from sociability and from loving our families.”

Sociability, and the empathy at the heart of it, drove

evolution – in a fundamental sense, it is empathy that has enabled us to sit in this room tonight, understanding the complexities of language, in a building full of advanced technologies.

Empathy is in our bones. For example, infants will cry at the tape-recorded sound of other infants crying but not at a recording of their own cries. And speaking of crying, as adults, our tear glands will automatically start producing tears when we hear the crying of others, even if we have no sense of tearing up ourselves.

Perhaps an even better name for ourselves would be Homo empathicus.

As the poet, Issa, wrote:

*In the cherry blossom's shade
there is no thing
as a stranger*

What's Happening in Your Brain When You Are Empathic?

Introduction

The mental experience of empathy is enabled by underlying, material neurological processes.

By learning about the circuits in your brain that create empathy, you can use your mind to activate those circuits and thus become more empathic. In short, you use your mind to change your brain to benefit your whole being.

So, with no background in brain science needed, let's see what's happening inside your head when you are being empathic.

Sensing

To simplify, sensing how it is for another is enabled by several neurological systems:

- The front part of the insula, on

the inside of each hemisphere of the brain – so, there are two of them, or insulae – lights up both when we feel the emotional components of pain ourselves (such as distress, fear, anguish) and when we see another person in pain. Interestingly, the more important that person is to us and the more we care about them, the more our insulae activate when we know that person is in pain.

- The same thing happens with another important part of your brain, called the anterior (frontal) cingulate cortex (ACC). It rests on top of the insula, more or less, within each hemisphere of your brain. And it, too, is sensitive to how much we care about the other person.

The more empathic that people are, the more that the insula and ACC light up in response to the pain of others.

Further, the insula and ACC also activate both when we are experiencing strong emotions ourselves and when we witness emotions in others.

As a side point, the ACC and insula seem to be centrally involved in the conscious experience of states of the body and emotions. If you can imagine consciousness as a kind of light – pick your color – then it is playing and flickering about the ACC and insula . . . as well as a few other key regions of the brain as well.

- There is also a class of neurons you may have heard a

Grateful Wonder

In keeping with the main theme of this issue – connecting – we thought you'd enjoy these incredible pictures of galaxies interacting with each other:

- <http://antwrp.gsfc.nasa.gov/apod/ap060108.html>
- <http://antwrp.gsfc.nasa.gov/apod/ap070608.html>
- <http://www.astroimages.com/m51.htm>
- <http://apod.nasa.gov/apod/ap050301.html>

In fact, as you may know, our own Milky Way galaxy is already dancing gravitationally with our nearest large neighbor, the Andromeda galaxy, and the two are expected to get cheek to cheek in a few billion years. Here are links to a galaxy much like our own, beneath it a link to a beautiful picture of the Andromeda galaxy, and last, a link to an image of two galaxies merging that are similar in size to the Milky Way and Andromeda galaxies:

- www.noao.edu/outreach/aop/observers/n7331.html
- www.astrocruise.com/m31.htm
- www.npaci.edu/features/00/May/galaxy.html

lot about, called mirror neurons. They activate both when we do an action and when we see other people doing that action.

In sum, the insula, ACC, and mirror neurons produce simulations of the experience of others inside your own brain. These occur automatically as a hard-wired-by-evolution reaction – though there is much the mind can do to suppress or strengthen them.

In other words, when you see – or even just imagine – other people suffering, feeling, and doing, your brain automatically generates a virtual experience within yourself of something close to what the other person is experiencing.

The phrase, “I feel your pain,” has become a bit of a joke, but it is literally true.

And, remarkably, the converse is also true: If we cannot

feel ourselves, such as when emotion centers of our brain are damaged by a stroke, then we are impaired in our ability to recognize the emotions of others.

Thinking

These visceral simulations of the inner world of other people are augmented by more thought-based inferences about what the other person values, believes, and plans.

In developmental psychology, these capacities are collectively labeled “theory of mind.”

They are supported by one area of the brain, in particular: The prefrontal cortex (PFC) is the part of the brain tucked back behind the forehead, down around the level of the eyebrows, and it is close to the ACC and the insula, as well as to other structures in the central emotional switchboard of the brain, which is called the limbic system.

This region of the brain activates both when we are attending to our own mental states and when we are thinking about those of others.

Developmental Trajectory

By the way, these brain regions developed at different points in our evolutionary history. First came the primal capacities to sense the feelings and the pain and the actions of others, located in the limbic system structures resting on top of the brain stem. Second came the more intellectual abilities to infer mental states, supported by frontal lobe circuits that sit on top of the limbic system.

As a child develops, the first capacities to come on line are the ones that are more ancient, closer to the bottom floor, sort of, of the brain: the emotion-sensing systems that are already present, to a rudimentary degree in infants.

It is only by age 4 or so that the guts of the “theory of mind” circuits develop

Words of Wisdom: **The Heart of Relationships**

Just try to be a little kinder.
Aldous Huxley

If we could read the secret history of our enemies, we should find in each [person's] life sorrow and suffering enough to disarm any hostility.
Henry Wadsworth Longfellow

There is nothing noble in being superior to some other man. The true nobility is in being superior to your previous self.
Hindu proverb

It is important to understand how much your own happiness is linked to that of others. There is no individual happiness totally independent of others.
His Holiness, The Dalai Lama

Love every leaf.Love the animals, love the plants, love everything. If you love everything, you will perceive the divine mystery in things. Once you perceive it, you will begin to comprehend it better every day. And you will come at last to love the whole world with an abiding universal love.
Fyodor Dostroyevsky, *The Brothers Karamazov*

When the power of love overcomes the love of power, the world will have peace.
Jimi Hendrix

My religion is kindness.
Tenzin Gyatso, H.H. the 14th Dalai Lama

Open to beginners and experienced practitioners, we meet on Wednesday evenings at the A Sante day spa in downtown San Rafael. Meditation is available from 6:45, with the formal beginning (with brief instruction) at 7:00, ending at 7:30, with a dharma talk and discussion ending at 8:30. It is led by Rick Hanson, and for more information, contact him at drh@comcast.net.

substantially – and they keep developing up to about age 25, when our full neurological capacities are in place to imagine the inner states of others.

And interestingly, it is also the most modern systems of the brain that are the first to go toward the end of the lifespan. For example, a person will usually retain her core abilities to “feel the pain” of others long after her more abstract abilities to conceptualize the mental states of others fade slowly to black with dementia.

How Can I Activate Those Brain States?

Introduction

By activating these three regions of your brain – the insula, ACC, and prefrontal cortex – you strengthen them, since as the saying has it: “Neurons that fire together, wire together.”

In other words, by repeatedly creating wholesome experiences for ourselves, we build wholesome structures within our own brains. This is incredibly exciting, good news.

Let’s go through these regions in order to build, over the long-term, deep inclinations and capacities for empathy. Then we’ll briefly cover some practices you can do right now to foster greater empathy.

Insula

The insula is the key organ in your brain involved in what is called interoception, the sensing of the internal state of your body. When you have a gut feeling, or get sensations in your joints, or feel your lungs expand and contract, your insula lights up. (It also activates with disgust, a very important and primal emotion if our ancestors were to survive foods that were rotten or poisonous.)

This means that sensing your own inner physical sensations develops your insula over time. In turn, a more developed insula enables you to be more empathic. In fact, studies have shown that the more that an individual is aware of his own body, usually the more empathic he is toward others.

What is one of the premier ways to practice awareness of the internal sensations of your body?

Yes – meditation.

In fact, researchers have found that regular meditation



actually thickens the insula, indicating millions of additional connections among the neurons there.

Anterior Cingulate Cortex (ACC)

The ACC is particularly involved in the control of attention. When you deliberately train your attention to stay focused on one object, the ACC is strengthened. Which makes you more able to attend to the inner states of others.

So, what activities involve the training of attention to steady the mind and become increasingly absorbed in just one focus?

Any activity requiring concentration can do this, but there are obvious advantages to activities that pay close attention to . . . attention. Again, the epitome of that is meditation.

Prefrontal Cortex (PFC)

The PFC is activated by many activities. But one in particular stands out: observing, investigating, and reflecting on one's own inner mental state. Introspection does this, and so does therapy, and so does . . . you guessed it: meditation.

In fact, as with the insula, regular meditation makes the PFC measurably thicker.

Summary of Long-Term Cultivation

In sum, if you were to pick just one thing you could do to improve your neurological capacities over time for the vital matter of empathy, your best bet would probably be regular meditation.

Immediate Practices

And while you are growing new circuits inside your head, here are some things you can do today that will also foster empathy:

- Pay attention. How often do we sustain even a few minutes of attention to another person? And others can sense it quickly if your attention wanders . . .
- Try to get a sense of the being behind the eyes of

the other person.

- Imagine the other person as a child. This is especially useful for people who are irritating or threatening.
- Find an interest in yourself for the other person.
- Ask questions. What was that like? How did you feel? What did you wish had happened? Etc.
- Look beneath the surface. What does the other person most deeply want?

Conclusion

More than anything else, empathy is the glue that joins us all together. By extending the circle of your empathy beyond "us" to include "them," the whole world becomes your home.

Thank you very much for your attention – and your empathy!



Offerings

Rick Hanson, PhD, and Rick Mendius, MD

1. We will be teaching three daylong workshops in the remainder of 2007:

- The Nondual Brain – A pre-conference workshop (offering CE credits) for the annual conference on “Nondual Wisdom and Psychotherapy.” We’ll apply perspectives from Dzogchen, Vedanta, Adyashanti, and other nondual streams to awareness and the release of the self contraction. Friday, October 26, San Francisco. (www.ciis.edu/publicprograms/fall07/embodied-description.html#neurology)
- Working with a Wounded Brain – With James Baraz (senior Vipassana teacher), we will apply neurodharma resources to brain conditions including clinical depression, organic ADHD, stroke, head injuries, and the cognitive decline of aging. Saturday, November 10, Spirit Rock Meditation Center. (www.spiritrock.org/calendar/display.asp?id=JB3D07)
- The Neurology of Awakening – This will reprise our original workshop at Spirit Rock, this time at the Sati Center in Redwood City (Gil Fronsdal is the head teacher there). We’ll cover how to nurture the brain states that foster the steadiness of mind leading to the deepest and most liberating insights. Saturday, December 1. (<http://www.sati.org/#dec1>)

2. On Thursday evening, October 25, with Fritjof Kapra, Stan Grof, Shauna Shapiro, and Jack Kornfield, we will be presenters at the annual 108 Blessings fund-raiser for the Spirit Rock scholarship fund. We feel humbled by this honor, and we encourage you to come to this event and support this worthy cause. (www.spiritrock.org/calendar/display.asp?id=108B07&type=benefit)

3. At Spirit Rock, in 2008, these daylongs are scheduled:

- The Neurodharma of Love, led with Sylvia Boorstein, on Saturday, March 29. Sylvia, as you may know, is quite extraordinary – sort of a cross between a Jewish grandmother and the Dalai Lama – and this workshop will be memorable.
- Equanimity, led with Christina Feldman, on Sunday, May 11. Christina is a senior Vipassana teacher from England who combines profound penetration with practical good humor. Equanimity is the key to freedom from emotional reactions, and to cutting the chain of craving and clinging that leads to suffering.
- The Neurology of Awakening, on Saturday, September 6 (see description just above).
- On Sunday, November 9, the topic is not yet 100% settled, but it is likely to be about relaxing the sense of self, not taking things so personally, and the underlying neurobiology of the core Buddhist idea of emptiness, or not-self.

The Heartwood Institute for Neuroscience and Contemplative Wisdom

The Institute is a 501c3 non-profit corporation, and it publishes the Wise Brain Bulletin. The Institute gathers, organizes, and freely offers information and methods – supported by brain science and the contemplative disciplines – for greater happiness, love, effectiveness, and wisdom. For more information about the Institute, please go to www.WiseBrain.org/Heartwood.html.

Methylation and Mood:

Why Folic Acid, B-12, and SAMe are good for you

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Methylation reactions are of great scientific interest because they represent one interface between nutrition and genetic expression. The process of methylation is simple: a group of atoms called a “methyl group” – one carbon atom with three hydrogen atoms hooked on to it – is added to molecules in the human body. This process has huge and complex effects all over the body, particularly in the brain! There is a lot of scientific evidence that methylation affects mood, and can help with depression. It is also possible that poor methylation is implicated in Alzheimer's disease. Overall, having good methylation process is very important for a healthy and happy brain.

One of the main methyl donors in the body is SAMe. Some of you may be aware that SAMe has been used as a natural antidepressant. It is a methyl donor, and as such, it improves mood. In our bodies, the efficient makers of SAMe, we must have adequate stores of vitamin B-12 and folic acid. Also, we need to have enough magnesium. So, taking any of these supplements, SAMe, B-12, folic acid, and magnesium, can increase methylation!

There are a couple of straightforward ways to tell if your methylation is deficient on standard laboratory tests that your doctor may order. The first is checking the size of your red blood cells on a complete blood count – a CBC. If the size of your red blood cells is out of range, or even in the upper end of the range, that is a sign of deficiency of folic acid and/or vitamin B-12. You can find indications of the red blood cell size in a marker called MCV (mean corpuscular volume) and, to a slightly lesser degree, MCH (mean corpuscular hemoglobin). If you

MCV is over 100, or even if it is 97 or so, this is usually a sign of B-12 and/or folate deficiency, which would cause a problem with methylation. If your MCH is over 32, or even moving in that direction, there might be cause for concern. A second marker is elevated homocysteine. This test is ordered less frequently. Elevated homocysteine occurs when there is a deficiency of folic acid, B-12, and/or vitamin B-6, and indicates a problem with methylation. Elevated homocysteine is considered a risk factor for cardiovascular disease and Alzheimer's disease. Many labs will say that a level of 12 is normal, but from a more refined health orientation, I would like your levels to be around 8.

If either of these signs are sub-optimal, begin taking vitamin B-12 and folic acid. For B-12, you must use a sub-lingual (under-the-tongue) pill. My favorite preparation is Jarrow's Methyl-B-12 5000, which has 5000 mcg. Except for having B-12 injections, this is the best way to absorb vitamin B-12. Increase your level of folic acid up to 2000 mcg. Sometimes, taking a special kind of folic acid, called 5-methyltetrahydrofolate, could be necessary. Notice if there is an increase in mood over a few weeks. If you want to further increase your methylation capacity, you can add SAMe to this mixture. You take SAMe 400 – 800 mg. per day, in an enteric coated pill on an empty stomach. But, you must keep taking your B-12 and folic acid. Do not add SAMe if your homocysteine is high until the B-12 and folic acid have lowered it. If you take SAMe and do not have enough B-12 and folic acid, you will actually increase your homocysteine, so it is important to take them together.

Fare Well

May you and all beings be happy, loving, effective, and wise.