

The Wise Brain Bulletin

News and Tools for Happiness, Love, Effectiveness, and Wisdom

Knowing and Living the Truth: The Perfection of Wisdom

Rick Hanson, PhD

Introduction

The person of wisdom is universally respected.

Whether it's someone who's wise about a particular subject – an experienced cook, a canny card player, a shrewd coach, a preschool teacher who's seen it all, a trout guide who knows his rivers like the back of his hand – or someone who has a deep wisdom about life itself – a grandparent or rabbi or therapist you've known may come to mind – we value that person's example and counsel.

But what is wisdom, actually? And how to acquire more of it?

While the world's spiritual traditions have no monopoly on wisdom, it has been a great subject for them, so it's worth seeing what they have to say about it. This

article will explore perspectives from Buddhism, in particular, integrated with my own observations about practical wisdom in everyday life.

The Paramis

Within the Buddhist tradition, wisdom (sometimes called “discernment”) is one of the ten “paramis” or perfections of a Bodhisattva, a highly awakened person who postpones his or her ultimate enlightenment to bring all beings to liberation.

These ten characteristics of a Bodhisattva include: generosity (*dana*), virtue (*sila*), renunciation (*nekkhama*), wisdom (*pañña*), energy/persistence (*viriya*), patience/forbearance (*khanti*), truthfulness (*sacca*), determination (*adhitthana*), good will (*metta*), and equanimity (*upekkha*).

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Hormones and Neurotransmitters

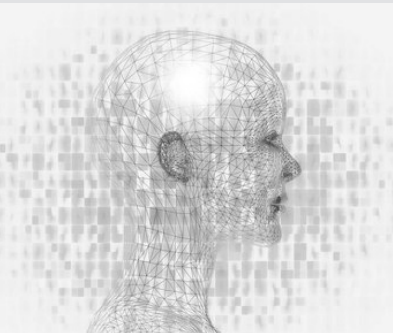
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Greetings

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. We welcome your contributions, and to subscribe, please contact Rick at drh@comcast.net.

In their most complete expression, the paramis integrate with utter compassion and skillfulness, and they are untainted by any kind of craving, self-centeredness, or positional views.

(Because the meaning of “wisdom” – compared to that of “discernment” – is broader in English and closer to the sense in which this notion is used in Buddhist practice, that’s the word that will be used in this article.)

Developing the Best in Yourself

Of course, these qualities of enlightened people are present to some degree

in us all. Even without being – or even aspiring to be – a Bodhisattva, it is a wonderful thing both to express these qualities as they already exist, and to cultivate them further in your mind and heart, in your thoughts and words and deeds. You are perfecting – progressively, step by step, in the slog sometimes of daily life – wholesome qualities and faculties for your own sake and that of others.

Ways to Approach This Article

You can read this article within a Buddhist framework or simply for its reflections on the deeply human and everyday matter of seeking some semblance of wisdom – even perhaps to the point of profound understanding.

(A note on this text: Words such as “parami” or “sila” are from Pali, the language in which the earliest surviving discourses of the Buddha were written. Some of this text is adapted from the Access to Insight site, to which great acknowledgement is offered. In particular, I’ve quoted extensively [with minor edits] from Bhikkhu Bodhi’s translation of *A Treatise on the Paramis* by Acariya Dhammapala.)

What is Wisdom?

Wisdom in General

The dictionary describes wisdom as the quality of having experience, knowledge, and good judgment. Synonyms for “wisdom” include: sagacity, sense, common sense, astuteness, judiciousness, and prudence.

The opposite of wisdom is not stupidity, but foolishness. Many very bright people are not very wise, and many people of average intelligence carry a deep wisdom.

You might like to consider these questions for yourself:

- What distinguishes wisdom from knowledge? From intelligence?
- What are you wise about in your own life?

Wisdom in Buddhism

In Buddhism, wisdom is one of the three major pillars of practice, the other two being virtue (*sila*) and meditative depth (*samadhi*).

Of these, wisdom is seen as most central, since it is wisdom which dispels ignorance. For it is ignorance, not “sin” in a religious sense, which is regarded in Buddhism as the true root of all that is harmful or evil. (Other terms used for this ignorance are delusion, confusion, and self-deception.)

For example, while concentration in meditation is seen as an essential skill, that alone will not carry a person to the farthest shore. One must also have insight – vipassana – and that’s what is ultimately transformative. (Though, to be sure, deep concentration is a great facilitator of liberating insight.)

Wisdom is vital because it peers through the veils of ignorance, confusion, and illusion into the heart of these three fundamental characteristics of existence:

- Everything formed of compounded elements changes. Therefore, no compounded thing is permanent. Not a thought, not a life, not the Hawaiian islands, not the Earth itself.
- Everything is connected to and interdependent with

everything else. Therefore, nothing has an inherent, absolute self-identity. Not an electron, not a tendril of foam on the sea, not a redwood tree, not your body or mind or “I.”

- Everybody suffers.

In Buddhism, the measure of true wisdom is its practical effectiveness, not its abstract or theoretical correctness. Since the overriding aim is the end of suffering, the essence of wisdom is knowing what leads to happiness for oneself and others, and what does not . . . knowing what’s wholesome and what isn’t . . . knowing which tunnels have the cheese and which do not.

Wisdom sees that clinging leads to suffering every time. Which tunnels never have the real cheese? The ones with clinging in them.

To say this a little differently, wisdom means a deep understanding of the Four Noble Truths: the fact of suffering, the cause of suffering, the cause of the end of suffering, and the way that both embodies and leads to the end of that cause.

The utter penetration into those four truths is the sphere of nibbana (*nirvana*); enlightenment is the perfection of wisdom. That is why wisdom is considered perhaps the most fundamental of the ten

perfections.

Six Aspects of Wisdom

Introduction

As you read through these aspects of wisdom, you might like to consider how they manifest in your own life – and whether you’d be served by focusing on one or more of them to develop in particular.

Consciousness, Awareness, “Wit”

Someone who is unconscious cannot possibly be wise. The root of the word, “wise,” is “wit.” Not wit as in Robin Williams or Oscar Wilde, but wit as in “having your wits about you,” or “he lost his wits.”

Penetration, Illumination

Wisdom has the characteristic of penetrating the real specific nature (of phenomena), like the penetration of an arrow shot by a skillful archer; its function is to illuminate the objective field, like a lamp; its manifestation is non-confusion, like a guide in a forest . . . Greed, hatred, and delusion create blindness, while wisdom restores sight. Just as light cannot coexist with darkness, wisdom cannot coexist with delusion.

Acariya Dhammapala

Seeing Context, Connections, and Causes

Wisdom means seeing the big picture. It is the antithesis of tunnel vision, narrow mindedness, missing the forest for the trees.

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 suggested donation for each month of the program is \$40 (and less is gratefully accepted). To register, contact Guisela Luster at drhh@comcast.net or simply arrive fifteen minutes early.

Upcoming dates and topics:

- 4/10/07 – Your precious life: Being on your own side, releasing feelings of shame and guilt, establishing fundamental priorities
- 5/8/07 – Refilling your cupboard: Improving your body’s molecular balance sheet of assets and liabilities
- 6/12/07 – Concentration: The neurology of stable attention, and how to activate it

Wisdom is relational. It connects the dots, sees the patterns, recognizes the deer in the brush from a flicker of white in shadow.

Wisdom understands what the Buddha called dependent origination, a pithy term for the simple fact that everything that is, is part of one whole web of existence.

More than anything, wisdom sees what hurts and what helps. To quote Padmasambhava, the great Tibetan sage: *Your view must be as vast as the sky, but your conduct must be as finely sifted as barley flour.*

San Rafael Meditation Group

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 formal instruction at 7:00, ending at 7:30, with a dharma talk and discussion ending at 8:30. It is co-led by Rick Hanson and Manny Mansbach, and for more information, contact Rick at drrh@comcast.net.

Knowing What's Important

Wisdom keeps its eyes on the prize. It knows what matters most. There is no wisdom in the absence of deeply considered values and priorities. To be wise, you must be prepared to say, "I value this over that."

It's sometimes said that great wisdom is value-free. For example, one might perceive that attitude in this saying from the 3rd Patriarch of Zen: *The Great Way is easy. For one with no preferences.*

But of course, he and other sincere practitioners value the Great Way, and they value the mind of no preferences as skillful means, compared to the ordinary mind awash in preferences.

Balance and Perspective

Wisdom takes the long view. It pursues the middle course. Like Goldilocks with the three bears, it looks for the porridge, the chair, the bed, and the life that is "just right."

Skillful Action

Wisdom *acts*. That activity may be entirely internal, or it may be the activity of restraint, but it is action nonetheless.

In other words, wisdom is nothing if it is not engaged with the mind and the world. We must *live* our truth, not merely know it.

Benefits of Wisdom

As noted, it is wisdom that leads to the end of suffering:

Only by means of wisdom can [the practitioner] remain at peace with the vicissitudes of the world, such as gain and

loss, without being affected by them.

Acariya Dhammapala

Wisdom is the chief cause for the practice of the other paramis. For example, only the person of wisdom can patiently [one of the paramis] tolerate the wrongs of others, not the dull-witted person. In the person lacking wisdom, the wrongs of others only provoke impatience; but for the wise, they call his or her patience into play and make it grow even stronger.

Acariya Dhammapala

Compassion and Wisdom

This is a beautiful, extended meditation by Acariya Dhammapala on the integration of compassion and wisdom, the jewel in the lotus:

Through wisdom the Bodhisattva brings himself across the stream, through compassion he leads others across.

Through wisdom she understands the suffering of others, through compassion she strives to alleviate their suffering.

Through wisdom she aspires for Nibbana, through compassion she remains in the round of existence.

Through compassion he enters samsara [the ordinary world], through wisdom he does not delight in it.

Through wisdom she destroys all attachments, but because her wisdom is accompanied by compassion she never desists from activity that benefits others.

Through compassion she shakes with sympathy for all, but because her compassion is accompanied by wisdom her mind is unattached.

Through wisdom he is free from "I-making" and "mine-making," through compassion he is free from lethargy and depression.

For when their wisdom-eyes open up, the great Bodhisattvas give even their own limbs and organs without extolling themselves and disparaging others. They give devoid of discrimination, filled with joy.

Impediments to Wisdom

One of the great barriers to wisdom is adopting a narrow, parochial, self-centered view. Then we can't see a situation from multiple angles, weighing them and combining them into the balanced, nuanced, integrated, comprehensive perspective that is the hallmark of wisdom.

In this sense, the opposite of wisdom is "egocentrism," a term from developmental psychology for being locked into one's own frame of reference. Everyday terms for this include tunnel vision, having blinders on, and narrow-mindedness. Bottom-line, when it's all about "me," wisdom goes out the window. As Acariya Dhammapala puts it bluntly: *Discriminating thoughts of "I" and "mine" are the defilement of the perfection of wisdom.*

We can see it in others when they're stuck in their view. Can we see it in ourselves, too?

Further, consider these additional "causes of delusion" – the opposite of wisdom – from Acariya Dhammapala. Try to look past the traditional language, some of which comes from a monastic tradition, to the perennial heart of the matter; for each one of the causes listed below, you might ask yourself: How could that be at work in my own life? What could I do to make things better?

- *Lack of enthusiasm for knowledge, non-investigation*
- *Lethargy, not maintaining one's body properly, lack of mental concentration, lack of a sense of spiritual urgency*
- *False over-estimation of oneself*
- *Self-contempt*
- *Adherence to perverted*

- *Discontent*
- *Irresoluteness*
- *The five hindrances [greed, hatred, sloth and torpor, restlessness and guilt, doubt]*
- *Or, in brief, any states which, when indulged in, prevent the unarisen wisdom from arising and cause the arisen wisdom to diminish*

How to Develop Wisdom

We become increasingly wise through three great wellsprings: learning, reflection, and penetrating insight into the nature of things.

Wisdom Born of Learning

It is hard, if not impossible, to be wise without an underlying knowledge base. One of the major reasons for getting an education is that it is a prerequisite for wisdom. That doesn't mean being able to remember chemical formulas or the important dates of the French Revolution, but it does mean retaining a foundation of facts and skills that enable one to confront the world with an understanding of what its made of and how it got to be the way it is today and how to pull its levers.

This knowledge base is acquired in part through formal



The Heartwood Institute

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.

instruction of one kind or another – reading in grade school, coaching in the batter’s box, Uncle Bob showing you how to carve a turkey – but it mainly comes through experience.

Learning doesn’t stop with a high school diploma. Some people seem to have a steep

learning curve as they go through life, others have a shallow or flat rate of learning, and some seem to know less and less as the years go by!

How about you? Are there things you’d like to learn more about but have been putting off? What would steepen your own learning curve?

In a specifically Buddhist context, I find the awkward formality of Acariya Dhammapala’s statement about learning oddly charming as well as inspiring:

The sphere of Buddhist learning includes the five aggregates, the four truths, the foundations of mindfulness, etc., as well as any blameless secular fields of knowledge which may be suitable for promoting the welfare and happiness of beings.

Thus, with wisdom, a Bodhisattva should first thoroughly immerse herself in this entire sphere of learning, and then she should establish others in learning.

Wisdom Born of Reflection

Learning entails a kind of stepping into a subject, immersing ourselves in it. Next, in a natural rhythm, there is a stepping back to consider and reflect upon what we have learned. We weigh its importance, put it in its place beside other knowledge and skills, and perhaps even reflect upon our own process of learning. Sometimes we reflect about reflecting, itself.

There is a spacious, open quality to reflecting. A musing, a kind of gentle maintaining of a focus that allows new combinations of knowing to coalesce.

Anything can be the subject of our reflections: the complexity of helping an infant sleep through the night, human good and evil, the best way to approach a sticky situation at work, whatever.

In Buddhism, the central subject is the release from suffering. Productive reflections on that topic keep coming back to one’s own life, instead of generic or philosophical speculations – what the Buddha called “a thicket of views.” So, you might like to reflect upon these questions as they apply to your own real life:

- What is my experience of suffering? Especially in everyday (often mild) forms such as stress, tension, unease, sadness, disappointment, irritation, discomfort, guilt, dismay, illness, separation, frustration, etc. . . .
- What causes me to suffer? Particularly consider everyday forms of clinging: chasing the pleasant, resisting or avoiding the unpleasant, brushing aside the neutral in search of the pleasant, holding onto viewpoints, taking things personally, promoting “me, myself, and I,” etc.
- What leads to less suffering? Especially simple, do-able things such as chasing fewer brass rings, not comparing yourself to others, slowing down, disengaging from consumerism, not sweating the small stuff, being kinder to others, telling the truth to yourself about what works and what doesn’t, learning from people are skillful at not suffering, being on your own side, having compassion for yourself, taking good care of your body, taking in good experiences, living in a moral way, etc. etc. etc.

Wisdom Born of Insight

Insight is a kind of “ah-hah,” a light of clarity that sees to the bottom of the well. In daily life, insight might show up as a realization about why the darn car won’t start, or what’s really bugging your spouse about your parents, or the true costs of that second glass of wine you have each night.

In a certain sense, you can’t just make insight happen. It needs to be invited, often through sitting with a question, and waiting patiently for the answer to arise in your mind.

For example, consider a recurring problem or difficulty in your life. You could muse about it for a few minutes while gently bringing a question to bear, like: “What’s really going on here? What’s the heart of the matter? What really needs to happen? What am I not seeing?”

In the Buddhist context, insight is regarded as the gold standard, the fundamental source of “the unshakeable deliverance of mind.” It is penetrating insight into the true nature of existence that is liberating, the peeling back of all obscuring veils, even the very subtlest. And this valuing of revelatory clarity about capital-T truth is shared in all the mystical traditions of the world.

In Buddhist practice, enlightening insight is seen as being the fruit of moral conduct, emotional equanimity, and a highly concentrated mind; note that the second and third of these entail the cultivation of a very trained brain. In the words of Acariya Dhammapala:

There is no [ultimate] wisdom in the absence of [deep] meditation (jhana), since concentration is the proximate cause of wisdom. . . . Without concentration one cannot secure one’s own welfare, much less provide for the welfare of others.

Then, what does liberating insight discern? Here is Acariya Dhammapala’s answer, a pithy summary that is worth unpacking and taking your time with:

Therefore, one should perfect the wisdom born of meditation by developing a full understanding of all internal and external phenomena without exception as follows:

“This is mere mentality-materiality, which arises and ceases according to conditions.

There is here no agent or actor.

It is impermanent in the sense of not being after having been.

It is suffering in the sense of oppression by rise and fall [coming and going].

It is non-self in the sense of being unsusceptible to the exercise of mastery [permanent control].”

Cultivating Wisdom in the Modern World

The Machinery of Confusion and Illusion

To solve any problem – including the problem of ignorance, confusion, and delusion that is the source of suffering – one must first face it, name it, and understand it.

Look around you and consider all the engines of ignorance, etc. in your local life and in the wider world:

- The power of group-think, prejudice, unstated presumptions, etc. in families, workplace settings, local communities.



- Floods of input pouring into everyone’s brains every day, at a pace, variety, and intensity that is utterly unprecedented in human evolutionary history, let alone 80 million years or so of development of the mammalian brain. We’re built to handle this fire hose of incoming information for short periods of time, but the steady stream is inherently stressful and overwhelming. As a result, we both tune out and numb out: Monsoon floods drown thousands in Bangla Desh? That’s too bad. Another political scandal? Whatever. Global warming? Too big to think about.

- Media and consumer culture endlessly fanning the flames of desire. Just opening your mailbox or walking through the mall to get a T-shirt or watching a little TV usually means being inundated by ads forever promising pleasures they can’t possibly deliver.

- The glorification of self, me, I: a culture of everyday narcissism; people getting enraged on the freeway because you delayed their arrival at work by 20 seconds; children convinced they are big frogs in small ponds

- The distortion of science, the intimidation and even

murder of journalists, the censoring of the internet, the burning of books, the fatwas against intellectuals, etc. all to promote political or religious ends.

Do not underestimate the world of wonders. Do not underestimate the subtle spinning of your viewpoint by others. Do not underestimate the powerful messages flying under your radar in the backgrounds or built-in assumptions of entertainment and advertisements. As George Orwell said, *To see what is in front of one’s nose needs a constant struggle.*

“I See You, Mara”

The key to breaking through the fog is to recognize it as fog.

In the more mythical renditions of the Buddha’s night of awakening, it is said that he was confronted multiple times by Mara, the Lord of Illusion in the Hindu pantheon. Each time, the key to dissolving Mara’s spells was simply to recognize that he was casting them.

So consider how your own capacity to see the truth – and to name to yourself when it is being obscured, falsified, distorted, portioned out like cookies at camp, and so on – may have been suppressed or blunted in your childhood or by your culture.

And to put that in a larger context, consider that one of the first things a tyranny works to do is to undermine and punish the naming of the truth.

Steadiness of Mind

This is what holds the spotlight of awareness stably on what actually is, and what keeps wisdom about what is stably in the forefront of your mind.

The world today is so incredibly *distracting* that we need more steadiness than ever.

Steadiness is cultivated by concentration practices of any kind, from slowing your heart beat to putt better in golf to watching the flies hatch on the surface of a trout stream to keeping your mind in the room during a boring business meeting. And in contemplative practice, steadiness is cultivated through various concentration techniques, such as relentlessly but gently returning attention to the

Words of Wisdom

Do not travel to other dusty lands, forsaking your own sitting place; if you cannot find the truth where you are now, you will never find it.

Dogen

There is another universe, of the heart of man
That we know nothing of, that we dare not explore
A strange grey distance separates
Our pale mind still from the pulsing continent
Of the heart of man
Forerunners have barely landed on the shore
And no man knows, no woman knows
The mystery of the interior
When darker still than the Congo or Amazon
Flow the heart’s rivers of fullness, desire and distress.

D. H. Lawrence

Great questioning, great enlightenment; little questioning, little enlightenment; no questioning, no enlightenment.

Dogen

A knowledge of the path cannot be substituted for putting one foot in front of the other.

M.C. Richards

sensations of the breath at the upper lip.

Restraint

We all know at least one thing that “fool-mind” thinks will make us happy, but wise mind knows will not.

In a media world designed by the greatest minds of our generation to breed lust and greed in every nook and cranny of your mind, can you walk through a mall or supermarket or Sharper Image catalog without being tugged in a thousand directions?

Can you guard the “sense doors” of seeing, hearing, touching, tasting, smelling, and mental activity?

Can you watch the movement of desire in your mind? The stimulus . . . the pleasant feeling tone . . . the hopefulness that this will bring pleasure . . . the craving . . . the clinging . . . the frustration that it’s not so great or impossible to have or fleeting anyway . . . the suffering.

Try an experiment: for a minute or an hour or a day, restrain your habitual impulses toward something, and see what happens. Just that will help you see your world and yourself more clearly.

Aiming for Continuity of Wisdom

We all have *moments* of wisdom. The trick is adding to those beads on the necklace of life until they become a continuous strand.

Here are some ways you could try:

- Take refuge in sanctuaries and wellsprings of wisdom. In Buddhism, the classic refuges are the teacher, the teachings, and the taught. Or to put that a little differently, those refuges are the innate capacity within you and me and everyone to awaken from suffering, reality itself and the accurate description of it, and the company of good and wise people. And all the other religions of the world, and any real path of psychological development, have their own refuges as well.

What are your own best refuges? Sometimes they are very tangible: a nightly bubble bath, laughing with friends, a favorite book of prayers, stroking a cat, or simply walking under trees. In other cases,

important refuges are more ineffable:

the memory of a beloved grandparent or teacher, a certain saying, a peaceful sense of the universe or something transcendent, or a remembrance of your own resolutions toward the good.

What works best for you? How could you bring those refuges more into your own life? You might like to experiment with something that has proven to be very wonderful for me, which is to take refuge every day in a particular list of things that always feeds and touches my heart; what would your own list contain?

- Help the lessons of life really sink in by paying attention to what you realize: it’s hard-won, and don’t let it go lightly. Other ways include journaling, telling others, collecting insights and admonitions, and making collages,
- Fertilize the wisdom brewing and stewing and swelling below your conscious mind. That’s where the great repository of wisdom resides. You could try listening more to what some have called “the still quiet voice” in the heart. Or opening up more to the play of intuition in your life, or to a sense of inner guidance, or to the felt or nonverbal rather than to the verbal voices chattering in the back of your head.
- Act on what you know. And act again. That concretizes wisdom in your life and makes it real.

To help yourself, try making commitments, adopting practices, undertaking precepts. Try going public with your commitments, and ask others to support you in sticking with them.

- Keep cultivating wholesome intentions. It is easy to fall into the trap of regarding wisdom as something that one accumulates over time, like a treasure chest full of sparkling lights. But real wisdom is not so much a

From our Contributors

Walking the great walk,
Letting go of attachments,
I am coming home.
- Jerry Freedman

We invite your own offerings: sayings, poems, pictures, facts, brain news, etc.

collection of *things* as it is a growing inclination toward whatever is wholesome for you and those you care about.

Those inclinations, those tendencies, take up their own

authority in your backbone and first thoughts. Then there is always a kind of forward leaning toward the good in your approach to everything, giving a gentle downhill slope to the precious long walk of your life.



Smell and Memory

by Rick Mendius, MD

Recalling a whole memory on a whiff of a specific odor is an experience that most of us have known. This is sometimes referred to as the “Proust effect”, from an experience that Marcel Proust described in “Swan’s Way”. The memory arises, complete with its emotional tone, in a way that feels like the original experience. It happens unconsciously when we experience that particular odor. What is going on here and how can we use smell to aid us in positive ways?

The olfactory neurons are located at the top of the nostrils, toward the back of the nasal passages. They cover an area about 2 by 2 centimeters in humans, and there are about 10 million of them. Each olfactory receptor neuron has one of the 350 functional receptors

that humans use. The receptors respond to the physical structure and the molecular vibrations of the odorant molecule, and the receptor neurons fire. A particular odor is perceived as a response of the entire olfactory bulb, a pattern of activity across the receptors that is unique to the odorant chemical. That signal is organized in the olfactory bulb and is sent back to the brain to a series of structures in the limbic system (amygdale, septal nuclei, prepyriform cortex, entorhinal cortex, hippocampus, and subiculum), the thalamus and thence to the frontal lobes, and to the hypothalamus.

Interestingly, the olfactory sense is the only sense that gains access to the limbic system before the sensation is relayed to the higher cortical structures for perception

and identification. We therefore respond to smell in an involuntary subconscious way. Smell responses occur in newborns, and a baby can differentiate a gauze pad worn by his/her breast-feeding mother and another lactating woman as early as three days. Mothers can also identify their own newborns odor after about 10–60 minutes of exposure.

Some responses to smell can be conditioned. Pairing a smell with insulin injections can result in the smell causing a drop in blood glucose just on its own. So a physiologic process that appears to have little to do with an odor can be influenced by conditioning. In addition, using the smell of peppermint can enhance alertness and performance all on its own.

There is an interesting study of memory, sleep, and odor that was recently published in Science magazine. Subjects were trained to match pairs of cards by turning only one card over at a time (like the game “Concentration”). Some of them were exposed to rose scent during the training. They then slept in an MRI machine (no small accomplishment), and were exposed to the rose odor at various portions of their sleep cycles. When the subjects got the odor, they improved their recall from 86 to 97.2% of the card pairs the next day. They didn’t improve if they didn’t get the odor. Also, they didn’t improve if the odor was presented during REM sleep, when we have our vivid dreams. Interestingly, the hippocampus was activated by the rose odor. Since the latest evidence suggests that the hippocampus and the cortex work together during sleep to transfer memories from temporary to

permanent storage, this may explain how memories can be better encoded by smells.

So how do we use this knowledge? It seems that we can use the heightened access of smells to memory to promote alertness and increase memory. Some data suggests that aroma therapy can alter mood and affect relaxation, although the latest research suggests that mood alteration and odor is probably paired association. Since this system is hardwired and ancient and subconsciously powerful, we can use our knowledge about the smell system to effect our future performance.

For example:

- Using activating odors, such as peppermint or rosemary, when we need to be more alert.
- Use particular scents during your relaxation exercises, to associate those scents with the sense of peace and ease. Then take the scents with you in a small vial, to help relax you at other times.
- Vitamin A and Zinc supplementation can enhance the olfactory function, and help you maintain your sense of smell and add flavor to your life.



The Dance of Hormones and Neurotransmitters

Jan Hanson, MS, LAc

Most women past the age of thirteen sense an interaction sometimes between their mood and their hormonal state. Why is this?

Well, in fact, hormones and neurotransmitters – the chemical communicators in the brain – are interconnected in a very complicated web, which science is only beginning to understand.

Estrogen is the primary “female” hormone, and it’s intimately related to serotonin, a neurotransmitter that helps us feel at peace and happy. In fact, some studies have shown estrogen to function like a natural Prozac, inhibiting of the breakdown of serotonin, and making serotonin more potent in the brain. When estrogen goes down, serotonin – and happiness - go down, too.

Progesterone is another very important hormone for women. It interacts with a neurotransmitter called GABA, which helps us feel relaxed and calm. Progesterone does this by stimulating the GABA receptors in the brain, which has the net effect of making GABA more potent. Therefore, when progesterone decreases, the effect of GABA can diminish, leading us perhaps to feel more irritable and anxious.

These hormones have a rhythm throughout the life of a woman. Over the course of a month or so, estrogen and progesterone interact with each during the natural menstrual cycle. And over the course of adulthood, as a woman approaches menopause, typically her progesterone levels begin dropping years before she actually stops having a period. Additionally, estrogen levels are often somewhat erratic in the years right around menopause, and they ultimately drop fairly dramatically as a woman stops cycling.

Because there is an interaction between hormones and neurotransmitters, there are many types of interven-

tions for hormone-related blues. Besides using hormones directly (typically, with a prescription), one can enhance the neurotransmitters they affect.

For example, the nutrient 5-HTP, which is converted into serotonin, can be a very good intervention for premenstrual syndrome or for menopausal blues. If sleep issues are a problem, the amino acid, tryptophan – taken right before bed – may be more useful than 5-HTP. Last, theanine – another nutrient – can gently help enhance the function of GABA if hormonal ups and downs are creating a feeling of anxiety.

Please see earlier columns in the Wise Brain Bulletin for more information on these substances, including dosages and cautions. In particular, unless a licensed provider instructs you to do so, you should not take any serotonergic agent such as 5-HTP or tryptophan if you are already using an antidepressant.

And of course, there are many other steps that could help:

- Mindfulness and meditation practices, observing the ups and downs without being so identified with them . . . and carried along by them.
- Routine exercise
- Social support; this has a particular psychological and hormonal benefit for many women
- Focusing on the positive (e.g., good news about yourself and the world around you, what you’re grateful for), savoring the experience, and feeling it sink in

Last, to put this topic in perspective, I’d like to add that:

- Men also naturally produce a little estrogen and progesterone in their bodies, while women have a little



testosterone, illustrating one aspect of the deep underlying commonalities of the genders, which can get overlooked sometimes in the focus on differences.

- There is a lot of individual variation in hormonal levels, patterns of interaction, and effects. Beware the common pitfall of assuming that a conclusion from some study – usually based on the average of the group of subjects – applies

equally to every member of that group, and to the population as a whole. For example, you'll routinely see statements like, "Women want more closeness than men do;" well, probably the average woman does, but there are also many men who want more closeness than many women do. Your biochemistry – let alone your whole nervous system! – is as individual as a snowflake, and always deserves personalized consideration.

- Women go through hormonal cycling, both monthly

and over their life time, for the sake of the perpetuation of the species, one reason among many to hold the effects of that cycling on them (and sometimes others) in a context of compassion and respect.

- Over the centuries, female hormonal cycling has been the subject of religious awe, crippling taboos, profound misunderstandings as to its nature, subtle and not-so-subtle shaming, and in many groups, considerable efforts at social control by men. In our own time, that cycling has been used as a pretext to deny women political authority as well as many everyday opportunities at work and elsewhere; on the other hand, in part as a counter-reaction to that discrimination, there've been attempts to minimize the effects of the hormonal dance inside a woman's body.

Yet at the end of the day – or month, or one's 50's – the body still has its say, independent of whatever religious, cultural, or political story we tell about its natural and necessary activities. It just is what it is. It's just biochemicals rising and falling, like the breath rising and falling. It's just the wheel of life turning. It has an objective nature beyond all our subjectivity. And if you like, you can use skillful means to gently nudge that nature in what could be for you a more comfortable and ease-full direction.

Offerings

Rick Hanson, PhD, and Rick Mendius, MD

We've been bowled over by the wonderful support for and interest in the tools for well-being and spiritual depth found in the intersection of psychology, neurology, and the contemplative traditions. So we'd like to let you know how you can learn more about what we call "applied neurodharma" and how it could benefit you and those you touch.

If you live in the San Francisco Bay Area, please consider the weekly meditation group in San Rafael, and also coming to the monthly Train Your Brain class.

Outside the area, you can listen to our talks and read all our materials on the www.WiseBrain.org website, plus check out other features, such interesting news about the brain, or the new page that's going up soon on Christian contemplative practices.

Additionally:

1. You might enjoy a short video clip of Rick Hanson talking about the brain on the Starfish Health website, at <http://www.starfishpartners.com/provider/profile/videos.php?providerUId=175&clipUId=19>

2. In the next month or so, we will be offering a distance-learning version of the Train Your Brain course through Starfish Health Partners. We will email you with the details.

3. On May 18, Rick Hanson will be presenting at the Kara Conference in Millbrae, California, on “Grief Recovery: Implications of Neuroscience and Contemplative Wisdom,” followed by an afternoon workshop on using psychotherapy and other resources.

4. We will be teaching two daylong workshops at Spirit Rock Meditation Center in 2007. Go to www.SpiritRock.org for information and to register. Details are slightly up in the air as of this publication date, but “the Rick and Rick show” is scheduled for both August 11 and 12, and November 10. That latter date is especially exciting for us since it is about:

- On One Wing and Two Prayers: Practicing with a Wounded Brain – This will be taught with James Baraz, a founding teacher of Spirit Rock and the source of the fantastic Awakening Joy course. It is for people interested in well-being and contemplative depth who are also grappling with depression, significant anxiety (or trauma), ADD/ADHD, head injury, or dementia – and for caregivers who work with them.

5. Tentatively scheduled for early September, we are going to do a small “dress rehearsal” of what will become an annual, inter-faith conference – working title: “This Is Your Brain on God” – applying neuropsychology to the similarities and differences in contemplative practice in Buddhism, Christianity, Judaism, Islam, Hinduism, and shamanism. We’ll use the dress rehearsal (and maybe another one) to plan the first official conference, scheduled for the Fall, 2008, in partnership with major institutions. The principal organizer of the conference is Dr. Andrew Dreitzer, a professor at the Claremont School of Theology and the Graduate University.

6. On October 6, 2007, with Christina Feldman

Grateful Wonder

With mounting evidence of global climate change all around us, it’s worth reflecting on the beautiful, fragile singularity of our home planet. It will outlast all our smokestacks and fossil fuels and controversies, and homo sapiens itself, yet nonetheless the fundamental moral principle in all cultures and religions is that great power bequeaths great responsibility.

We know how the past seven generations have exercised their stewardship of the land and water and air. How will the next seven generations manage that responsibility? And how will the earth look, then, from the same vantage point as in the pictures in the links below?

#1	http://antwrp.gsfc.nasa.gov/apod/ap070320.html
#2	http://antwrp.gsfc.nasa.gov/apod/astropix.html
#3	http://antwrp.gsfc.nasa.gov/apod/ap060101.html

– a senior Vipassana teacher and a wonderful person
– we’ll present a workshop on deepening equanimity from psychological, neurological, and dharma perspectives. Yes, equanimity is definitely not a sexy topic. But it is a profound one, at the heart of both handling painful experiences and liberating the mind from clinging. Please let us know if you’re interested in this topic, and we will keep you posted with the details.

7. On October 26, we will be presenting a daylong workshop at the Conference on Nondual Wisdom and Psychotherapy, which is co-sponsored by The Center for Timeless Wisdom, the Association for Transpersonal Psychology, the Institute of Transpersonal Psychology, the California Institute of Integral Studies (CIIS), the Association of Humanistic Psychology, the Spiritual Competency Resource Center, and John F. Kennedy University. Continuing ed units will be offered, and you can register by contacting CIIS.

8. In 2008, we will co-lead a workshop with Sylvia Boorstein, beloved Spirit Rock teacher, on the neurodharma of love. In this interactive and sometimes experiential workshop, the topics will include relational mindfulness, interpersonal neurobiology, attunement, empathy, compassion, lovingkindness, and familial and romantic love. Most likely this will be held at Spirit Rock, and we’ll keep you posted about the date.

Fare Well

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